



**GLOBAL LEADER IN
BROADCAST QUALITY
LIVE VIDEO OVER IP**

ZEN MASTER User Guide

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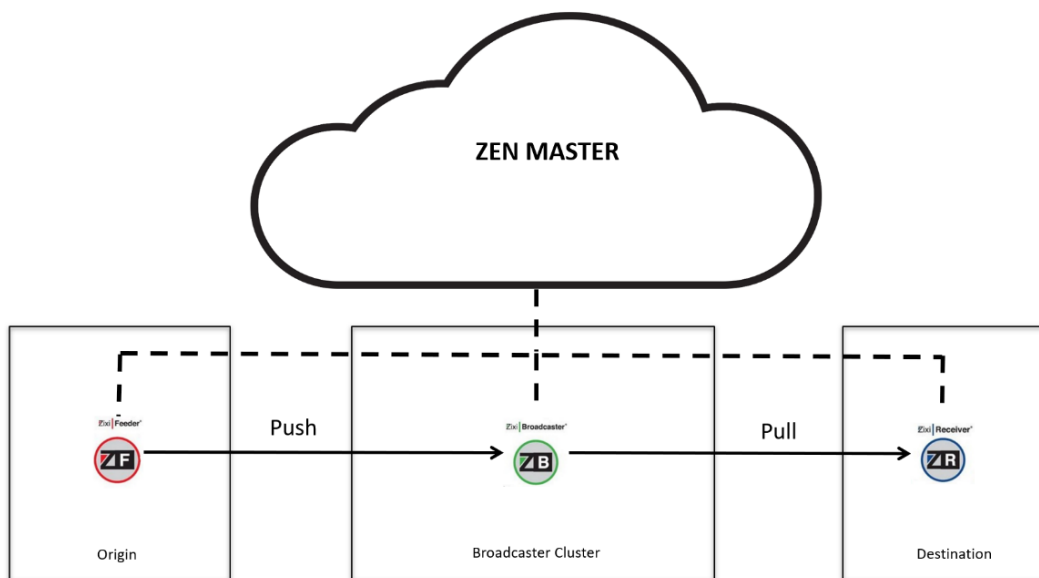
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Introduction to ZEN Master

Overview

ZEN Master is a cloud-based live video orchestration and monitoring control plane that provides a centralized view of the entire Zixi Software Defined Video Platform (SDVP) deployment. With ZEN Master your entire global video delivery network, from acquisition to delivery, is managed from a single pane of glass. You can configure, orchestrate, manage and monitor live broadcast channels at scale across industry protocols, covering an entire supply chain of integrated services and devices.



- Simple Task Oriented Management** - Instead of configuring inputs and outputs on each individual component throughout the entire deployment, ZEN Master abstracts the underlying infrastructure into simple task-oriented processes. For example, instead of configuring input and output streams on independent components for acquisition/aggregation, processing, and distribution, you can simply define a live linear Channel, and the entire configuration is setup automatically, including redundant components for ultimate resiliency.
- End-to-end Orchestration** - Once all the resources have been configured, ZEN Master orchestrates all the resources along the path to create an end-to-end live streaming delivery platform. By managing the entire supply chain in one place, ZEN Master enables ongoing monitoring of the Channels and the underlying resources. This includes their status, resource consumption levels (e.g. CPU and Memory consumption levels), all the events and errors, and more.

- **High availability** – instead of manually configuring redundant components and ensuring a comprehensive end-to-end high-availability setup, ZEN Master automatically takes care of the high-availability of its streaming Channels. All you have to do is set up Channels and ZEN Master takes care of the rest, enabling automatic failover in case of unavailability, including multi-region deployment architectures.
- **Advanced security** - ZEN Master offers advanced security features that ensure privacy and security for multi-tenant deployments. In addition to the security solutions offered by the underlying cloud hosting providers, ZEN Master offers robust yet simple access and permissions management based on Tags. This type of permissions scheme provides granular control on the resource, object (e.g. Channels), and action levels (e.g. receive notifications). In addition, the communications between the Zixi Feeder and the ZEN Master service are secured by SSH tunnels.

Centralized Management

ZEN Master makes it easy to manage hundreds of live streams, while supporting any signal paths, including point-to-point, one-to-many, multi-cloud or multi-CDN using a variety of wide variety of industry protocols (e.g., Zixi, RIST, SRT, HLS, RTMP, and others).

Physical resources, such as Zixi Feeders, Zixi Broadcasters, and Zixi Receivers are centrally managed along with the following logical entities:

- **Broadcaster Cluster** – a logical entity comprising one or more Zixi Broadcasters for load balancing purposes.
- **Sources** – a logical entity that represents a single video content stream coming from a Zixi Feeder or another contribution device. A Source may also consist of multiple physical streams with the same video content, which are combined together for failover purposes.
- **Channels** – a logical entity that represents the type of processing, if any, to perform on the video content. The Channel is connected to either a single Source or two Sources in a Primary/Backup configuration and, on the other end to one or more Targets.
- **Targets** – a logical entity that represents a single video stream from a Channel being distributed to a Zixi Receiver or another endpoint device. A Target can be connected to a single Channel only.

Together these physical and logical entities help create new live channels and spin up required streams on the fly.

Acquisition and Delivery

Live-stream workflows are easily created using a set of tools for configuring and orchestrating the delivery across an entire video content creation and distribution network. ZEN Master manages inputs from 3rd party source devices and Zixi-embedded encoding systems and delivers to destinations such as the following:

- Deliver HLS and MPEG DASH to AWS S3 and HTTP File Storage targets
- Deliver RTMP to CDNs and DMVPDs/OVDs
- Deliver MPEG TS to Zixi Receivers and IRDs
- Deliver to multiple CDN targets

Health Monitoring

ZEN Master offers the ability to monitor the entire operation, while quickly drilling down to specific network segments, at the stream and device levels. Users can easily manage system health by quickly verifying that all sources are connected and streaming content, as well as view in-depth network and transport (TR101) visualization and history. Health monitoring can be viewed through the screens of the various resources (e.g. Broadcasters, ZECs, Sources, Targets) and through the following views:

- **Dashboard** –provides a centralized view of the open issues across all the deployment components, their statuses, and event logs.
- **Maps** – provides a geographical view of the deployment using maps. The maps display the location of your physical devices and logical entities, the direction of signal flow, and the operational status of each device and connection.
- **Grids** – provides a thumbnail view of the live and a color-coded status of each source, while displaying content quality warnings such as audio clipping, frozen video, and more.
- **Channel view** – provides an abstract view of the relationship between Contribution devices (Zixi Feeders or Feeder SDKs integrated into encoders), Zixi Broadcasters, and Zixi-enabled endpoints (e.g., ZECs or IRDs with integrated Zixi SDK).
- **Source view** – provides history graphs showing network performance from the Source device to the Broadcaster.
- **Broadcaster view** – provides history graphs showing server performance
- **Target view** – provides history graphs showing network performance from the Broadcaster to the Target device.
- **Preview with VLC/WebRTC** - offers the ability to monitor the stream by previewing it using a local VLC player or using webRTC for playback in the browser.
- **Alerts and notifications** - instant alarms and email alerts across contribution or delivery.

Deep Data Analytics

ZEN Master offers in-depth data analytics for monitoring issues. In addition to the basic monitoring parameters, such as Jitter, RTT, total packet loss, and total unrecovered packets, ZEN Master offers the following in-depth data analytics with a historical view of up to a year:

- **Content Quality Analysis (CQA)** - Detects frozen video, blank pictures, silent audio and audio clipping.
- **TR101 Analysis** - Detects TR 101 priority 1 and priority 2 issues within the stream.
- **Perceptual Quality Analysis** - Provides perceptual quality analysis of the video content with **estimated PSNR (ePSNR)** and **estimated VMAF**.

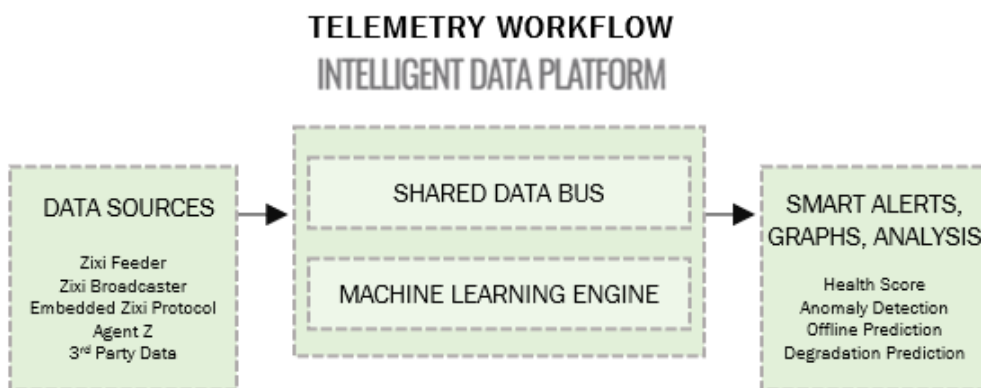
Intelligent Data Platform (IDP)

Using advanced analytics, machine learning and AI, the IDP can intelligently alert users to problems before they happen through alerts, graphs, maps, charts and data visualizations that enable users to quickly interpret vast amounts of stream data and ensure broadcast-quality results.

The IDP analyzes the data and creates benchmarks using descriptive analysis of broadcast metrics such as anomaly detection, encoder quality, round trip time and dropped packets to create predictive models that alert to the likelihood of certain events such as stream failure and content quality issues.



IDP currently analyzes data only for Zixi protocol streams.



Multi-Object Correlation Analysis (MOCA)

IDP's multi-object correlation analysis automatically groups errors into incidents, by determining correlations between individual-object incidents. The incidents are reported when there are 3 or more Sources, Targets, or Broadcasters having errors at the same time that share a common resource (see shared resources definition below), and when at least 50% of the

objects that share that resource are experiencing errors at the same time frame of 10 minutes. Errors that happen on these objects within 10 minutes of a previous error are grouped together into the incident. It is possible to have multiple related incidents if there is a period of more than 10 minutes without any errors. In some cases, if there are multiple shared resources, the system may also report multiple related incident records.

The shared resource can be one of the following:

- **Client Network** – the network where Source or Target objects are connected. Networks are identified by network ASN (Autonomous System Number), country code, and region code. For example, US_OH_123 is a network in Ohio in the United States with ASN 123.
- **Server Network** – the network where a Broadcaster is connected.
- **Network Path** – the connection between a Source and a Broadcaster.
- **Broadcaster** – the shared Zixi Broadcaster.

Based on this analysis IDP provides an automatic RCA attribution, which specifies the likely root cause of the incident.

IDP displays its analysis in the following modules:

Health Score

Zixi Health Score provides real-time predictions of network health, anticipating potential offline events and unrecoverable packet loss. It also enables monitoring of historical health status to help with forensic analysis. The health score is determined based on Zixi IDP's ML algorithms that assess over 100 measurements of the Source's performance. ZEN Master also provides a breakdown of the factors that contributed to a particular fluctuation in the Health Score.

Insights

Insights are a set of graphs in ZEN Master that enable you to identify outliers and likely areas of instability in your system. Insights graphs are shown for Broadcasters and for Channels. These graphs make it easy to compare different workflows, showing you where you need to focus your attention. Graphs show metrics related to packet recovery as well as other Broadcaster KPIs such as CPU and memory usage.

Incidents

The Incident view groups together related errors into incidents to simplify the process of identifying the common root cause. ZEN Master identifies the object on which the initial error occurred and the network on which the channel is transmitted. It also suggests a likely cause of the incident. Incidents can be created manually and/or automatically generated based on the MOCA analysis, as described above.

ZEN Master Authorization

ZEN Master features an automatic authorization mode in which it automatically verifies the authorization for each ZEN entity (e.g., Sources, Channels and Targets) that accesses a Broadcaster cluster. You can activate this mode by simply selecting the ZEN authorization mode while configuring your Broadcaster clusters.

This feature is optional, which means that streams can be authorized using other methods, however this method provides optimal security for your system without requiring configuration of specific authorization credentials for each individual stream.

Access Control

ZEN Master features a multi-tier access control mechanism that enables granular control of the access privileges down to the object level. It manages access to all system objects, including Resources (i.e. Feeders, Broadcaster Clusters, Receivers and Licenses), Sources (i.e. input streams), Adaptive Channels and Pass-Through Channels.

The access control is managed through the following entities:

- **Tags** – Each object (Resource, Source, Adaptive Channel, Delivery Channel and SSH Key) is assigned one or more Tags. The assignment of the Tag/s is performed during the creation/configuration of the object. The same Tag can be assigned to multiple objects and several Tags can be assigned to the same object.
- **Roles** – A role defines a set of privileges in the system. A role is associated with one particular Tag, enabling access to objects associated with that Tag. The role also designates what actions can be performed on each object type (i.e. Resources, Sources, Adaptive Channels and Pass-Through Channels).

Actions include:

- **View** - the ability to view data from the object.
- **Edit** - the ability to edit the object's configuration
- **Notifications** - the ability to receive email notifications/alerts regarding the object. A Tag can be associated with one or multiple roles.
- **Users** – A user receives privileges in the system by being assigned one or multiple roles.

To learn more about access control see [ACCOUNT MANAGEMENT](#).

Billing Codes

Billing codes are used to identify and differentiate traffic on a Zixi Broadcaster.

A billing code can be defined on Sources, which represent inputs to a Broadcaster, and on Targets, which represent outputs from a Broadcaster. A billing code can also be applied to an entire Broadcaster Cluster. When a billing code is defined on a Source or Target, Zixi can track the traffic on that Broadcaster input or output separately from other inputs and outputs on the

same Broadcaster. Billing codes can be assigned to standard traffic related to the Source or Target or specifically to auto-pull events (i.e. when a ZEN Master object is automatically transferred to a different Broadcaster to increase efficiency).

Billing codes are created by Zixi personnel on the Zixi Customer Portal for a particular organization. Zixi can create multiple Billing codes for an organization, enabling them to apply different codes to different traffic. Billing codes are password protected and ZEN Master validates each billing code that is used. If you would like to use billing codes in your workflows, please discuss it with your Zixi representative.

Use Cases

Differentiating Between Clients

If you are receiving video content from different contributing clients or sending video content to multiple external organizations, you can designate distinct billing codes for each of your clients. You can then assign the client's billing code to each Source or Target associated with that client. Your organization will then be able to bill each of their clients according to their usage.

Charging only for Billable Usage

When Zixi traffic is sent between distinct organizations, situations may arise in which the usage of only one of those organizations is billable. For example, if the contributor is using a Zixi Broadcaster to send outputs as if it were a Zixi Feeder, then only the receiving organization should be billed for that traffic. In that case, the receiving organization can request a billing code and assign it to their Targets. They can then ask the contributor to assign the identical billing code to each of the Sources that they are sending. In this way, Zixi will know to bill only the organization that is receiving the traffic.

Live Events Management

Zen Master Live Events feature provides users with the ability to schedule, run, and manage, workflows for occasional-use deliveries such as sporting events, press conference, news events, live production, and other real-time events. For more information, see [REMOTE ACCESS](#)

In addition to the Zixi resources that are fully supported in ZEN Master (i.e. Feeders, Broadcasters and Receivers), you can connect other devices (that support reverse SSH tunnels) such as encoders and IRDs. You can establish a connection via SSH Tunnel which enables you to access the device's UI through ZEN Master and to configure the device to interact with ZEN Master.

Adding a Remote Access Profile

First, you need to create a remote access profile in ZEN Master. Then, you can use the configuration settings shown in ZEN Master to connect the device to ZEN Master using the device's UI. See the following section, [CONNECTING DEVICE USING REMOTE ACCESS](#).

➔ **To add a remote access profile:**

1. In the main navigation, click **Remote Access**.
2. Click **+ Add**.

The **Create New Remote Access** window is displayed.

CREATE NEW REMOTE ACCESS

INFO

Name *

Access Tags * ⓘ

Events Configuration Profile

CONFIGURATION

SSH Key * ⓘ

HTTP/HTTPS

Auto Detect / HTTPS HTTP

Cancel Save

3. In the **Info** section, in the **Name** field, type a logical name for the Zixi enabled device.
4. In the **Tags** field, select one or more of the predefined Tags from the drop-down list. Tags are used for access control. By selecting a Tag, you are relating this Remote Access to that Tag. Tags are associated with certain roles (through the Users & Roles screen), and roles, in turn, are associated with users and user groups. If you would like to create a new Tag, see [CREATING A TAG](#).
5. In the **Events Configuration Profile** field, select from the dropdown list the profile that you would like to apply to this Remote Access. By default, the *Default* profile is applied.



Events Profiles consist of a series of rules that determine precisely how various types of Events are logged and what results they trigger.

6. In the **Configuration** section, in the **SSH Key** field, select from the drop-down list one of the existing remote access keys to be used for SSH tunneling between the Zixi Broadcaster and ZEN Master.



If you would like to configure a new SSH Key, see [CONFIGURING SSH KEYS](#).

7. Select a radio button to designate the manner in which ZEN Master accesses the remote device. Options are:

- **Auto Detect/HTTPS** (default) – ZEN Master automatically detects whether the remote device uses HTTP or HTTPS.
 - **HTTP** – ZEN Master will always use HTTP.
8. Click **Save**.

Connecting Device Using Remote Access

Once you have created a remote access profile in ZEN Master you can use the configuration settings shown in ZEN Master to connect the device to ZEN Master using the device's UI. The UI structure varies for different devices, however the following settings should be configured to connect to ZEN Master.

➔ To connect a Zixi-enabled device:

1. In **ZEN Master**, in the main navigation, click **Remote Access**.
2. Select the relevant Remote Access from the list of Remote Access profiles.
3. The **Details** pane at the right of the screen contains specific configuration settings for connecting the Zixi-enabled device.

Use the values shown for the following parameters to configure the Zixi-enabled device:

Parameter	Description
SSH Key	Enables you to download the SSH Key that was generated in ZEN Master for this connection.
Host	The IP address/URL of the ZEN Master host.
Username	The username assigned for this device in ZEN Master.
Tunnel Port	The port on the ZEN Master server assigned for communication with the Zixi-enabled device.

Viewing Existing Remote Access Profiles

The Remote Access screen displays all of the existing remote access profiles and information about the profile.

The screenshot shows the 'REMOTE ACCESS' screen with a list of profiles. At the top right, there are '+ Add' and 'Refresh' buttons. Below the header is a 'Filter' input field. The main area contains a table with columns for Name, Status, and IP. The table lists three profiles: 'Demo-tunnel' (Status: Ok), 'test' (Status: Ok), and 'test2' (Status: Disabled). Each row has an 'Open' link. At the bottom, there is a pagination control showing 'Showing: 1 - 3 of 3' and a 'Rows' dropdown set to 'Auto'.

Name	Status	IP
Demo-tunnel	Ok	-
test	Ok	-
test2	Disabled	-

When a Remote Access instance is selected, the list pane is minimized and detailed info about the selected instance is shown on the right side of the screen. The info can be shown in *Tab* view or *Accordion* view, see [INFO PAGES](#).

The screenshot shows the 'REMOTE ACCESS' screen with the 'Demo-tunnel' profile selected. The interface is split into three main sections: a minimized list pane on the left, an 'EVENTS' pane in the center, and a 'DETAILS' pane on the right. The 'DETAILS' pane shows configuration information for the 'Demo-tunnel' profile, including Name, Access Tags, SSH Key, Host, Username, Tunnel Port, and Open/Link options. The 'EVENTS' pane shows a table with columns for Object, Date/Time, and Message, and a 'Quick Report' button. The list pane on the left shows the selected profile and other profiles in the list.


When a Remote Access instance is selected, the following sections are shown in the Info pane at the right side of the screen:

- **Details** – configuration details of the remote access profile.
- **Events** - all the related events that have been generated by the system, such as connections, errors, and disconnections. To learn about the data that is displayed in the Events tab see [EVENTS](#). Click **Quick Report** to generate a report of events related to this Channel and download the .xls file.
- **Notes** – free-form text can be added with pertinent information about this remote access profile.

When a Remote Access instance is selected, the top of the **Info** pane includes buttons for taking the following actions on the selected instance:

- **Acknowledge/Clear Acknowledgment** (for instances in error state) – mark/clear the status of this Source as acknowledged.
- **Mute/Clear Mute** – disables/activates notification for error/recovery events. Set the date and time when the mute will automatically be cleared by clicking on the down arrow and selecting **mute until**.
- **Edit** – enables you to edit the Zixi Receiver configuration.
- **Clone** – create an additional Remote Access based on the settings of the selected Remote Access.
- **Disable/Enable** – disabling a Remote Access stops all activity for that device without deleting the configuration of the device.
- **Delete** – deletes the Remote Access configuration.


The main display shows following data:

Parameter	Description
Status	<p>The connection status of the remote access profile. Possible values:</p> <ul style="list-style-type: none">• Green – OK• Red – error state• Pink (shown together with a checkmark) – acknowledged error state• Gray – pending/disabled (waiting for initial connection) <p>The  icon next to a remote access connection indicates that the object is muted, disabling notifications for error/recovery events.</p>
Name	The name of the remote access profile as configured in ZEN Master.
IP	The IP of the remote device as seen by ZEN Master.
Actions	
Open	A link to the device UI.

When one of the Remote Access instances is selected, the **Info** pane, divided into sections, appears at the right side of the screen. The following info is shown:

Parameter	Description
Details	
SSH Key	The name of the SSH key file. Click on the link to download the SSH key.
Name	The name of the remote access profile as configured in ZEN Master.

Introduction to ZEN Master

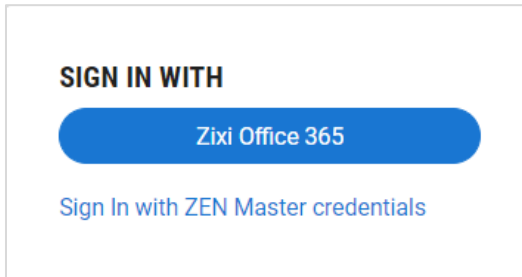
Tag	The Tag/s that is associated with this remote access profile. You can edit the tag/s as follows: click the  icon. Then, delete the current tag by clicking the "X" next to the tag and/or add a new tag/s by selecting one or more tags from the dropdown list.
Host	The IP address/URL of the ZEN Master host.
Username	The username assigned for this device in ZEN Master.
Tunnel Port	The port on the ZEN Master server assigned for communication with the Zixi-enabled device.
Open	A link to the device's console.
Events	A log of the events that were generated in ZEN Master in relation to the selected remote access profile. To learn about viewing event logs in ZEN Master, see EVENTS . Click Quick Report to generate a report of events related to this device and download the .xls file.
Notes	Shows free-form notes relevant to the Remote Access instance.


Live Events

Logging in to ZEN Master


➔ **To login to ZEN Master:**

4. In your web browser, navigate to: https://<customer_id>.zen.zixi.com.
A user authentication window opens. If your account is configured for SSO, then the Sign-in screen offers the option to either sign in through your SSO account or using ZEN Master credentials.

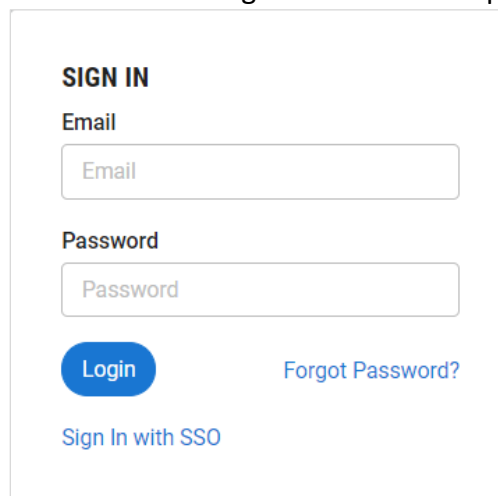


 Once your email has been associated with an SSO account you are no longer able to login to that account using ZEN Master credentials.

5. To sign in using an SSO provider, click on the blue bar for the desired provider and follow the procedures for signing in using that service.

 The first time that you sign in using an SSO provider you will need to activate the account using your existing credentials for that provider.

6. To sign in using ZEN Master credentials,
 - a. Click **Sign In with ZEN Master credentials**.
The ZEN Master sign in window is displayed.



- b. In the **Email** field, enter your email address.
- c. In the **Password** field, enter the password that you received from your Zixi representative.

7. Click **OK**.



If you forgot your password, you can generate a new password by clicking **Forgot Password?** > **Send Email**.

Management Console UI Elements

The Management Console UI provides easy access to all ZEN Master resources and system objects. You can configure ZEN Master to manage your resources (Feeders, Broadcaster and Receivers). You can also manage content throughout your network using ZEN Master's abstraction layer of Sources, Channels and Targets. The UI also enables you to monitor system performance both on a macro as well as a granular level.

This chapter gives a brief overview of the UI elements. Details about specific UI functionality are provided in the following chapters.

Main Screens

You can access each of the main screens by clicking on the screen in the Navigation pane on the left side of the screen.

The following is a brief description of the main screens:

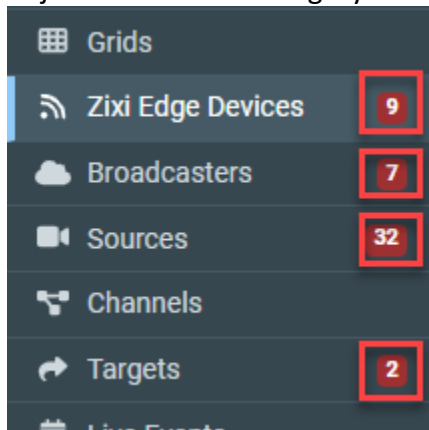
- **Dashboard** – provides an overview of the status of your ZEN resources as well as a summary of recent activities and events in your ZEN system. See chapter [DASHBOARD](#).
- **Maps** - The Maps screen shows your Resources (Feeders, Broadcasters and Receivers) and other system objects (Sources and Targets) on a geographical map. Communications between these objects are displayed as connecting lines showing the direction of data flow. See chapter [MAPS](#).
- **Grids** – Grids show a high density presentation of the resources and other objects that are configured in ZEN Master. Grids are highly configurable (objects displayed, info shown, screen layout etc.) enabling you to monitor the current status and performance of various objects in your system. See chapter [Networks](#)
- **Incidents** - The Incident view groups together related errors in a causal flow which simplifies the process of identifying the common root cause. ZEN Master identifies the object on which the initial error occurred and the network on which the channel is transmitted. It also suggests a likely cause of the incident. See chapter [INCIDENTS](#)
- **Zixi Edge Devices** – displays all the ZEC, Feeders, and Receivers that are managed in ZEN Master. See chapter [ZIXI EDGE DEVICES](#)
- **Broadcasters** – displays all of your Zixi Broadcaster clusters that are managed in ZEN Master. For each cluster, information is shown about the clusters' status and performance, see [VIEWING EXISTING CLUSTERS](#). On this screen, you can add new Broadcaster clusters and manage existing clusters.
- **Sources** – displays all existing Sources, and information about the status and configuration of each Source, see [VIEWING EXISTING SOURCES](#). On this screen, you can add new Sources and manage existing Sources.

- **Channels** – displays all existing Channels, and information about the status and configuration of each Channel, see [VIEWING EXISTING CHANNELS](#). On this screen, you can add new Channels and manage existing Channels.
- **Targets** – displays all existing Targets, and information about the status and configuration of each Target. See chapter [VIEWING EXISTING TARGETS](#). On this screen, you can add new Targets and manage existing Targets.
- **Transformations** – displays profiles for different methods of transforming streams, i.e. Transcoding or PID Mapping.
 - **Transcoding Profiles** – displays all existing Transcoding profiles and details about their configuration. See [VIEWING EXISTING TRANSCODING PROFILES](#). On this screen, you can add new Transcoding Profiles and manage existing Transcoding Profiles.
 - **PID Mapping Profiles** - displays all existing PID Mapping profiles and details about their configuration. See [VIEWING EXISTING PID MAPPING PROFILES](#). On this screen, you can add new PID Mapping Profiles and manage existing PID Mapping Profiles.
- **Logs** – view all generated logs. See chapter [LOGS](#).
 - **Events** – displays a log of all events such as connections, errors, disconnections etc. See chapter [EVENTS](#). On this screen, you can view sort and manage all logged Events.
 - **SCTE-35** – displays a log of all SCTE-35 markers. See chapter [SCTE-35](#). On this screen, you can view sort and manage all logged SCTE-35 markers.
- **Automation** – displays a list of your automated tasks and task groups. See chapter [AUTOMATION](#). On this screen you can add new automated tasks and manage existing automated tasks.
- **Reports** – displays all created Report configurations. See chapter [REPORTS](#). On this screen you can create new Reports, generate Reports from existing configurations and download Reports.
- **Account Management** – manage user accounts. See chapter [ACCOUNT MANAGEMENT](#).
 - **My Account** – view and modify your account details, see [EDITING YOUR ACCOUNT DETAILS](#).
 - **Single Sign-On** – displays your SSO account details. See chapter [CONFIGURING SINGLE SIGN-ON ACCOUNT SETTINGS](#). On this screen you can configure your existing SSO accounts and create new SSO accounts.
 - **Users** – view, create and manage user accounts. See chapter [VIEWING EXISTING USERS](#).
 - **User Groups** – view, create and manage user groups. See chapter [VIEWING EXISTING USER GROUPS](#).
 - **Roles** – view, create and manage roles. See chapter [VIEWING EXISTING ROLES](#).
- **Configuration** – customize your system settings. See chapter [CONFIGURATION](#).
 - **Notifications** – view and edit your notification configurations. See chapter [NOTIFICATIONS](#).

- **Tags** – view the Tags in the system and create new Tags, see [CREATING A TAG](#).
- **API Keys** – access existing API keys and create new ones. You can also access a link to the ZEN Master API documentation, see [CONFIGURING API KEYS](#).
- **SSH Security & Keys** – view a list of the SSH keys available in your system as well as the tag/s associated with each key, see [CONFIGURING SSH KEYS](#).
- **Amazon AWS** – view your linked AWS accounts and link new accounts, see [CONFIGURING AWS ACCOUNT CREDENTIALS](#).
- **Microsoft Azure** – view your linked Azure accounts and link new accounts, see [CONFIGURING AWS ACCOUNT CREDENTIALS](#).
- **Google GCP** – view your linked GCP accounts and link new accounts, see [CONFIGURING GOOGLE GCP ACCOUNT CREDENTIALS](#).
- **Remote Access** – view your Remote Access configurations for non-Zixi devices that you access through Zen Master. On this screen you can add new Remote Access configurations and manage existing ones. See chapter [REMOTE ACCESS](#).
- **Licenses** – view your ZEN Master licenses.

Main menu error indicators

The main menu elements may include red number indicators, which indicate the number of objects within this category that have an error.



Clicking the red number will open the screen, while filtering to display only the object with the errors.

A screenshot of the BROADCASTER CLUSTERS screen. The table shows a list of clusters with columns for Name, Status, Management, Broadcasters, and Instance Type. The Status column contains red error indicators for several clusters.

Name	Status	Management	Broadcasters	Instance Type
PG_benchmark	Error	AWS	1	c6g.xlarge
Tim_AWS_Cluster_Ohio_t3a_medium-broken	Error	AWS	1	t3a.medium
Zixi_Cloud_Monitor_Manual_Cluster	Error	-	2 1 2	-
Tim-GCP-US-East1-Manual-FST	Error	-	4	-
Tim_Manual_Testing_Cluster	Error	-	1 13 1	-
Zixi_Cloud_Monitor_AWS_Frankfurt_c5_2xlarge_Cluster	Error	AWS	5	c5.2xlarge
Zixi_Cloud_Monitor_AWS_Oregon_c5_2xlarge_Cluster	Error	AWS	6	c5.2xlarge

Working with Lists

Info Pages

When you navigate to a list screen the list of instances is shown in full view. In this view, a column is shown for each relevant parameter and a checkbox is shown next to each instance, enabling you to perform batch processes, see [BATCH PROCESSES](#).

Name	Status	Ingest Cluster	Type	Input	TR101	IP	Bitrate
<input type="checkbox"/> GCSHOW_01	Ok	SHOWFLOOR_02_BX	Broadcaster	SHOWFLOOR_01_BX / GCSHOW...	P1: P2:	10.5.1.56	760
<input type="checkbox"/> GCSHOW_02	Ok	SHOWFLOOR_02_BX	Broadcaster	SHOWFLOOR_01_BX / GCSHOW...	P1: P2:	10.5.1.56	872
<input type="checkbox"/> GCSHOW_HITLESS_01_02	Ok	SHOWFLOOR_02_BX	Hitless Failover	GCSHOW_01, GCSHOW_02	P1: P2:	-	9,05
<input type="checkbox"/> Hitless_from_BX_to_MC_Sou...	Ok	@ Hitless_to_MediaC...	To MediaConnect	AWS_EL_Lab_Ingest-emdl / Fro...	P1: P2:	-	5,92
<input type="checkbox"/> HPVZ-EDGE-DMZ-EU-ASIA-X...	Disabled	EGDE-DEVICE-DMZ	Broadcaster	EDGE-DMZ-ASIA / HPRX_01_IN	-	-	-
<input type="checkbox"/> HPVZ-EDGE-DMZ-US-ASIA-Y...	Pending	EGDE-DEVICE-DMZ	Monitor Only	-	-	-	-
<input type="checkbox"/> HPVZ-HITLESS-01-02-EU-PA...	Ok	ASIA-CLUSTER	Inter-Cluster	HPVZFX-HITLESS-01-02_EUROP...	P1: P2:	eu-demo-clstr-vxkw.demo.io.zixi.com:7088	1,97
<input type="checkbox"/> HPVZ-HITLESS-01-02-USW-P...	Ok	ASIA-CLUSTER	Inter-Cluster	HPVZFX-HITLESS-01-02_USWES...	P1: P2:	13.57.14.152:2088	2,01
<input type="checkbox"/> HPVZFX-HITLESS-01-02	Ok	LINEAR_DISTRIBUTION	Hitless Failover	-	P1: P2:	-	9,05
<input type="checkbox"/> HPVZFX-HITLESS-01-02_EU...	Ok	EU-DEMO-CLSTR	Inter-Cluster	HPVZFX-HITLESS-01-02 @ linea...	P1: P2:	54.80.176.223:2088	1,48
<input type="checkbox"/> HPVZFX-HITLESS-01-02_US...	Ok	US-DEMO-CLSTR	Inter-Cluster	HPVZFX-HITLESS-01-02 @ linea...	P1: P2:	54.80.176.223:2088	3,26
<input type="checkbox"/> HPVZFX01	Ok	LINEAR_DISTRIBUTION	Feeder	VZ_DATACENTER_FX05 / HPVZ...	P1: P2:	199.188.233.146	4,02
<input type="checkbox"/> HPVZFX02	Ok	LINEAR_DISTRIBUTION	Feeder	VZ_DATACENTER_FX05 / HPVZ...	P1: P2:	199.188.233.146	4,36
<input type="checkbox"/> JVC-Camera	Frozen Video	GCP-Ingest	Other	-	P1: P2:	107.182.231.208	3,32

You can adjust the pagination by specifying the number of **Rows** displayed per page. The default setting is *Auto*, which displays the optimal number of rows for your screen.

When you select an object instance the list becomes narrow, showing only the element name. Detailed info about the selected instance is shown in the **Info pane** to the right of the list. The Info pane can be shown either in *tab view* or in *accordion view* (with collapsible sections). You can return to the full list view by clicking on the “x” at the top of the info pane.

SOURCES [x] gil-source-write-to-gcs [Mute] [Edit] [Clone] [Disable] [Delete]

Name	Status
WebRTCtest @ ibc4-local-cl...	Authentication
QA-max-DTLS-01 @ qa-max-...	Offline
qa-max-dtls-02 @ qa-max-v1...	Offline
qa-max-epsnr1 @ qa-max-v1...	Offline
gil-source-001 @ qa-max-v1...	Ok
gil-source-write-to-gcs @ qa...	Ok
appt4 @ webdev	Pending
appt5 @ webdev	Pending
bbb @ waltham	Pending
chubs @ ffff	Pending
mpts_pull @ gil	Pending
nbcu-001 @ gil	Pending
nbcu-002 @ gil	Pending
nbcu-003 @ gil	Pending

DETAILS | CONTENT ANALYSIS | HISTORY | EVENTS | CONFIGURATION | NOTES | TRACEROUTE

Name
gil-source-write-to-gcs

Ingest Cluster
QA-max-Jira-04-d3we @ QA-max-Jira-04
(Requires VLC with Zixi plugin Windows, Mac)

Access Tags
Admin, aaaaaa, adult_swim

Type
Broadcaster

Input
QA-max-Jira-04-d3we / source1

Target Broadcaster/s
QA-max-Jira-04-d3we

Source IP
18.189.2.94

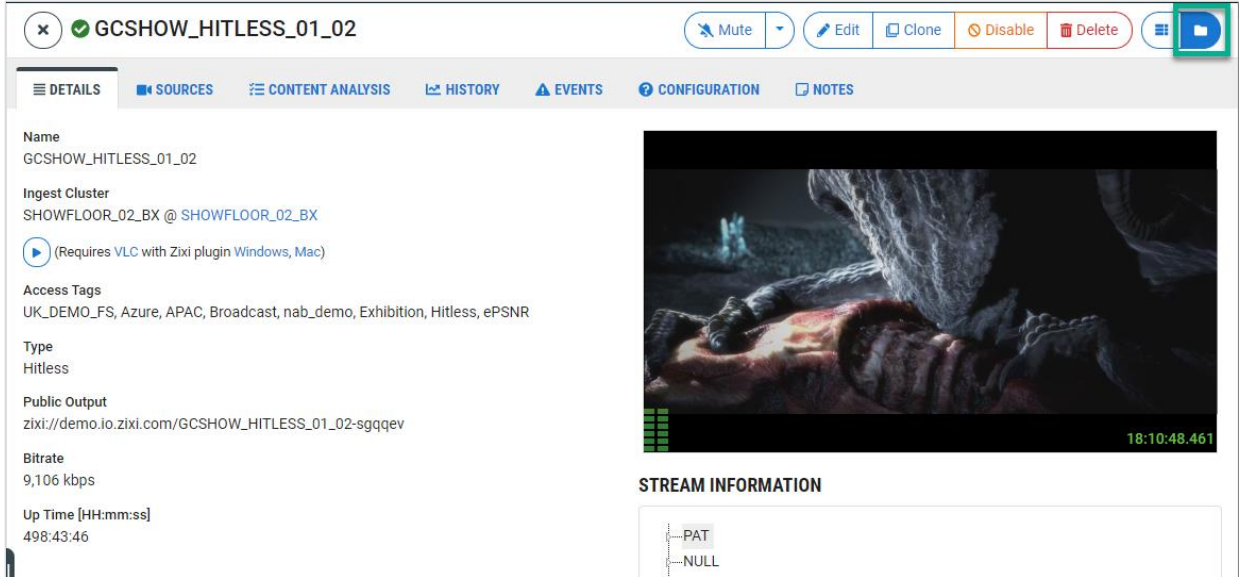
STREAM INFORMATION

PAT
NULL

Management Console UI Elements

Tab View

In tab view, selectable in the top right-hand corner, information is organized by tabs. The information in each tab is displayed responsively to adjust for browser width.





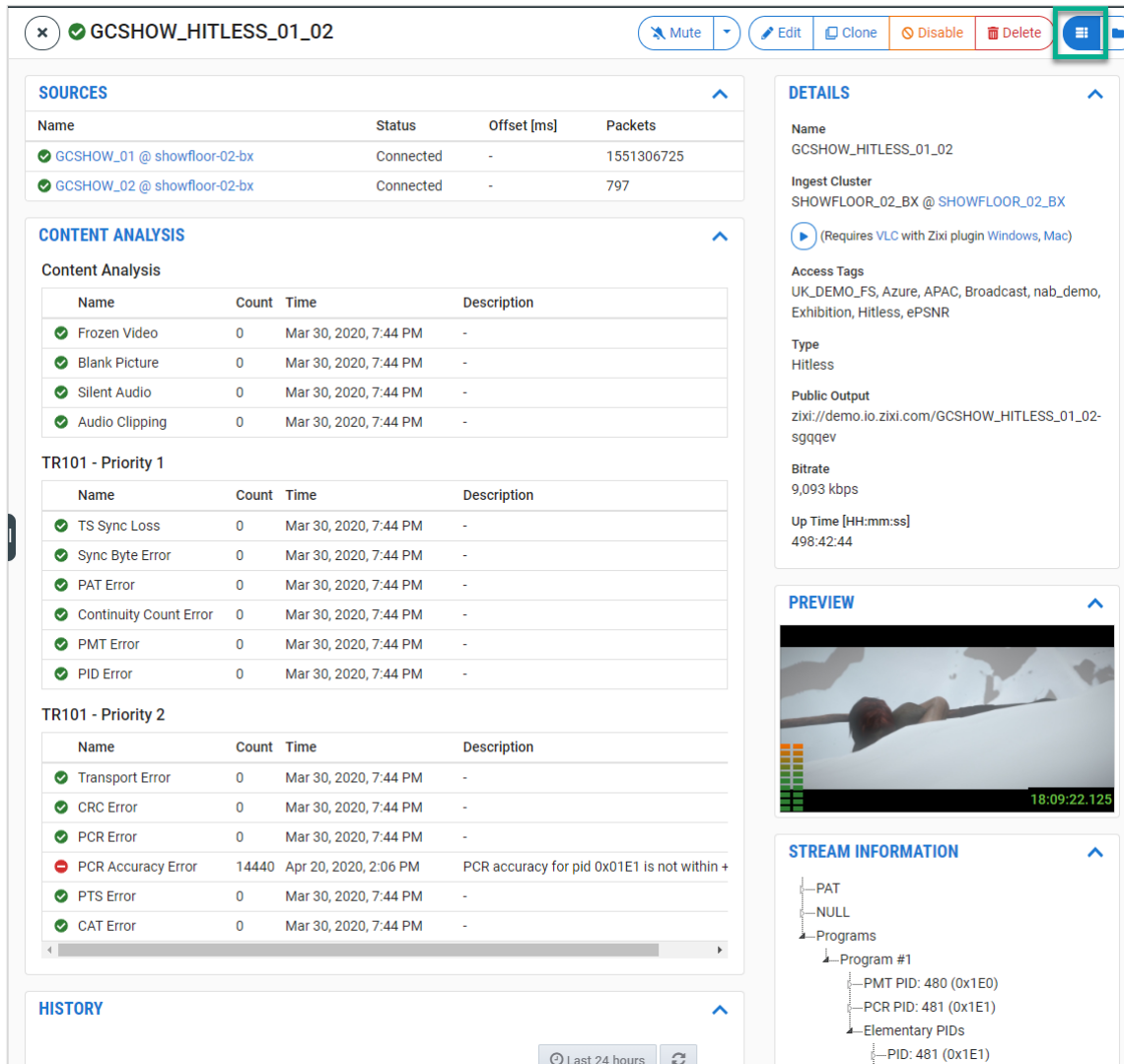
The screenshot displays the Management Console interface for a video stream. At the top, there is a tab titled "GCSHOW_HITLESS_01_02" with a close button (X) on the left and a set of control buttons (Mute, Edit, Clone, Disable, Delete) on the right. Below the tab is a navigation bar with tabs for "DETAILS", "SOURCES", "CONTENT ANALYSIS", "HISTORY", "EVENTS", "CONFIGURATION", and "NOTES". The "DETAILS" tab is active, showing the following information:

- Name:** GCSHOW_HITLESS_01_02
- Ingest Cluster:** SHOWFLOOR_02_BX @ SHOWFLOOR_02_BX
- Player:** (Requires VLC with Zixi plugin Windows, Mac)
- Access Tags:** UK_DEMO_FS, Azure, APAC, Broadcast, nab_demo, Exhibition, Hitless, ePSNR
- Type:** Hitless
- Public Output:** zixi://demo.io.zixi.com/GCSHOW_HITLESS_01_02-sgqqev
- Bitrate:** 9,106 kbps
- Up Time [HH:mm:ss]:** 498:43:46

To the right of the details is a video player showing a close-up of a character's face. The player has a progress bar at the bottom and a timestamp of 18:10:48.461. Below the video player is a section titled "STREAM INFORMATION" which shows a list of stream elements: PAT and NULL.

Accordion View

In accordion view, selectable in the top right-hand corner, there are two columns of information panels, if browser width allows. The UI is responsive and the two columns will become a single column on narrow browser windows or mobile devices. Each information panel can be minimized and maximized with the  and  buttons on the top left of the panel. The min/max state of panels remains persistent while viewing other objects of the same type, Sources for instance. It will reset once you view other object types.



SOURCES

Name	Status	Offset [ms]	Packets
✓ GCSHOW_01 @ showfloor-02-bx	Connected	-	1551306725
✓ GCSHOW_02 @ showfloor-02-bx	Connected	-	797

CONTENT ANALYSIS

Content Analysis

Name	Count	Time	Description
✓ Frozen Video	0	Mar 30, 2020, 7:44 PM	-
✓ Blank Picture	0	Mar 30, 2020, 7:44 PM	-
✓ Silent Audio	0	Mar 30, 2020, 7:44 PM	-
✓ Audio Clipping	0	Mar 30, 2020, 7:44 PM	-

TR101 - Priority 1

Name	Count	Time	Description
✓ TS Sync Loss	0	Mar 30, 2020, 7:44 PM	-
✓ Sync Byte Error	0	Mar 30, 2020, 7:44 PM	-
✓ PAT Error	0	Mar 30, 2020, 7:44 PM	-
✓ Continuity Count Error	0	Mar 30, 2020, 7:44 PM	-
✓ PMT Error	0	Mar 30, 2020, 7:44 PM	-
✓ PID Error	0	Mar 30, 2020, 7:44 PM	-

TR101 - Priority 2

Name	Count	Time	Description
✓ Transport Error	0	Mar 30, 2020, 7:44 PM	-
✓ CRC Error	0	Mar 30, 2020, 7:44 PM	-
✓ PCR Error	0	Mar 30, 2020, 7:44 PM	-
✗ PCR Accuracy Error	14440	Apr 20, 2020, 2:06 PM	PCR accuracy for pid 0x01E1 is not within +
✓ PTS Error	0	Mar 30, 2020, 7:44 PM	-
✓ CAT Error	0	Mar 30, 2020, 7:44 PM	-

HISTORY

DETAILS

Name
GCSHOW_HITLESS_01_02

Ingest Cluster
SHOWFLOOR_02_BX @ SHOWFLOOR_02_BX

(Requires VLC with Zixi plugin Windows, Mac)

Access Tags
UK_DEMO_FS, Azure, APAC, Broadcast, nab_demo, Exhibition, Hitless, ePSNR

Type
Hitless

Public Output
zixi://demo.io.zixi.com/GCSHOW_HITLESS_01_02-sgqqev

Bitrate
9,093 kbps

Up Time [HH:mm:ss]
498:42:44

PREVIEW

18:09:22.125

STREAM INFORMATION

- PAT
- NULL
- Programs
 - ↓ Program #1
 - PMT PID: 480 (0x1E0)
 - PCR PID: 481 (0x1E1)
 - Elementary PIDs
 - PID: 481 (0x1E1)

Search Filter

The Search Filter feature shows results that match the search text for any data element on that screen (as opposed to the global site Search at the top of the navigation pane which searches the entire site). This includes the data shown in each column as well as the **Tags** associated with the element. So, for example, if you enter the search text “Demo” on the **Sources** screen, results are shown for Sources that have “Demo” as part of the Source Name, Ingest Cluster, Input etc.

You can use Boolean operators “AND”, “OR”, and “NOT” and grouping characters “() []” to create complex search filters.



The operators must be capitalized. When the words “and”, “or”, and “not” are not capitalized, they are treated as regular search text. Also, the operators must be preceded and followed by a space in order to be recognized as operators.

SOURCES + Add Refresh

Filter (23 of 130) demo x + Add Filter Columns Report

<input type="checkbox"/>	Name	Status	Ingest Cl.	Act. Bc.	Type	Input	TR101	IP
<input type="checkbox"/>	CDI-Demo-MediaLive	Disabled	aws_virginia_ingest	-	RTP	:9009	-	-
<input type="checkbox"/>	FrmCheddar	Disabled	aws_virginia_ingest	-	Feeder	Demo_ZEN_FX01 / FrmCheddar	-	-
<input type="checkbox"/>	FrmCheddar2	Disabled	ZIXI_CLOUD_DATA...	-	Feeder	Demo_ZEN_FX01 / FrmChedda...	-	-
<input type="checkbox"/>	lab_bx03_input01	Ok	lab_boston_bx03_AB	lab_boston_bx03_AB	Monitor Only	-	P1: P2: demo.zi	-
<input type="checkbox"/>	Multiview_Demo	Disabled	aws_virginia_ingest	-	Multiview	-	-	-
<input type="checkbox"/>	Multiview_Demo_TAG	Disabled	aws_virginia_ingest	-	Multiview	-	-	-
<input type="checkbox"/>	ota_intra_original03_cbr	Ok	aws_oregon_egress	aws_oregon_egress-r...	Inter-Cluster	-	P1: P2: aws-ore	-
<input type="checkbox"/>	src_file_s3_WebRTC_Sintel_AVC_420_8b...	Ok	ZIXI_DEMOHD	demozixi.com	File	-	P1: P2: HTTP Fi	-

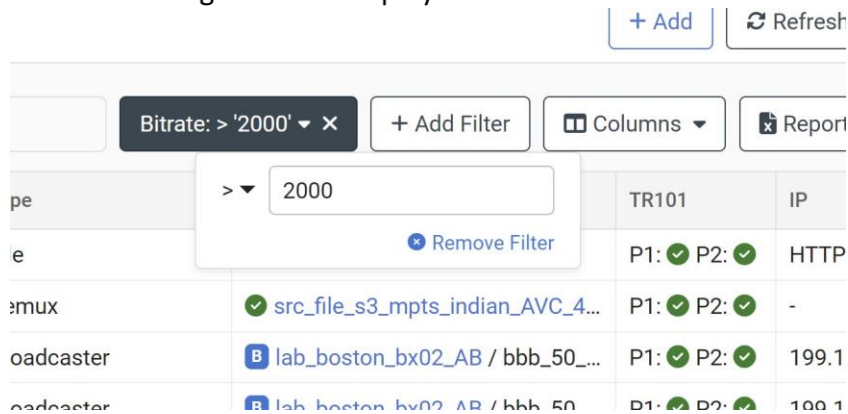
Column-specific filter options

In addition to the search filter, it is possible to use additive column-specific filter options that are specific to the column types of the correspond table. This allows you to set more fine-grained filter parameters such as searching for text in specific columns, filtering with relational operators on numerical columns, or filtering for specifying time ranges etc.

➔ To create a column-specific filter:

1. Click **Add Filter**.
A list of columns is displayed.

2. Select the relevant column to apply the filter.
The filter configuration is displayed.



Bitrate: > '2000' × + Add Filter Columns Report

pe	> 2000	TR101	IP
e	Remove Filter	P1: ✓ P2: ✓	HTTP
ymux	✓ src_file_s3_mpts_indian_AVC_4...	P1: ✓ P2: ✓	-
oadcaster	B lab_boston_bx02_AB / bbb_50...	P1: ✓ P2: ✓	199.1
oadcaster	B lab_boston_bx02_AB / bbb_50...	P1: ✓ P2: ✓	199.1

3. Select the relevant operator and enter the value.
The filter is added.
4. Repeat the steps to configure additional filters. Filters are additive, so a sources search with a filter for uptime > 2 days, and a second for uptime < 3 days, will yield a result of all sources with uptimes between 2 and 3 days.

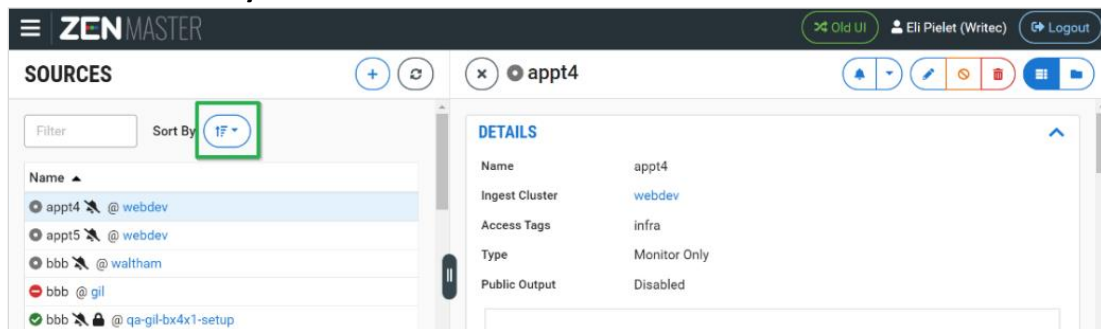
Sort

You can sort all lists by the data elements shown in each of the columns. When the full list screen is shown, click on the desired column headings. You can reverse the order by clicking the heading a second time.

When the list is shown side by side with the info pane (i.e. once an element has been selected), sorting is done using the following procedure.

➔ To sort by column when the info pane is opened:

5. Click on the **Sort by** button.



ZEN MASTER Eli Pielet (Writec) Logout

SOURCES + Refresh × appt4

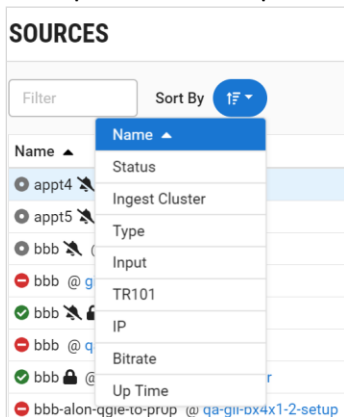
Filter Sort By 1F

Name
app4 @ webdev
app5 @ webdev
bbb @ waltham
bbb @ gil
bbb @ qa-gil-bx4x1-setup

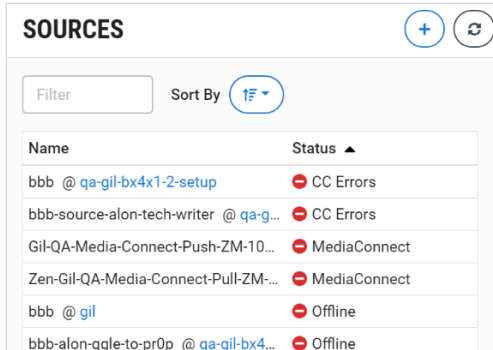
DETAILS

Name	app4
Ingest Cluster	webdev
Access Tags	infra
Type	Monitor Only
Public Output	Disabled

A drop-down list of parameters is shown.



6. Select the parameter that you would like to sort by. The sorted results are shown together with the column for the sorting parameter (e.g. Status).

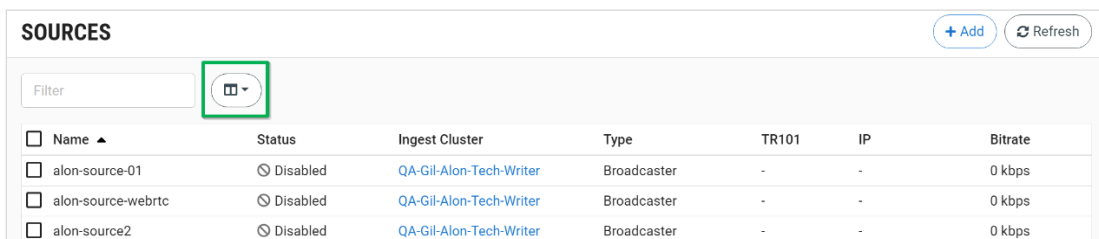


Show/Hide Columns

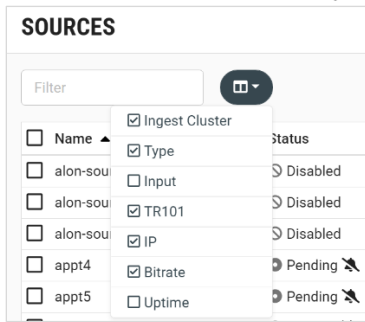
On list screens, you can select which columns to show/hide. The column settings persist whenever you return to the page, even after logging out of ZEN Master and returning. The settings are stored on a per browser basis, such that the browser on your tablet can be set to show different columns than those shown on your laptop browser.

➔ To show/hide columns:

1. Click on the **column selection** button.



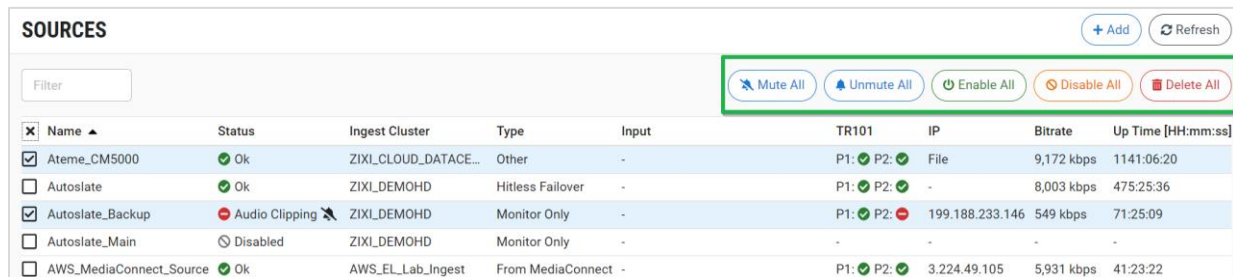
The column selection drop-down list opens.



2. Select/deselect the checkbox for each column that you would like to show/hide. Only the selected columns are displayed.

Batch Processes

When a list screen (e.g. Receivers, Sources, Automation etc.) is shown in full view (i.e. you haven't clicked on a specific instance), a checkbox is shown next to each instance. When you select one or more checkboxes a series of buttons for performing batch processes is shown at the top of the screen.



When you click on a batch process button, the specified action is performed on all **selected** instances. The available batch process options are different for each screen.

Expand/Collapse Tables

Tables are optimized for viewing on standard 16:9 screens. When viewing on a mobile device or other narrow screen, not all data on the log tables is visible. You can click on the **Expand Table** button to eliminate the fixed width limitations and enable access to all data using a horizontal scroll bar at the bottom of the screen. You can revert back to standard viewing mode by clicking on the **Collapse Table** button.

Download Quick Report

On the Resources/System objects main list screens, you can download a quick report about the items in the list. You can have the report include only relevant information by filtering the contents of the list before downloading the report. To learn more about reports, see [REPORTS](#).


Management Console UI Elements

CHANNELS + Add Refresh

Filter ☰ ⊞

<input type="checkbox"/> Name ▲	Status	Proc. Cluster	Type	Sources	Targets
<input type="checkbox"/> ch1	✔ Ok	WLBroadcaster	Pass-Through	chubs @ ffff	
<input type="checkbox"/> chanchan	✔ Ok	waltham	Pass-Through	encoder 01 @ waltham	
<input type="checkbox"/> channel_ANA_a	✔ Ok	QA-max-v14-sanity-03	Pass-Through	source_ANA_a @ qa-max-v14-sanity-03	🔍 1
<input type="checkbox"/> channel_ANA_a12	🔍 Disabled	QA-max-v14-sanity-03	Pass-Through	source_ANA_a12 @ qa-max-v14-sanit...	🔍 1
<input type="checkbox"/> channel_ANA_a12r	🔍 Disabled	QA-max-v14-sanity-03	Pass-Through	source_ANA_a12r @ qa-max-v14-sani...	🔍 1
<input type="checkbox"/> channel_ANA_daf	🔍 Disabled	QA-max-v14-sanity-03	Pass-Through	source_ANA_daf @ qa-max-v14-sanit...	🔍 1
<input type="checkbox"/> channel_ANA_ezl	🔍 Disabled	QA-max-v14-sanity-03	Pass-Through	source_ANA_ezl @ qa-max-v14-sanity...	🔍 1
<input type="checkbox"/> channel_ANA_ezr	🔍 Disabled	QA-max-v14-sanity-03	Pass-Through	source_ANA_ezr @ qa-max-v14-sanit...	🔍 1
<input type="checkbox"/> channel_ARI_a	🔍 Disabled	QA-max-v14-sanity-03	Pass-Through	source_ARI_a @ qa-max-v14-sanity-03	🔍 1
<input type="checkbox"/> channel_ARI_a12	🔍 Disabled	QA-max-v14-sanity-03	Pass-Through	source_ARI_a12 @ qa-max-v14-sanity...	🔍 1
<input type="checkbox"/> channel_ARI_a12r	🔍 Disabled	QA-max-v14-sanity-03	Pass-Through	source_ARI_a12r @ qa-max-v14-sanit...	🔍 1
<input type="checkbox"/> channel_ARI_daf	🔍 Disabled	QA-max-v14-sanity-03	Pass-Through	source_ARI_daf @ qa-max-v14-sanity...	🔍 1

« 1 2 ... 17 » Showing: 1 - 12 of 198 Rows Auto ▾



Working with Data Forms

Data forms are used to create new instances of Resources (Feeder, Receiver, Broadcaster), system Objects (Source, Channel, Target) and other system elements (e.g. Grid, Automation, etc.). When a form is opened, the browser navigates to a new page. For forms that are especially long, navigation links at the top of the page will take you directly to the desired section of the form. Also, some sections of the form, such as the “Advanced” section, will start out collapsed and can then be expanded by the user.

The screenshot displays the 'EDIT BROADCASTER CLUSTER' form. At the top, there are three navigation tabs: 'Info', 'Configuration', and 'Advanced'. The 'Info' tab is currently selected. Below the tabs, the form is divided into sections. The 'INFO' section includes fields for 'Name' (PM_Bx_Cluster_Manual), 'Access Tags' (MediaConnectDemo), 'DNS Prefix' (pm-bx-cluster-manual.demo.stagingio.devcloud.zixi.com), and 'Cluster Type' (Ingest and Channel Processing). There are also checkboxes for 'IP Whitelist' and 'DTLS'. The 'Load Balance Pull Targets' section has two buttons: 'Minimize the number of broadcasters' and 'Uniform distribution'. The 'CONFIGURATION' section includes 'Scaling Account' (Manual - Manual), 'Authorization Mode' (ZEN Master), and 'Allow access to inputs not configured in ZEN Master' (Push Inputs and Pull Outputs). A light blue banner at the bottom of the configuration section reads 'Reconnect existing broadcasters to apply new authorization configuration.' Below this is the 'ADVANCED +' section, which is currently collapsed. At the bottom right, there are 'Cancel' and 'Save' buttons. A green arrow points to the 'Configuration' tab, and another green arrow points to the 'ADVANCED +' section.


Global Search

The global search feature enables you to search all objects (i.e. Feeders, Broadcasters, Receivers, Sources, Channels and Targets) in the system. This makes it simple to access data about objects in the system. The search results screen includes a link to view each object on the main screen for that type of object (i.e. view feeders on the **Feeders** screen). For example, if you want to find out about the status and usage of resources in the United States you could type in "US" and all objects that have US in their names are displayed. You can then view data about each relevant resource.

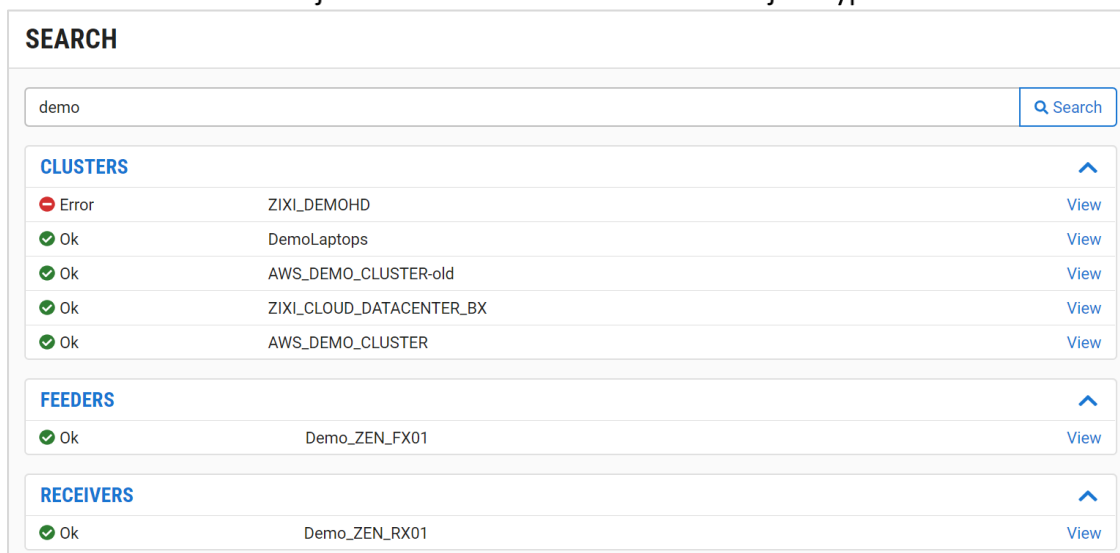


The global search only shows results for names of system objects, as opposed to the local search box on specific screens which shows results for all relevant parameters.

➔ To search for objects in the system.

1. Enter the search character string in the search box (above the main navigation).
2. Click the search button .

The search results are shown on the Search screen. The results include a list of objects with the search string in their names. The search results are grouped by object type. For each resource and system object, the current status is shown as well as a link to view detailed info for that object on the main screen for that object type.



The screenshot shows a search interface with a search box containing 'demo' and a 'Search' button. Below the search box, results are grouped into three sections: CLUSTERS, FEEDERS, and RECEIVERS. Each section lists objects with their status and a 'View' link.

SEARCH		
demo Search		
CLUSTERS ↑		
⊘ Error	ZIXI_DEMOHD	View
✔ Ok	DemoLaptops	View
✔ Ok	AWS_DEMO_CLUSTER-old	View
✔ Ok	ZIXI_CLOUD_DATACENTER_BX	View
✔ Ok	AWS_DEMO_CLUSTER	View
FEEDERS ↑		
✔ Ok	Demo_ZEN_FX01	View
RECEIVERS ↑		
✔ Ok	Demo_ZEN_RX01	View

3. Click **View** next to an object to view detailed info about that object.
4. If you would like to adjust the search string, edit the string shown in the search box at the top of the screen and click **Search**.

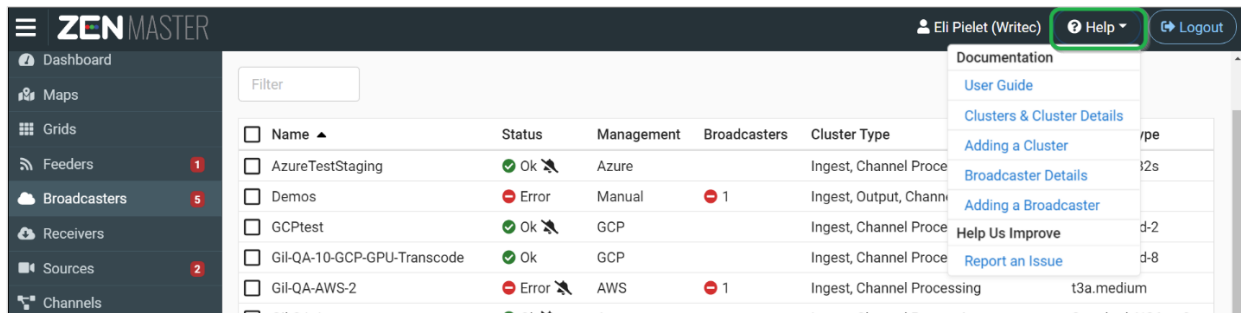
Dark Mode

ZEN Master features a dark mode of the UI as well as a light mode. The dark mode is enabled by default, click the moon icon at the top to toggle between the dark and light modes.



Help

The ZEN Master Help menu (in the header bar) enables you to access relevant documents on the ZEN Master online documentations portal or to submit a support ticket.



Documentation

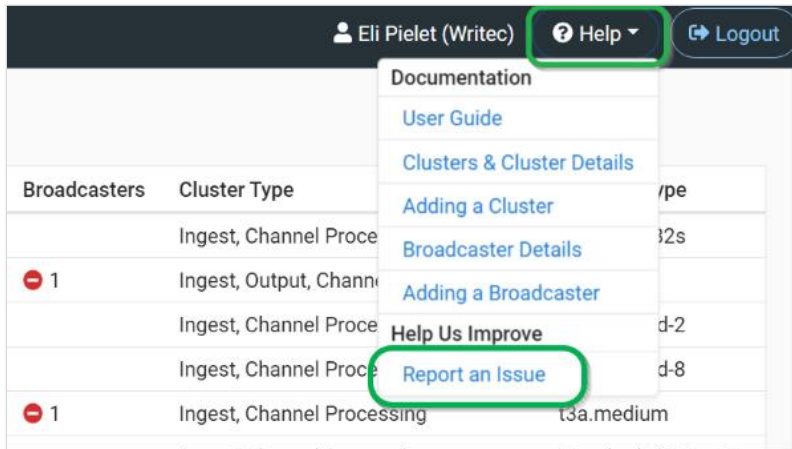
The Documentation section of the Help menu gives links to relevant documentation. The link to the User Guide home page is shown at all times. In addition, for each screen, links to relevant articles are shown.

Support tickets

You can submit a Zendesk support ticket directly from the ZEN Master Help menu.

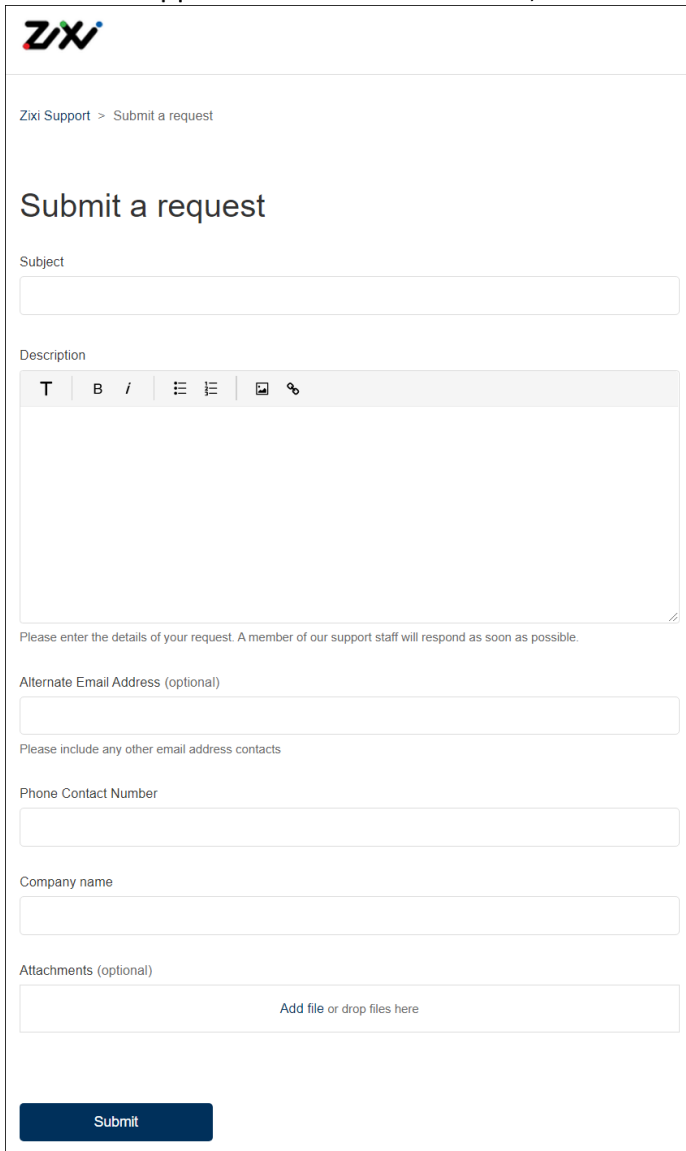
➔ **To submit a support ticket:**

1. Click on **Help** in the header bar and then click on **Report an Issue**.



2. Sign in to Zendesk using account credentials or an SSO.

3. Fill in the support ticket fields as needed, and then click **Submit**.



The screenshot shows a web form for submitting a support request. At the top left is the Zixi logo. Below it is a breadcrumb trail: "Zixi Support > Submit a request". The main heading is "Submit a request". The form contains the following fields and elements:

- Subject:** A text input field.
- Description:** A rich text editor with a toolbar containing icons for Bold (B), Italic (I), List (bulleted and numbered), Link, and Unlink.
- Instructions:** "Please enter the details of your request. A member of our support staff will respond as soon as possible."
- Alternate Email Address (optional):** A text input field with the instruction "Please include any other email address contacts" below it.
- Phone Contact Number:** A text input field.
- Company name:** A text input field.
- Attachments (optional):** A file upload area with the text "Add file or drop files here".
- Submit:** A dark blue button at the bottom left.

Configuration

The **Configuration** menu includes the following elements:

- **Tags** – Tags are used to control access to various system objects.
- **Event Profiles** – manage Events Profiles, which determine rules for Event logging and Event notifications.
- **Notifications** – configure the settings for sending out email notifications for alerts generated by the system.
- **API Keys** – API keys are used to access Zixi functions via API.
- **SSH Security & Keys** – SSH Keys are used in ZEN Master to authorize an SSH tunnel when connecting a Zixi component to ZEN Master.
- **Amazon AWS** – configure your AWS account credentials to enable managed Broadcaster clusters and HLS/DASH storage.
- **Microsoft Azure** - configure your Microsoft Azure account credentials to enable managed Broadcaster clusters and HLS/DASH storage.
- **Google GCP** – configure your GCP account credentials to enable managed Broadcaster clusters and HLS/DASH storage.

Configuring Tags

Tags are used to control access to ZEN Master Resources as well as other system objects such as Sources, Channels, Targets, Automation Task Sets, Reports etc. Each object instance is assigned a Tag. User Roles allow access to objects based on the related Tags. Only users who are assigned Roles that allow access to a particular Tag can access objects associated with that Tag. To learn more about User Management in ZEN Master, see [ACCOUNT MANAGEMENT](#).

Tags are created on the **Configuration > Tags** screen¹. They are then assigned to Roles on the **Account Management > Roles** screen, see [MANAGING ROLES](#).









































¹ Alternatively, it is possible to create new Tags within the flow of creating a Role.

Configuration

The Tags screen shows a list of all Tags that have been created in the system.

TAGS + Add Refresh

Filter Columns

<input type="checkbox"/>	Name	Priority	Actions
<input type="checkbox"/>	amd		 
<input type="checkbox"/>	apac		 
<input type="checkbox"/>	aws		 
<input type="checkbox"/>	azure		 
<input type="checkbox"/>	beng		 
<input type="checkbox"/>	bonded		 
<input type="checkbox"/>	boston		 
<input type="checkbox"/>	cdi		 
<input type="checkbox"/>	cqa		 
<input type="checkbox"/>	dash		 
<input type="checkbox"/>	default		 
<input type="checkbox"/>	demux		 
<input type="checkbox"/>	emea		 
<input type="checkbox"/>	eml		 
<input type="checkbox"/>	epsnr		 
<input type="checkbox"/>	events		 
<input type="checkbox"/>	evmaf		 
<input type="checkbox"/>	gcp		 
<input type="checkbox"/>	gpu		 
<input type="checkbox"/>	grid		 

1 - 20 of 50 Rows: Auto

The following table describes the information shown on this screen and the actions which can be taken.

Parameter	Description
Name	The name of the Tag
Actions	
Edit	Enables you to edit the name of the Tag.
	Deletes the Tag.
Delete	Note: You can only delete a Tag that is not currently assigned to any Roles or system objects.

Creating a Tag

➔ To create a Tag:

1. In the main navigation, click **Configuration > Tags**.
2. Click **+ Add**.

The **Create New Tag** window is displayed.

CREATE NEW TAG

Name *

 Priority

3. In the **Name** field, enter a name that will enable you to identify the type of permissions that will be associated with this Tag, e.g. *EastCoast, CustomerA, QA*.
4. Click **Save**.
The Tag is created and it is shown on the list of Tags on the Tags screen. The Tag can now be assigned to roles and system objects.

Configuring Events Profiles

Events Profiles are used to customize the way that *Events* are handled in ZEN Master.



ZEN Master logs *Events* that occur in your system. This includes both warning and error Events (e.g. offline, low bitrate, TR101 error) as well as OK Events, when objects return to an OK state. All Events are shown on the **Logs > Events** screen. In addition, Events can trigger the affected objects changing state in ZEN Master (warning, error, ok) as well as email notifications being sent to relevant stakeholders.



This feature replaces the “Notifications” configuration for errors and warnings that was used previously in ZEN Master.

Events Profiles enable you to create a series of customized rules that determine precisely how Events are logged and what results they trigger. Each rule governs a specific type of event (e.g. offline, low bitrate, TR101 error). For each rule you specify the following details:

- **Enabled/Disabled** – Specify whether or not this rule is enabled for generating Events.
- **Thresholds** – For rules that are governed by thresholds (e.g. CPU usage, low bitrate), specify the thresholds for generating warning and error Events.
- **Escalation** – Specify the number of events that cause escalation from “warning” to “error” Events and the window of time that is considered for escalation.
- **Actions** – Specify what actions are triggered by this rule. Specify whether or not these Events cause the state of the object to change in ZEN Master, and whether or not email notifications will be sent to relevant stakeholders.



The Events Profile does not determine which recipients will receive the notifications. When notifications are activated for a rule and that rule generates an Event for a particular object, notifications will be sent to all users who have roles associated with that object (via Tags) that include receiving notifications.

ZEN Master comes with a “Default” Events Profile that defines the default rules for Events. By default, that profile is applied to all objects in the system. You can create new custom profiles in which you adjust the settings for each individual rule that you would like to change from the default behavior.

Events Profiles are applied on an object-by-object basis, enabling you to apply different sets of rules to different objects.

Workflow

1. Create custom profiles for each of your specific needs.
2. Edit the settings for each object in your system to apply the desired Events Profile.
3. If necessary, adjust the role configurations and Tags as needed, to ensure that notifications are sent only to the relevant stakeholders.

Use Case Examples

- If you are interested in tracking TR101 P2 errors for Sources of a specific client but not for others, you can create two different Events Profiles, one with TR101 P2 tracking enabled and the other with it disabled. You can then apply the appropriate Events Profile to each of your Sources.
- If you want to set different GPU thresholds for broadcasters hosted on different types of machines, you can create different Events Profiles with different thresholds for broadcaster GPU usage.
- If you don't want to send any notifications for errors on a specific group of resources, you can create an Events Profile in which Notifications are disabled for all rules and apply that profile to the desired resources.

Types of Rules

There are a series of settings that can be configured for each rule. Different configuration options are available for different types of rules.


- For all rules you can configure the actions taken when a rule violation occurs. This includes specifying whether or not notifications will be sent out and whether or not the state of the object will change.
- **Threshold Rules** - For rules that relate to thresholds, there are two types of thresholds:
 - **Value thresholds** - These thresholds determine the specific value that will escalate from to a "Warning" and "Error" state. The rule defines the condition for escalating to a "Warning" and "Error" state and also the condition to de-escalate from "Error" state to "Warning" state and to "OK" state. For example, a CPU Usage rule can determine that if the CPU utilization reaches above the 50% threshold, it will escalate to a "Warning" state and if the value is above the 80% threshold, it will escalate to an "Error" state. To protect against "flapping", the rule also includes de-escalation and escalation delays that require the object to spend the configured time (in minutes) in the higher/lower state to actually escalate/de-escalate the state.

For example, the CPU has to be in under 80% for a period of 15 minutes in order to de-escalate from "Error" to "Warning" state.

Broadcaster - Usage - CPU ^

Track only, do not update object state
 Disable
 Generate OK email notification
 Generate Error email notification
 Ignore object state for notification generation

Thresholds



Warning [%] Error [%]

50 80

Escalation/De-escalation Timing [minutes]

Warning De-escalation Delay	Error De-escalation Delay
15	15
Warning Escalation Delay	Error Escalation Delay
0	0

- **State-Over-Time Thresholds** – For alerts that are based on a "Boolean" state, whether it is Boolean (e.g., Source Offline) or because the exact value is not important (e.g., CC errors or not recovered packets), the threshold is defined by a time window and a percentage of time in which that window spent in the relevant state. For example, 50% out of 6 minutes is an error threshold, so if a source reports a blank picture for 3 minutes out of the 6 min window, ZM will put it into an error state. However, if the warning threshold is 5% out of 60 minutes, if a source reports a blank picture for 3 minutes out of the 60 min window, ZM will put it into a warning state. To protect against "flapping", the rule also includes de-escalation and escalation delays that require the object to spend the configured time (in minutes) in the

higher/lower state to actually escalate/de-escalate the state.

Source - Analysis - Blank Picture (Not Saved)

Track only, do not update object state Reset Save

Disable

Generate OK email notification

Generate Error email notification

Ignore object state for notification generation

Thresholds

Warning [%] = 3 minutes Error [%] = 3 minutes

5 50

Warning Window [minutes] Error Window [minutes]

60 6

Escalation/De-escalation Timing [minutes]

Warning De-escalation Delay	Error De-escalation Delay
0	15
Warning Escalation Delay	Error Escalation Delay
0	0

Adding a New Events Profile

You can create new Events Profiles (based on the default profile) in which you adjust the settings for each individual rule that you would like to change from the default behavior.

➔ To create a new Events Profile:

1. In the Main Navigation, click **Configuration > Events Profiles**. The **Events Profiles** screen opens.
2. Click **+ Add**.

The **Create New Events Profile** window is displayed.

CREATE NEW EVENTS PROFILE

Name *

 Default

Cancel Save

3. In the **Name** field, enter a name for the new Events Profile. Choose a name that is representative of the set of rules that you plan to apply to your objects.
4. Click **Save**.
The new Events Profile is created. You can now edit the rules for the Profile as described in the following section.

Editing Events Profile Rules

The rules for Events Profiles can be modified. The options available to edit within a rule depend on the individual rule.

➔ To edit an Events Profile Rule:

1. Go to **Configuration > Events Profiles** and select the Events Profile for which you would like to edit the rules.
Details of the selected Events Profile are shown at the right side of the screen.
2. In the **Rules** tab, click **Edit Rules**.
The rules for your chosen Events Profile are shown. Rules are grouped first by resource type (e.g. Adaptive Channel, Broadcaster, Source, etc.), then by error group (e.g. Usage, Configuration, etc.), and then by the error name (Low Bitrate, Low Audio Level, etc.). Rules that have already been modified are shown in the **Modified** list in alphabetical order, and rules in the **Default** list have default settings.

EDIT RULES - TEST3 ?

Filter	
Modified	
Adaptive Channel - Rendition Error - Transcoding Overflow	▼
Broadcaster - Usage - Output Bandwidth	▼
MediaConnect Flow - Status - TR101	▼
Default	
Adaptive Channel - Adaptive Group - Other	▼
Adaptive Channel - Adaptive Group - Unaligned Timestamps	▼
Adaptive Channel - Offline - Missing	▼
Adaptive Channel - Offline - Other	▼
Adaptive Channel - Rendition Error - Other	▼
Adaptive Channel - Rendition Error - Source Missing	▼
Adaptive Channel - Rendition Error - Transcoding	▼
Broadcaster - API - Error	▼

3. Scroll through the list and click on the desired rule.



Alternatively, you can use the search box at the top of the page to search for the desired rule.

The Rule tab expands, showing the settings for that rule. (The options available to edit within a rule depend on the individual rule, see table below.)

Broadcaster - Usage - Memory ^

Track only, do not update object state

Disable

Generate OK email notification

Generate Error email notification

Ignore object state for notification generation

Thresholds

Warning [%] Error [%]

50 80

Escalation/De-escalation Timing [minutes]

Warning De-escalation Delay	Error De-escalation Delay
15	15
Warning Escalation Delay	Error Escalation Delay
0	0

- Edit the settings as desired.
When you modify the settings, the rule is marked as “Not Saved” (indicated at the end of the rule’s title).
- To save the changes, do one of the following:
 - Click **Save** at the top of the rule’s tab.
The rule is moved to the **Modified** list, and you remain on the **Edit Rules** screen.
 - Click **Save** at the top or bottom of the **Edit Rules** screen.
The rules you modified are moved to the **Modified** list, and you are returned to the Rules tab of the **Events Profiles** screen, where the rules appear in the list under **Modified**.

➔ **To restore an Events Profile Rule to its default settings:**

- Go to **Configuration > Events Profiles** and select the Events Profile for which you would like to edit the rules.
Details of the selected Events Profile are shown at the right side of the screen.

2. In the **Rules** tab, click **Edit Rules**.

The rules for your chosen Events Profile are shown. Rules that have been modified are shown in the **Modified** list in alphabetical order, and rules in the **Default** list have default settings.

EDIT RULES - TEST3 ?

The screenshot shows a web interface for editing rules. At the top, there is a search filter box. Below it, the rules are organized into two sections: 'Modified' and 'Default'. The 'Modified' section contains three rules: 'Adaptive Channel - Rendition Error - Transcoding Overflow', 'Broadcaster - Usage - Output Bandwidth', and 'MediaConnect Flow - Status - TR101'. The 'Default' section contains ten rules: 'Adaptive Channel - Adaptive Group - Other', 'Adaptive Channel - Adaptive Group - Unaligned Timestamps', 'Adaptive Channel - Offline - Missing', 'Adaptive Channel - Offline - Other', 'Adaptive Channel - Rendition Error - Other', 'Adaptive Channel - Rendition Error - Source Missing', 'Adaptive Channel - Rendition Error - Transcoding', and 'Broadcaster - API - Error'. Each rule entry has a downward-pointing chevron icon on the right side.

3. Scroll through the list and click on the desired rule.
The Rule tab expands, showing the settings for the rule.
4. Click the **Reset** button at the top of the rule's tab.

The screenshot shows the expanded settings for the rule 'Adaptive Channel - Rendition Error - Transcoding Overflow'. At the top of the expanded view, there is a 'Reset' button highlighted with a red rectangular box. Below the button are several configuration options: 'Track only, do not update object state' (unchecked), 'Disable' (unchecked), 'Generate OK email notification' (checked), 'Generate Error email notification' (checked), and 'Ignore object state for notification generation' (unchecked). There is a 'Thresholds' section with a horizontal slider and two input fields: 'Warning [%]' set to 50 and 'Error [%]' set to 73. Below that is an 'Escalation/De-escalation Timing [minutes]' section with four input fields: 'Warning De-escalation Delay' (15), 'Error De-escalation Delay' (15), 'Warning Escalation Delay' (0), and 'Error Escalation Delay' (0). The bottom of the expanded view shows the next rule in the list, 'Broadcaster - Usage - Output Bandwidth'.

The rule is reset to its default settings, automatically saved and moved back to the **Default** list.



When you click the “Reset” button, the rule’s settings are instantly reverted to their default settings and saved. You cannot undo this action.

Configuration

The table below lists all of the potential parameters from all of the rules. There is also the option to reset rules to their default settings.

Parameter	Description
Track only, do not update object state	Select this option if you want the escalation event to be registered in the event log only. In this case, the issue triggering the rule and any resulting escalation, will not escalate the object itself to a warning or error state.
Disable	Select this option to disable the rule entirely, so that no Events will be logged for this rule. (If checked, the other rule options are no longer shown.)
Generate OK email notification	Select this checkbox if you would like email notifications to be sent to relevant stakeholders when the object returns to an OK state.
Generate Error email notification	Select this checkbox if you would like email notifications to be sent to relevant stakeholders when the object enters an error state.
Ignore object state for notification generation	Select this checkbox if you would like notifications to be sent to relevant stakeholders for all error Events regardless of whether the object was already in an error state. (When not selected, notifications are only sent when an object first enters into an error state.)

For Value Thresholds:

Enter the threshold or adjust the slider to specify the thresholds for escalating/de-escalating to/from a "warning" and "error" state. In this case the value is absolute and defined within the rule (e.g. utilization level in percentage, time in days, etc.). For example, a CPU Usage rule can determine that if the CPU utilization reaches above the 50% threshold, it will escalate to a "Warning" state and if the value is above the 80% threshold, it will escalate to an "Error" state. If you want to disable the "warning" and/or "error" states de-select their respective checkbox.

Thresholds

For State-Over-Time Thresholds

In the "**Warning**" and "**Error**" fields enter (or adjust the scale) the percentage of time in which the object should spend in the relevant state (e.g., in a "warning", "error" or "OK" state) within the time windows, which are specified in the **Warning/Error Window (minutes)** in order to escalate the object to that state. For example, 50% out of 6 minutes is an error threshold, so if a source reports a blank picture for 3 minutes out of the 6 min window, ZM will put it into an error state. However, if the warning threshold is 5% out of 60 minutes, if a source reports a blank picture for 3 minutes out of the 60 min window, ZM will put it into a warning state. If you want to disable the "warning" and/or "error" states de-select their respective checkbox.

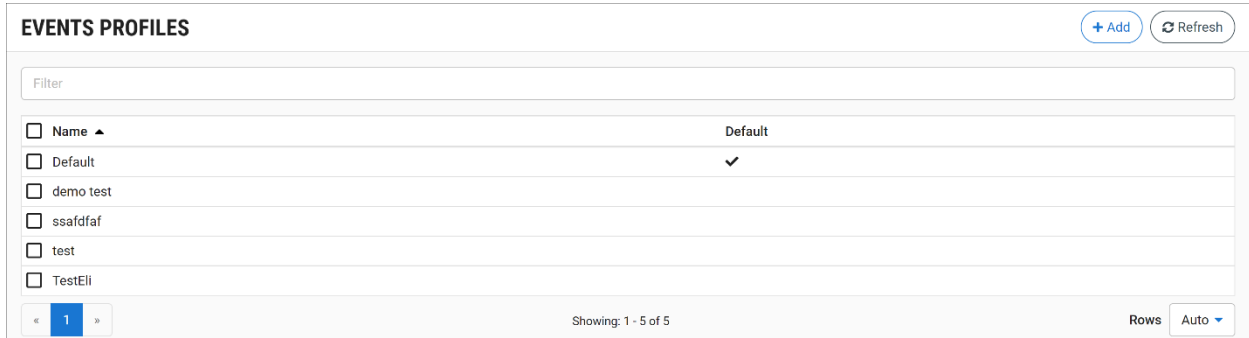
Escalation/De-escalation Timing

To protect against "flapping", the rule also includes de-escalation and escalation delays that require the object to spend the configured time (in minutes) in the higher/lower state to actually escalate/de-escalate the state.

- **Warning De-escalation Delay** - specify the time in minutes in which the object should spend to de-escalate from "Warning" to "OK" state.
- **Warning Escalation Delay** - specify the time in minutes in which the object should spend to de-escalate from "Warning" to "Error" state.
- **Error De-escalation Delay** - specify the time in minutes in which the object should spend to de-escalate from "Error" to "Warning" state.
- **Error Escalation Delay** - specify the time in minutes in which the object should spend to de-escalate from "Warning" to "Error" state.

Viewing Existing Events Profiles

The Events Profiles screen displays all existing Events Profiles, and shows which Events Profile is set as the default profile.



The main display includes the following data for each Events Profile:

Parameter	Description
Selection Checkbox	Select one or more Events Profiles and perform actions on all selected Events Profiles. Available actions are: <ul style="list-style-type: none"> • Delete Selected – deletes the selected Events Profiles.
Name	The name of the Events Profile.
Default	Indicates (by a checkmark) which Events Profile is applied to objects by default.

When an Events Profile is selected, the list pane is minimized and detailed info about the selected Events Profile is shown on the right side of the screen. The following sections are shown in the Info pane:

- **Details** – configuration details of the selected Events Profile.
- **Rules** – the rules for the selected Events Profile with their associated settings.

Actions on an Events Profile

When one of the Events Profiles in the list is selected, information about the Events Profile is shown in the Info pane.

The **Info** pane has buttons for taking the following actions for the selected Events Profile.

- **Edit** – Edit the Events Profile configuration (change the name of the profile).
- **Clone** – Create an additional Events Profile based on the settings of the selected Events Profile.
- **Delete** – Delete the Events Profile configuration.

Events Profile Details

The Details section shows the following information:

Parameter	Description
Name	The name of the Events Profile.
Default	<ul style="list-style-type: none"> • Yes – indicates that this Events Profile is used to define the default rules for newly created Events Profiles. • No – indicates that this Events Profile is not used to define the default rules for newly created Events Profiles.

Events Profile Rules

Name	Gener. Notif.	Stateful	Thresholds [W/E]	Windows [W/E]
Modified				
Adaptive Channel - Rendition Error - Transcoding Overflow	Ok, Error	Yes	0/50 [frames]	- / -
Broadcaster - Usage - Memory	Ok, Error	Yes	50/73 [%]	- / -
Broadcaster - Usage - Output Bandwidth	Ok, Error	Yes	61/80 [%]	- / -
MediaConnect Flow - Status - TR101	Ok, Error	Yes	0/55 [%]	15/15 [minutes]
Default				
Adaptive Channel - Adaptive Group - Other	Ok, Error	Yes	0/33 [%]	15/15 [minutes]
Adaptive Channel - Adaptive Group - Unaligned Timestamps	Ok, Error	Yes	0/33 [%]	15/15 [minutes]
Adaptive Channel - Offline - Missing	Ok, Error	Yes	- /0 [%]	15/5 [minutes]

The Rules section shows options for all of the rules for the selected Events Profile. The following information is shown:

Parameter	Description
Name	The name of the rule.
Disabled	<ul style="list-style-type: none"> • Yes – indicates that the rule is disabled, so that no Events will be logged for this rule. • No or {blank} – indicates that the rule is enabled.
Generate Notification	<ul style="list-style-type: none"> • OK – indicates that notifications will be sent out to relevant stakeholders when the object returns to an “OK” state. • Error – indicates that notifications will be sent out to relevant stakeholders when the object enters an error state. • {Blank} – indicates that no notifications will be sent out.
Stateful	<ul style="list-style-type: none"> • Yes – indicates that the object’s state will be updated when an Event is logged. • No – indicates that the object’s state will not be updated when an Event is logged (i.e. this rule will not cause the object to go into an error or warning state).

Thresholds [W/E]	Displays the thresholds for escalating to/from warning (W) and to/from error (E) states.
Windows [W/E]	Displays Warning/Error Window (minutes) time window values.

Configuring Notifications

Zen Master automatically sends email notifications about errors that occur in the system to all relevant parties. The settings for which error Events trigger notifications are determined by the Event Profiles under **Configuration > Events**, see [CONFIGURING EVENTS PROFILES](#).

The **Configuration > Notifications** screens enable you to configure the “Flapping Detection” thresholds and to configure a Kafka server to receive logs for ZEN Master Events.

Configuring Flapping Detection

ZEN Master uses Flapping Detection to stop the system from flooding users with multiple notifications for a particular object in the system that undergoes frequent state changes. Once the threshold frequency of recurrence is reached, the system automatically mutes the notifications for that object until it becomes stabilized.

Users can configure the settings for what degree of frequency causes the notifications to be muted and how long the system must remain stable before notifications for that object are reactivated, see [FLAPPING DETECTION](#).

NOTIFICATIONS

FLAPPING DETECTION [KAFKA CONFIGURATION](#)

A flapping state is detected when X number of *State Changes* happen within the flapping detection *Window*.
If a flapping state is detected the object is automatically muted for *Cooldown* minutes.

Window [minutes]

State Changes

Cooldown [minutes]

The following table describes the information shown in this section:

Parameter	Description
-----------	-------------

Configuration

Window [minutes]	The number of minutes in which the specified number of state changes must occur to trigger the Flapping Detection.
State Changes	The number of state changes that must occur in the specified window of time in order to trigger the Flapping Detection.
Cooldown [minutes]	The number of minutes that the object must remain stable in order to resume sending notifications for that object.
Update button	Activates changes made to the configuration.

Configuring Kafka Servers

ZEN Master can export event notifications and SCTE 35 messages to an Apache Kafka server. Kafka is a data streaming platform that allows you to publish and subscribe to streams of data, store them, and process them. ZEN Master is a “publisher” that uses the Kafka Producer API to send event data to a Kafka server. Once the event data from ZEN Master is streaming to a Kafka server, connectors are available to pull data from the Kafka server into third party applications and services including Elasticsearch, Splunk, Azure Event Hubs, AWS CloudWatch, AWS S3, and more. To configure a Kafka server to receive event notifications from ZEN Master, see [SENDING NOTIFICATIONS TO A KAFKA SERVER](#).

The following table describes the information shown in this section:

Parameter	Description
Name	The name of the Kafka server configuration.
Topic	The Topic created in the Kafka server where the notifications will go.
Servers	Kafka broker/host combination delimited by comma, e.g. kafka-1.us-east-1.myapp.com:9093,kafka-2.us-east-1.myapp.com:9093
Events	Shows if the server is configured to receive event notifications.
SCTE-35	Shows if the server is configured to receive SCTE-35 messages.
<i>Actions</i>	
Test	Enables you to verify the connection between ZEN Master and Kafka.
Edit	Enables you to edit the Kafka configuration.
Delete	Deletes the Kafka configuration.

Configuring API Keys

You can integrate ZEN Master streaming functionality (i.e. configuring resources and system objects) into your existing apps via API integration. ZEN Master generates API Keys to control access to the API integration.

On the API Keys screen you can access existing API keys. You can also access a link to the ZEN Master API documentation. An admin user can also create new keys.

API KEYS

The screenshot shows the 'API KEYS' interface. At the top, there are two tabs: 'KEYS' (selected) and 'DOCUMENTATION'. Below the tabs is a search filter box and two buttons: '+ Add Key' and 'Refresh'. The main area contains a table with the following data:

<input type="checkbox"/>	Name ▲	Key	Read Only	
<input type="checkbox"/>	Chris_API	Show / Copy	False	
<input type="checkbox"/>	Demo API	Show / Copy	False	
<input type="checkbox"/>	TWDDemo	Show / Copy	False	

At the bottom of the table, there is a pagination control showing '1' of 3 items, a 'Showing: 1 - 3 of 3' indicator, and a 'Rows' dropdown set to 'Auto'.

The API Keys screen shows a list of API Keys available in the system.

- Click **Show** next to a key to show the string of characters for that key.
- Click **Copy** next to a key to copy the string of characters for that key.
- Click **Delete** next to a key to delete that key.

➔ To generate a new API key:

1. In the main navigation, click **Configuration > API Keys**.
The **API Keys** screen is displayed.
2. Click **+ Add Key**.

The **Create New API Key** screen appears:

The 'CREATE NEW API KEY' form has a title bar and a main content area. The main content area contains a label 'Name *' followed by a text input field with the placeholder text 'Name'. At the bottom right of the form, there are two buttons: 'Cancel' and 'Save'.

3. In the **Name** field, type a name for the new key using any alphanumeric characters.
4. Click **Save**.
The new API key is added to the list of API keys.
5. You can view the new API Key by clicking **Show** next to the relevant key.

Configuring SSH Keys

SSH Keys are used in ZEN Master to enable ZEN Master to access the web UI of a connected Zixi resource (e.g. Broadcaster, Feeder, Receiver or other Zixi enabled device).

When you configure resources in ZEN Master you will assign an SSH key to each resource. You can use a single SSH key for several resources or use a separate key for each resource. Each SSH key is associated with one or more Tags which control which users have access to that key.

There are two methods for generating SSH keys:

- Generate the key in ZEN Master and then download the private part of the key and load it into the external device. (simplest method)

OR

- Generate the key on the external device and then *Import* the public part of the key into ZEN Master. (most secure method)



If you are importing a public key, it must be a "strong" key in order for it to be accepted in ZEN Master.



If an SSH Key was imported from an external device (not generated in ZEN Master) then you will need to use the manual method to connect the device to ZEN Master and not the automatic method (i.e. v12 method).

The SSH Keys screen shows a list of the SSH keys available in your system as well as the tag/s associated with each key.

Name	Access Tags	Actions
Adult-Swim_Key	adult_swim	[Add] [Edit] [Delete]
Azure-AZURE_AZURE		[Add] [Edit] [Delete]
Azure-AzureNvidia		[Add] [Edit] [Delete]
Azure-AzureTest		[Add] [Edit] [Delete]
Azure-AzureTestStaging		[Add] [Edit] [Delete]
Azure-Gil_QA_Azure		[Add] [Edit] [Delete]
demo_ssh_key		[Add] [Edit] [Delete]
Gil-QA-Bloom	aaaaaa, Admin, adult_swim, asdasd	[Add] [Edit] [Delete]
Gil-test-key	aaaaaa, Admin, adult_swim, asdasd, asfasd	[Add] [Edit] [Delete]
Gil111222	Admin, adult_swim, asdasd, asfasd, b	[Add] [Edit] [Delete]
ibc	ibcsales, ibc_admin	[Add] [Edit] [Delete]

You can perform the following actions for each SSH key.

- **Edit** – Edit the name and/or Tag for that key.
- **Download** – Download the private part of the key onto your local machine (for keys generated in ZEN Master).
- **Delete** – Delete the key.

The **Tunnels/IO Server** tab shows the Hostname used for SSH tunnels and includes a link to download the Public Key used to sign the SSH server's unique ID.

➔ To generate a new SSH key:

1. In the main navigation, click **Configuration > SSH Security & Keys**. The **SSH Security & Keys** screen is displayed.
2. Click **+ Add**.

The **Create New SSH Key** screen appears:

CREATE NEW SSH KEY

The screenshot shows a form titled "CREATE NEW SSH KEY". It has three main sections: "Name" with a text input field and a red asterisk; "Tags" with a dropdown menu and a red asterisk and an information icon; and "SSH Key" with two buttons: "Import" and "Generate". At the bottom right of the form, there are two buttons: "Cancel" and "Save".

3. In the **Name** field, type a name for the new key using any alphanumeric characters.
4. In the **Tags** field, select one or more of the predefined Tags from the drop-down list. Tags are used for access control. By selecting an Tag, you are relating this SSH Key to that Tag. Tags are associated with certain roles (through the Users & Roles screen), and roles, in turn, are associated with users and user groups. If you would like to create a new Tag, see [CREATING A TAG](#).
5. Under **SSH Key**, select **Generate**.
6. Click **Save**.
The new SSH key is added to the list of SSH keys.
You can download the new SSH Key by clicking **Download** next to the relevant key. This file will be used to configure the SSH tunnel for connecting a Zixi component to ZEN Master.

➔ To import an SSH key:

1. First, generate an SSH key on the external device.
2. Then, in ZEN Master main navigation, click **Configuration > SSH Security & Keys**. The **SSH Security & Keys** screen is displayed.

3. Click **+ Add**.
The **Create New SSH Key** screen appears.

CREATE NEW SSH KEY

Name *

Tags * ⓘ

SSH Key

SSH Public Key *

4. In the **Name** field, type a name for the new key using any alphanumeric characters.
5. In the **Tags** field, select one or more of the predefined Tags from the drop-down list.
Tags are used for access control. By selecting a Tag, you are relating this SSH Key to that Tag. Tags are associated with certain roles (through the Users & Roles screen), and roles, in turn, are associated with users and user groups. If you would like to create a new Tag, see [CREATING A TAG](#).
6. In the **SSH Public Key** field, enter the public key that was generated on the external device.
7. Click **Save**.
The new SSH key is added to the list of SSH keys.

Configuring AWS Account Credentials

You can link one or more AWS accounts to ZEN Master. This enables you to launch managed broadcaster clusters on AWS (including broadcasters that use Nvidia GPU for transcoding). You can also use S3 Bucket storage as publishing Targets for storing HLS and DASH manifests and segments. In addition, you can integrate AWS MediaConnect "Flows" into your ZEN Master workflow as Sources or Targets and you can also create new Flows in ZEN Master.

The **Accounts** tab in the **AWS Accounts** screen shows your existing AWS accounts that are linked to ZEN Master. For each existing configuration, icons at the end of the row enable the following actions: *Edit configuration, Delete configuration.*

The screenshot shows the 'AWS ACCOUNTS' interface with the 'ACCOUNTS' tab selected. It features a filter input, '+ Add Account' and 'Refresh' buttons, and a table with columns for Name and Role. Each row has edit and delete icons. The table shows 5 rows of data.

Name	Role		
Account 1	arn:aws:iam::123456789012:role/RoleName1		
Account 2	arn:aws:iam::123456789012:role/RoleName2		
Account 3	arn:aws:iam::123456789012:role/RoleName3		
Account 4	arn:aws:iam::123456789012:role/RoleName4		
Account 5	arn:aws:iam::123456789012:role/RoleName5		

The **Documentation** tab shows the procedure used for linking an AWS account to ZEN Master.

The screenshot shows the 'AWS ACCOUNTS' interface with the 'DOCUMENTATION' tab selected. The heading is 'CREATING AN AWS IAM ROLE FOR ZEN MASTER'. It lists three steps: 1. Login to your AWS IAM console, 2. Select the Policies page and click 'Create policy', 3. Select the JSON tab and paste the following policy document into the policy document field. Below the steps is a code block containing a JSON policy document.

```

{
  "Version": "2012-10-17",
  "Statement": [
    {
      "Effect": "Allow",
      "Action": [
        "ec2:DescribeKeyPairs",
      ]
    }
  ]
}
    
```

Linking an AWS Account

ZEN Master uses its own AWS Role ARN credentials to access AWS and manage Broadcaster clusters. As part of this configuration, you will grant access to ZEN in order to manage your resources in your AWS account.

To configure an AWS account in ZEN Master, follow the procedure described in the **Documentation** tab.

The configuration process involves the following steps:

- **Generate a Role ARN** - on AWS you will need to generate a Role ARN for ZEN. Under **Configuration > Amazon AWS**, in the **Documentation** tab, you will find instructions on how to configure the **AWS role for ZEN**. The instructions contain information that is unique to your account. Keep this browser open while you configure your Amazon AWS account so that you can use the dynamically generated credentials as you configure these settings.
- **Enter the Role ARN in ZEN** – the ARN code that was generated should be entered into your Amazon AWS account configuration in ZEN Master (by clicking **+ Add Account**).

Editing an AWS Account

You can edit the configuration of an AWS account to update the Role ARN.



You can't change the account that ZEN Master is linked to, you can only update the Role ARN to apply a different role for the original account.

➔ To edit an AWS Account:

1. In AWS generate a new Role ARN with the desired permissions.
2. In ZEN Master, on the **Configuration > Amazon AWS** screen, click on the **Edit** icon for the desired account.

The **Edit AWS Account** window opens.

EDIT AWS ACCOUNT

Name *

Role ARN *

e.g. arn:aws:iam::123456789012:role/RoleName

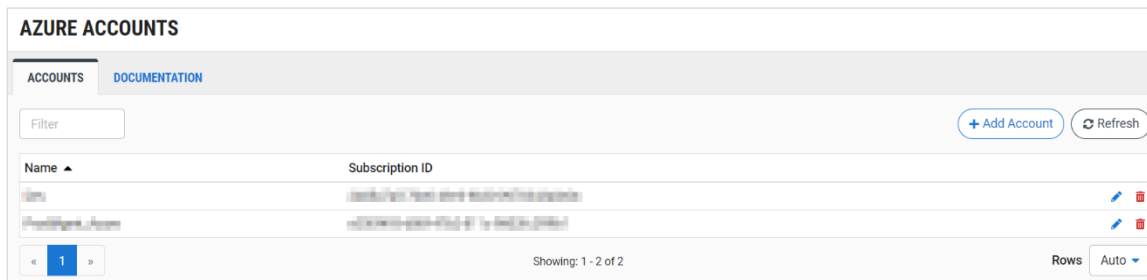
3. Edit the **Name** and/or **Role ARN** as desired.

4. Click **Save**.
The new settings are applied.

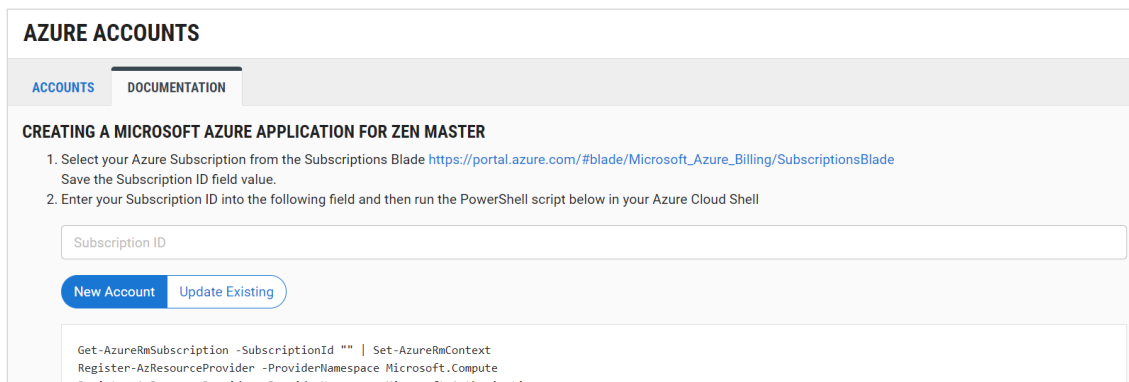
Configuring Microsoft Azure Account Credentials

You can link one or more Microsoft Azure accounts to ZEN Master. This enables you to launch managed Broadcaster clusters on Azure (including broadcasters that use Nvidia GPU for transcoding). You can also use Azure Blob storage as publishing Targets for storing HLS and DASH manifests and segments.

The **Accounts** tab in the **Azure Accounts** screen shows your existing Azure accounts that are linked to ZEN Master.



The **Documentation** tab in the screen shows the procedure used for linking an Azure account to ZEN Master.



To link your Azure account to ZEN Master, first you need to create an Azure Active Directory application with a service principal (identity). Then you can enter your Azure account parameters into ZEN Master to link your Azure account to ZEN Master.

Linking an Azure Account

To Link an Azure account to ZEN Master, follow the procedure described in the **Documentation** tab.

The configuration process involves the following steps:

1. **Create an Azure Subscription** – create a subscription for Microsoft Azure and copy you're your Subscription ID to the clipboard.

2. In ZEN Master go to **Configuration > Microsoft Azure**.
3. In **Documentation** tab, in the **Subscription ID** field, enter you Azure subscription ID.
4. Verify that the **New Account** radio button is selected (default).
5. **Run PowerShell script** – run the PowerShell script shown in the instructions section. Once you have entered your Subscription ID, this is automatically embedded in the script.
6. **Nvidia license** – run the PowerShell commands to access the Nvidia license and accept its terms.
7. **Create AD app and service principal** – follow the steps described in the linked article to create an AD application and service principal. This will generate the following parameters which will be used to link ZEN Master to your Azure account.
 - Directory/Tenant ID
 - Application ID
 - Authentication Key
8. **Link ZEN Master account** - to link your ZEN Master account to Azure:
 - a. Click **+ Add Account** at the top of the page.
 - d. Fill in the fields using the parameters that you generated in your Azure account.
 - e. Click **Save**.Your Azure Account is now linked to ZEN Master and can be used for managed Broadcaster clusters.
9. **Create a Virtual Network** – in order to be able to create an Azure cluster on ZEN Master, you need to first create a virtual network in your Azure account via the Azure portal.

Editing an Azure Account

You can edit the configuration of an Azure account to update the permissions.



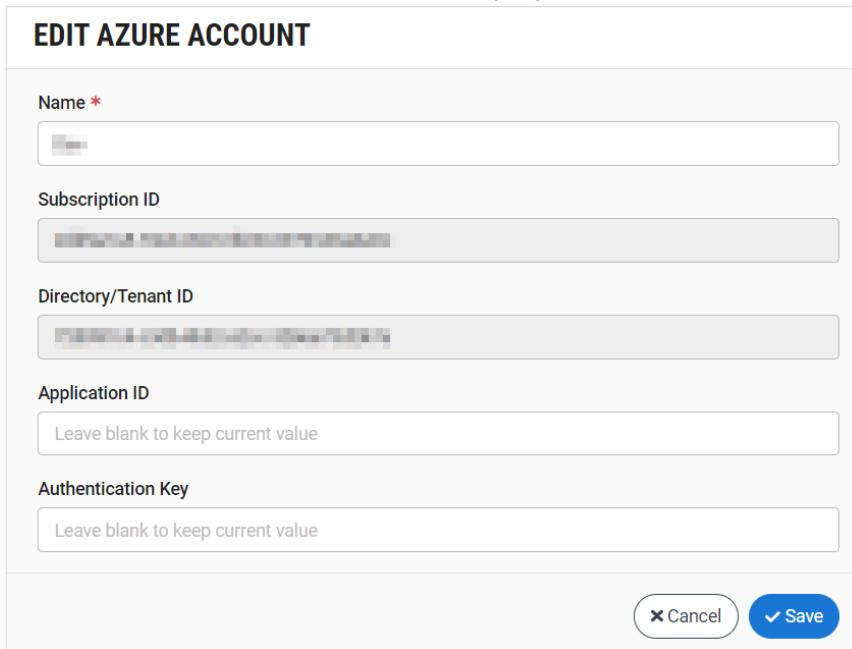
You can't change the account that ZEN Master is linked to, you can only update the permissions that are configured in that account.

➔ To edit an Azure Account:

1. In Azure, adjust the permissions for ZEN Master and generate a new *Application ID* and *Authentication Key*.

2. In ZEN Master, on the **Configuration > Microsoft Azure** screen, click on the **Edit** icon for the desired account.

The **Edit Azure Account** window is displayed.



EDIT AZURE ACCOUNT

Name *

Subscription ID

Directory/Tenant ID

Application ID

Authentication Key

Leave blank to keep current value

Leave blank to keep current value

Cancel Save

3. Edit the **Name**, **Application ID** and **Authentication Key** fields as desired.
4. Click **Save**.

The new settings are applied.

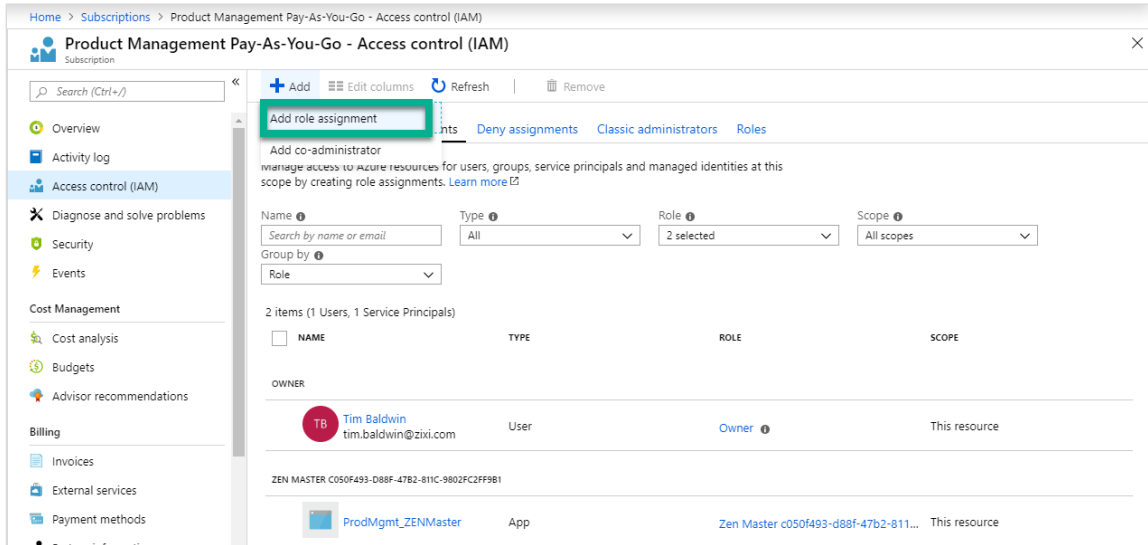
Adding Blob Storage to an Azure Account

If you have an existing Azure, you can add Blob Storage in order to use your Azure account as a Target in ZEN Master.

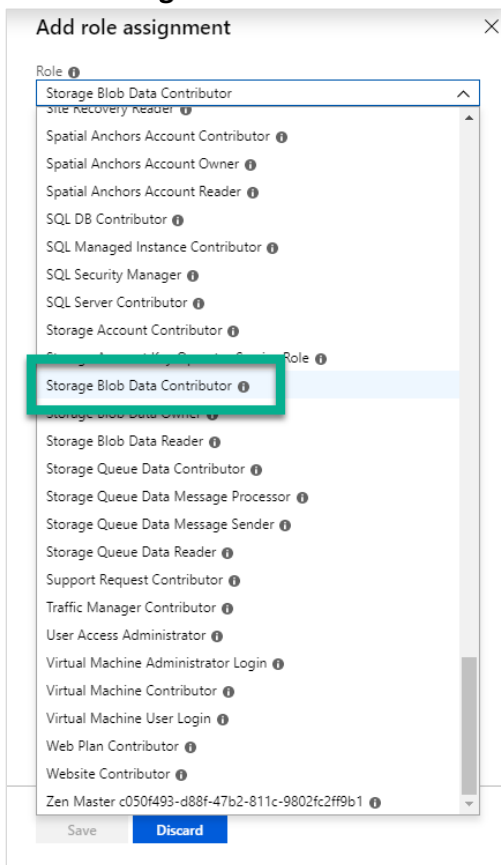
➔ To add Blob Storage to your Azure account:

1. In your Azure subscription page, select **Access control (IAM)**.
2. Click on **+ Add**.

3. Click **Add role assignment**.




4. Select **Storage Blob Data Contributor**.



5. Select the same service principal that you created when you originally linked ZEN Master to the Azure subscription.

6. Click **Save**.



The service principal is now listed as **Storage Blob Data Contributor**.

STORAGE BLOB DATA CONTRIBUTOR			
	ProdMgmt_ZENMaster	App	Storage Blob Data Contributor ⓘ This resource

Configuring Google GCP Account Credentials

You can link a GCP account to ZEN Master. This enables you to launch managed Broadcaster clusters on GCP (including broadcasters that use Nvidia GPU for transcoding). You can also use GCP storage as publishing Targets for storing HLS and DASH manifests and segments.

The **Accounts** tab in the **GCP Accounts** screen shows your existing GCP accounts that are linked to ZEN Master.

GCP ACCOUNTS	
ACCOUNTS	DOCUMENTATION
Filter	+ Add Account Refresh
Name ▲	Service Account ID
	gcp-zen-master-gcp-admin@zen-master.com
	zen-master-storage-admin@zen-master.com
Showing: 1 - 2 of 2	
Rows Auto	

The **Documentation** tab in the screen shows the procedure used for linking a GCP account to ZEN Master.

GCP ACCOUNTS

[ACCOUNTS](#) [DOCUMENTATION](#)

CREATING A GCP SERVICE ACCOUNT FOR ZEN MASTER

Create a GCP service account

1. Login to your GCP service accounts console <https://console.cloud.google.com/iam-admin/serviceaccounts>
2. Select your project
3. In the top menu, click 'Create Service Account'
4. Name the account, e.g. 'zen-master' and click 'Create'
5. Add the following roles and click 'Continue'
 - Compute Admin** and **Service Account User** for creating GCP clusters
 - Storage Admin** for GCP Storage targets
6. Click 'Create Key' select the 'JSON' type and click 'Create'
7. Note the downloaded file and click 'Done'

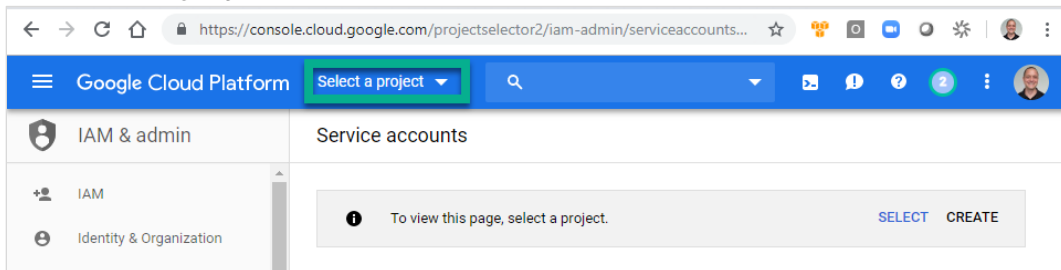
Configure Zen Master to use the GCP service account

1. Click 'Add Account' on the Accounts tab on this page
2. Name it and upload the JSON file provided by GCP
3. Click 'Save' to confirm. You can now use GCP in Zen Master

Linking a Google GCP Account

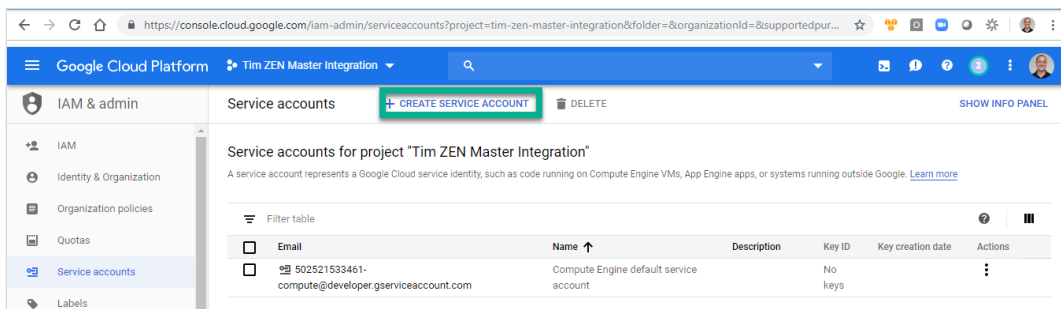
To create a GCP account and connect it to ZEN follow the procedure shown in the **Documentation** tab, as described below:

1. Login to your GCP service accounts console at <https://console.cloud.google.com/iam-admin/serviceaccounts>.
2. Click **Select a project**.



A window opens showing your projects.

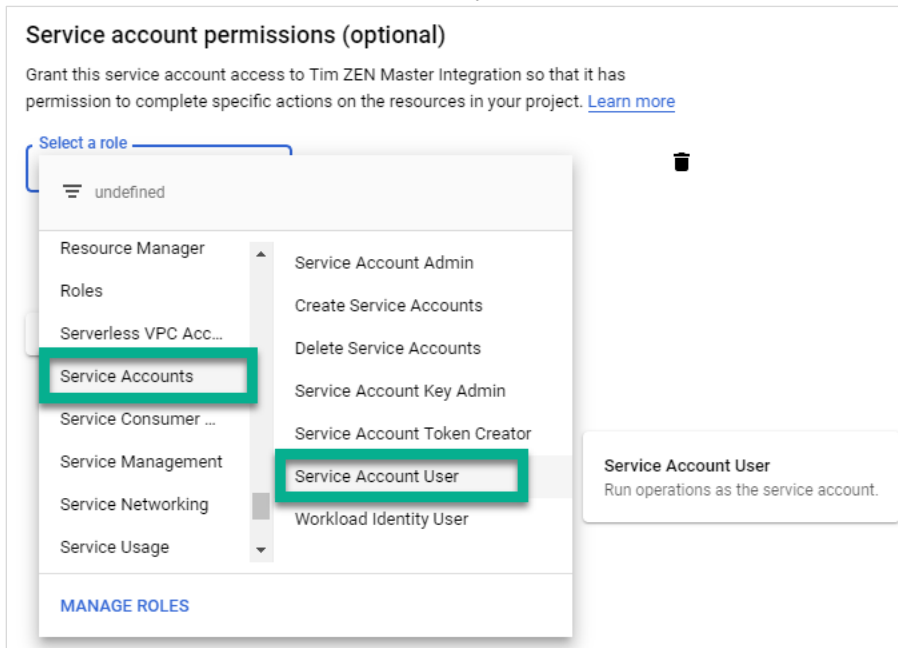
3. Select a project.
4. Click on **+ Create Service Account**.



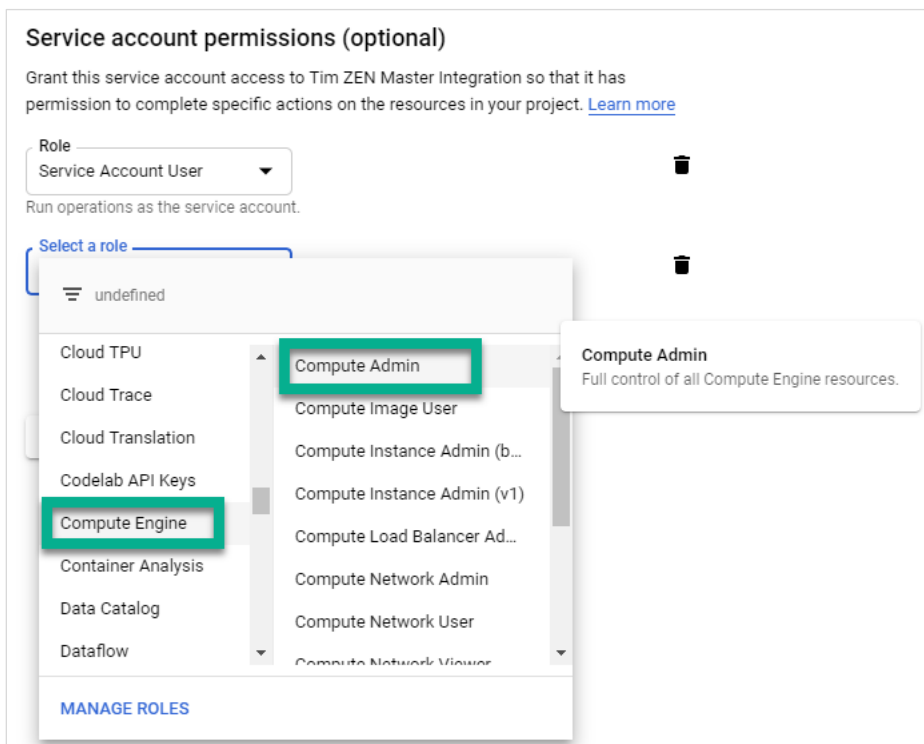
A **Create service account** window opens.

5. In the **Name** field, enter a name for the account e.g. 'ZEN Master'.
6. Click **Create**.

7. In the **Role** field, select from the dropdown list **Service Account > Service Account User**.

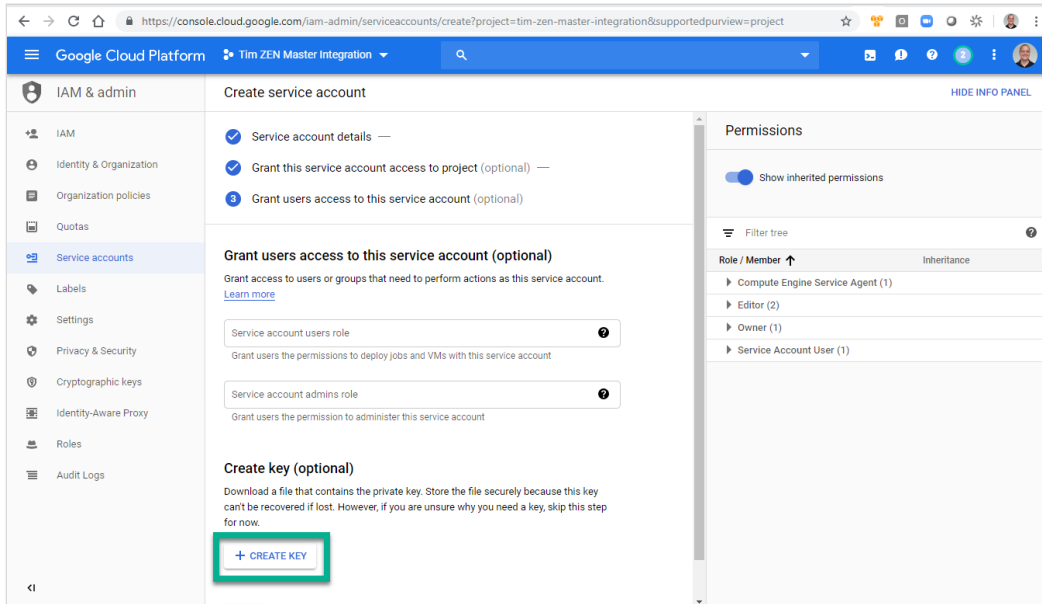


8. Click **+Add Another Role**.
9. In the additional Role field, select from the dropdown list **Compute Engine > Compute Admin**.



10. Click **Continue**.

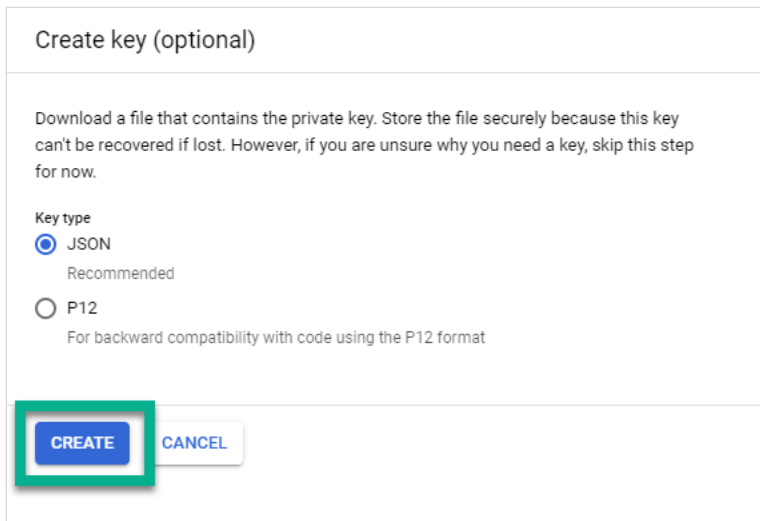
11. Click + Create Key.



A **Create Key** pane opens on the right side of the screen.

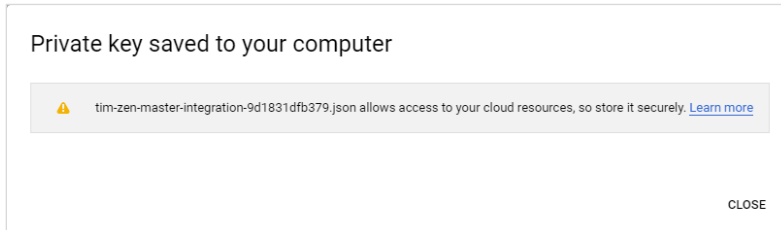
12. Select the **JSON** radio button (default).

13. Click **Create**.

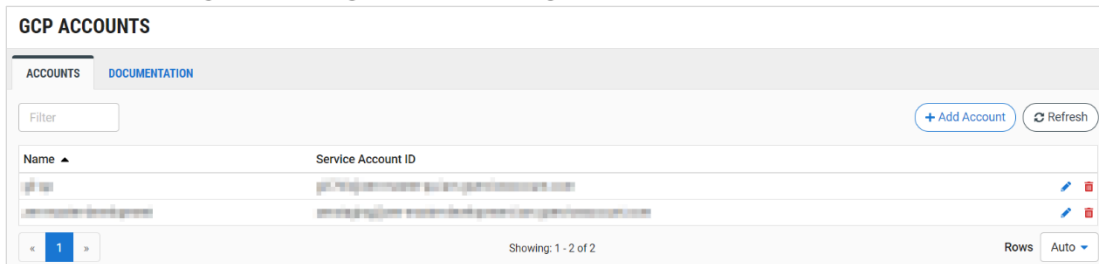


14. Navigate to the folder where you would like to save the download file and click **Save**.

15. In the pop-up notification window, click **Close**.



16. In ZEN Master, go to **Configuration > Google GCP**.



17. Click **+ Add Account**.

The **Add New GCP Account** window is displayed.

18. In the **Name** field, enter a name for the account.

19. Click **Choose File**.

20. Navigate to the Key file that you saved from your GCP account and click **Open**.

21. The JSON key is added to the New Account window.

22. Click **Save**.

Your GCP account is now linked to ZEN Master. You can now launch Broadcaster Clusters on this GCP account.

Editing a GCP Account

You can edit the configuration of a GCP account to update the Role ARN.

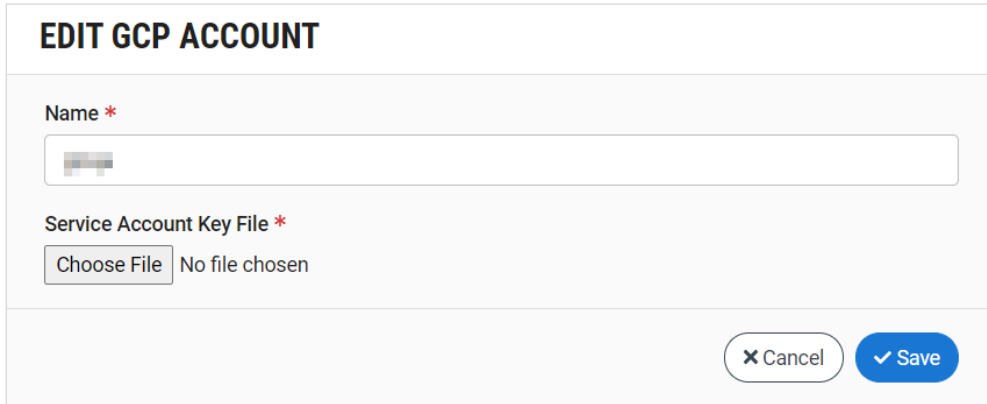


You can't change the account that ZEN Master is linked to, you can only update the permissions that apply to the original account.

➔ To edit a GCP Account:

1. In GCP, adjust the permissions for ZEN Master and generate a new *Service Account Key File*.
2. In ZEN Master, on the **Configuration > Google GCP** screen, click on the **Edit** icon for the desired account.

The **Edit GCP Account** window opens.



EDIT GCP ACCOUNT

Name *

Service Account Key File *

Choose File No file chosen

Cancel Save

3. You can edit the **Name** if you would like.
4. Click **Choose File** and navigate to the new *Service Account Key File*.
5. Click **Save**.
The new settings are applied.

Zixi Edge Devices

ZEN Master manages three types of Zixi Edge Devices:

- **ZEC** – Zixi Edge Compute software that can be used as a contribution endpoint (like a Zixi Feeder) or as a receiver endpoint (like Zixi Receiver).
- **Zixi Feeders** – Zixi Feeder resides at the point of acquisition and is either embedded inside Zixi EcoZystem partner encoder HW or SW, inside a camera (no back pack or field pack required) or can be installed on a pc that will be operated with any non-Zixi enabled encoder or camera. Zixi Feeder accepts and prepares the encoded video for transmission over standard internet connections using Zixi's UDP based transport stream protocol. Although Zixi Feeders are installed on premise, they can be added to the ZEN Master and managed through the ZEN Master's management console. ZEN Master can manage multiple Zixi Feeder's located in multiple points of acquisition.
- **Zixi Receiver** - Zixi Receiver is a lightweight software tool that runs on standard PC hardware or can be embedded into a wide variety of professional decoders and mobile devices as part of the growing Zixi EcoZystem. Zixi Receiver accepts input from Zixi Feeder or Broadcaster via standard IP networks (including the public Internet) and outputs professional-quality video to a broad range of Integrated Receiver-Decoders (IRDs), and to file systems.



The preferred edge device is now ZEC.

Adding a ZEC

The ZEC is accessed by ZEN Master through an API. As part of the configuration process, you are required to specify the API credentials for access and select one of the preconfigured remote access keys to enable SSH tunneling between ZEC and ZEN Master. Access management and user permissions are managed through Tags. You can create a new ZEC with similar configuration to an existing ZEC by using the *Clone* feature. After adding a ZEC to ZEN Master, you will need to connect the ZEC using the procedure described in [CONNECTING THE ZEC \(ZEC UI\)](#).

The following procedure describes how to add a ZEC in ZEN Master. In addition, an explanation of each of the configuration parameters is given in the table below.

Adding a New ZEC

➔ To add a ZEC:

1. In the main navigation, click **Zixi Edge Devices**.

2. Click **+ Add**.

CREATE NEW ZIXI EDGE DEVICE

Select Zixi Edge Device Type

ZEC

Zixi Edge Compute software used as a contribution endpoint or as a receiver endpoint.

Feeder

Legacy Zixi Feeder software used as a contribution endpoint.

Receiver

Legacy Zixi Receiver software used as a receiver endpoint.


✕ Cancel

3. Click **ZEC**.
The **Create New ZEC** screen is displayed:



CREATE NEW ZEC

INFO


Name *





Tags * 


Events Configuration Profile

Location  

CONFIGURATION

API User * 

API Password *    

SSH Key * 

Termination protection

INITIAL STATE

Disabled

Muted

4. In the **Info** section, in the **Name** field, type a logical name for the ZEC.

5. In the **Tags** field, select one or more of the predefined Tags from the drop-down list. Tags are used for access control. By selecting a tag, you are relating this ZEC to that Tag. Tags are associated with certain roles (through the Users & Roles screen), and roles, in turn, are associated with users and user groups. If you would like to create a new Tag, see [CREATING A TAG](#).
6. In the **Events Configuration Profile** field, select from the dropdown list the profile that you would like to apply to this ZEC. By default, the *Default* profile is applied.



Events Profiles consist of a series of rules that determine precisely how various types of Events are logged and what results they trigger.

7. The ZEC's location is used to represent it in the proper position in the Map display (see [MAPS](#)). By default, the location is determined automatically based on the ZEC's IP. If you would like to manually set the location of the ZEC (Optional), use the following procedure:
 - f. Click on the **Edit** icon next to the **Location** field.
A search box is shown below the **Location** field.
 - g. Enter identifying info for the location (e.g., street address, zip code, coordinates).
Search results are displayed below the search box as you type.
 - h. Click on the desired location.
The selected location populates the **Location** field.
8. In the **Configuration** section, in the **API User** field, enter the username for accessing the ZEC instance. This enables ZEN Master to use the API to monitor and manage the ZEC instance. (Default value: *admin*)
9. In the **API Password** field, enter the password for accessing the ZEC. The default password is *1234*. Unless you have changed the password for this ZEC, enter *1234* in this field.
10. In the **SSH Key** field, select from the drop-down list one of the existing remote access keys to be used for SSH tunneling between the Zixi Feeder and ZEN Master.



If you would like to configure a new SSH Key, see [CONFIGURING SSH KEYS](#).

11. Check the **Termination protection** checkbox if you would like to prevent deletion of the Broadcaster Cluster.
12. In the **Initial State** section, select the **Disabled** checkbox if you would like to disable this Feeder upon initial configuration.
13. Select the **Muted** checkbox if you would like to disable error/recovery notifications for this Feeder upon initial configuration.



You can Enable/Unmute the Feeder at any time.

14. Click **Save**.
The ZEC is configured and will remain in *Pending* state until you configure the initial connection to the ZEC, see [CONNECTING THE ZEC \(ZEC UI\)](#).

ZEC Configuration Parameters Table

Parameter	Description
Info	
Name	Specify the name of the ZEC in ZEN Master.
Tags	Select one or more of the predefined Tags from the drop-down list. Tags are used for access control. By selecting a Tag, you are relating this Feeder to that Tag. Tags are associated with certain roles (through the Users & Roles screen), and roles, in turn, are associated with users and user groups. If you would like to create a new Tag, see CREATING A TAG .
Events Configuration Profile	Select from the dropdown list the profile that you would like to apply to this Feeder. By default, the <i>Default</i> profile is applied. NOTE: <i>Events Profiles</i> consist of a series of rules that determine precisely how various types of Events are logged and what results they trigger.
Location (Optional)	The ZEC's location is used to represent it in the proper position in the Map display (see MAPS). By default, the location is determined automatically based on the Feeder's IP. Enter identifying info for the location (e.g. street address, zip code, coordinates) and select the desired location from the suggestions that are shown.
Configuration	
API User	Enter the username for accessing the ZEC instance. This enables ZEN Master to use the API to monitor and manage the ZEC instance. The default username on Zixi Feeders is admin. Unless you have changed the username for this Feeder, verify that "admin" is entered in this field (default).
API Password	Enter the password for accessing the ZEC. The default password on Zixi Feeders is 1234. Unless you have changed the password for this Feeder, enter 1234 in this field.
SSH Key	Select from the drop-down list one of the existing remote access keys to be used for SSH tunneling between the ZEC and ZEN Master. If you would like to configure a new SSH Key, see CONFIGURING SSH KEYS .
Termination protection	Select this checkbox if you would like to prevent deletion of the ZEC. To delete it you will have to first disable the termination protection.

<i>Initial State</i>	
Disabled	Select this checkbox if you would like to disable this ZEC upon initial configuration.
Muted	Select this checkbox if you would like to disable error/recovery notifications for this ZEC upon initial configuration.

Cloning a ZEC

If you would like to create a new ZEC with properties similar to those of an existing ZEC, you can use the Clone feature to simplify the process.

➔ To Clone a ZEC:

1. In the main navigation, click **Zixi Edge Device**.
2. Select the ZEC that you would like to Clone (i.e. the ZEC already configured in ZEN Master which has setting similar to those that you would like to set for the new ZEC that you are creating).
The ZEC full details are displayed.
3. Click **Clone** button, located at the top.
The **Clone ZEC** window is displayed with all fields other than **Name** populated with the configuration data of the original ZEC.
4. In the **Name** field, enter the name of the new ZEC.
5. Change any of the fields that you would like to configure differently than the original Feeder. See section [ADDING A NEW ZEC](#).
6. Click **Save**.
The ZEC is configured and will remain in *Pending* state until you configure the initial connection to the ZEC, see the following section [CONNECTING THE ZEC \(ZEC UI\)](#).

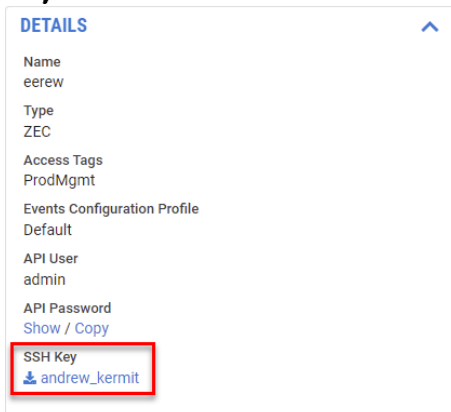
Connecting the ZEC (ZEC UI)

For each ZEC component that has been configured in ZEN Master, you will need to configure the connection of the ZEC (using its ZEC UI) to ZEN Master. This will use the configured SSH keys to enable the actual connection.

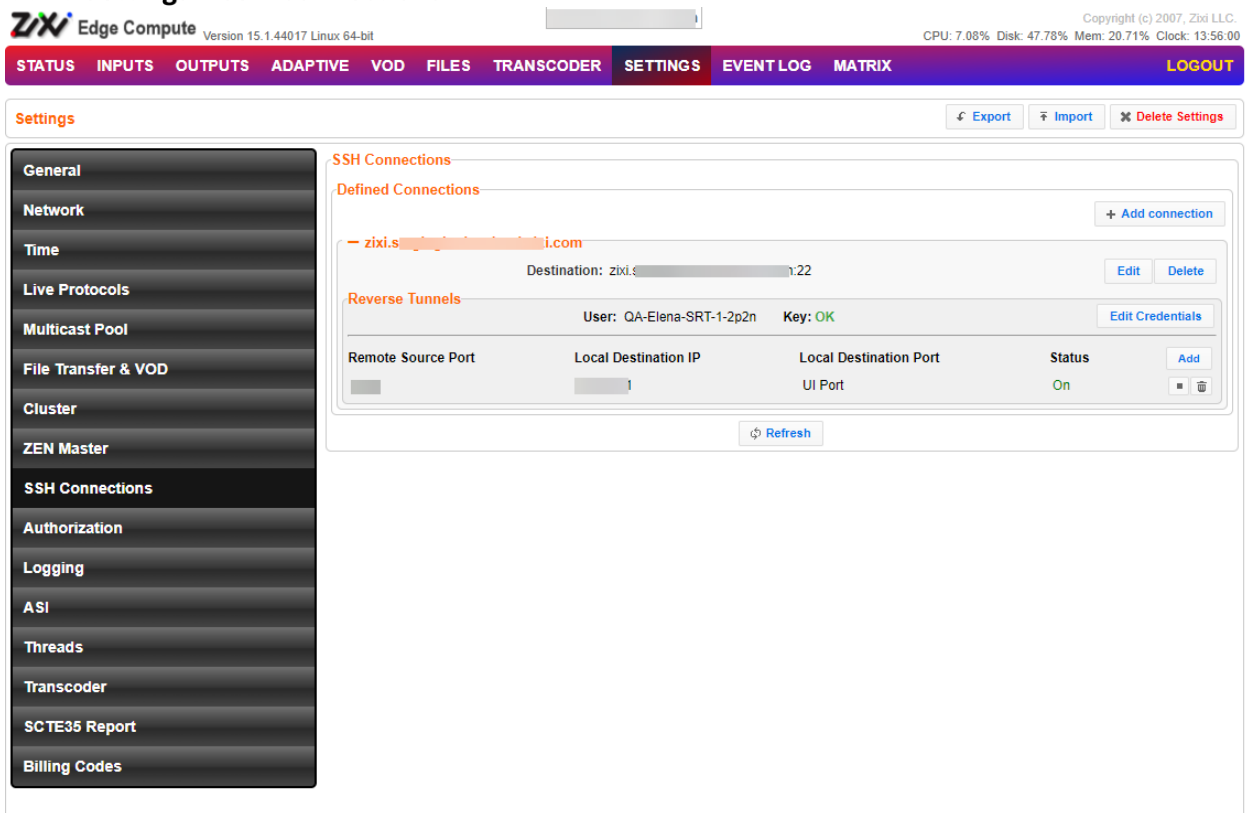
➔ To connect the ZEC Manually:

1. In the ZEN Master UI, in the main navigation, click **Zixi Edge Devices**.
2. Select the ZEC that you would like to connect.

- In the **Details** tab at the bottom of the screen, click on the download link for the **SSH Key**.

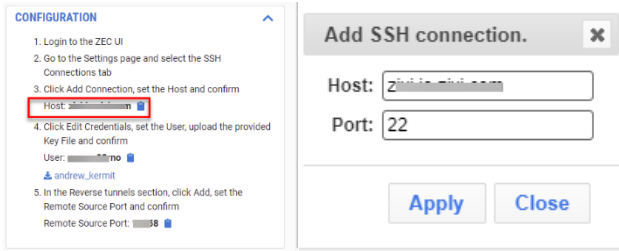


- In the **Configuration** section, you will find your personal connection configuration settings for use with ZEC. You will use these settings to connect the ZEC (host, username, and remote source port), so you should write them down or keep this browser tab open while you configure the ZEC.
- Login to the **ZEC UI** (it could be a locally installed ZEC, e.g. <http://localhost:4444> or a remote ZEC).
- Go to **Settings > SSH Connections**.



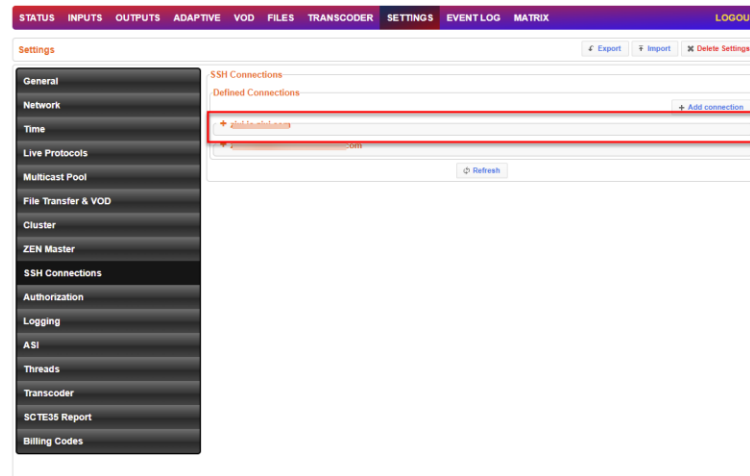
- Click **Add connections**.

- In the **Host** field, enter the host name that appeared in ZEN Master's **Configuration** section.



- Click **Apply**.

The new connection is added to the list of SSH connection in ZEC.

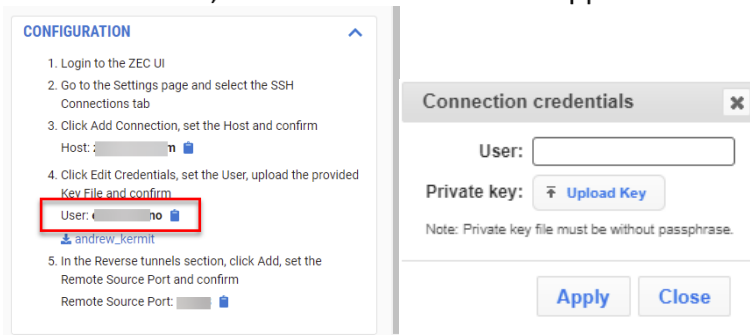


- Click **+** to expand.

- Click **Edit Credentials**.



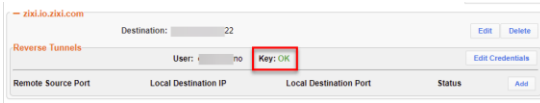
- In the **User** field, enter the username that appeared ZEN Master's **Configuration** section.



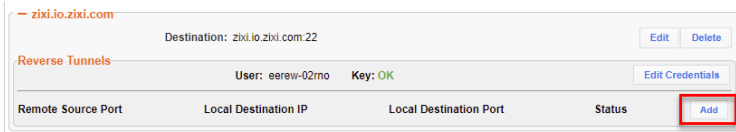
- In ZEC, in the **Private Key** field, click Upload Key and select the key that you have downloaded.

14. Click **Apply**.

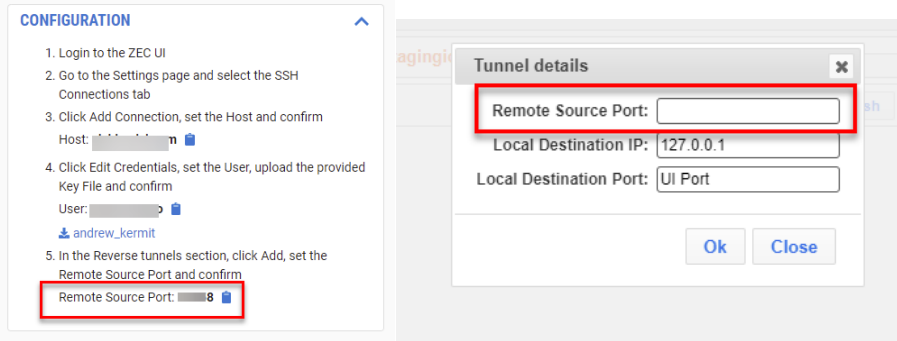
The Key field will indicate OK.



15. In ZEC, in click the **Add** button next to **Remote Source Port**.



16. In the Remote Source Port field, enter the Remote Source Port that appeared ZEN Master's **Configuration** section.



17. In ZEC, click **OK**.

18. In ZEN Master, in the main navigation, click **Zixi Edge Devices** and check that the status of the newly connected ZEC has changed from *Pending* to *OK*.

Viewing Existing ZEC

After the ZEC resource is created, it is added to the list of Zixi Edge Devices. The list includes all types of Edge Devices, the type is indicated in the **Type** column. It is possible to filter the list by selecting the type with the checkboxes at the top.

Name	Status	Type	IP	CPU	RAM	Uptime	Version
andrew_fozzie	Error	Feeder	-	-	-	-	-
Korben	Error	Feeder	-	-	-	-	-
matts_aws_feeder_01	Disabled	Feeder	-	-	-	-	-
New_Feeder_01	Error	Feeder	-	-	-	-	-
ProdMgmt_NUC_Feeder	Error	Feeder	-	-	-	-	-
Tim_Broadberry_Feeder	Ok	Feeder	-	6.74%	10.61%	113:45:28	13.1.38327
Wirecast	Error	Feeder	-	-	-	-	-
IntelNUC	Error	Receiver	-	-	-	-	-
Korben	Pending	Receiver	-	-	-	-	-
matts_aws_receiver_01	Disabled	Receiver	-	-	-	-	-
New_Receiver_01	Error	Receiver	-	-	-	-	-
RECTEST	Error	Receiver	-	-	-	-	-

When a ZEC is selected, the list pane is minimized and detailed info about the selected ZEC is shown on the right side of the screen. The info can be shown in *Tab* view or *Accordion* view, see [INFO PAGES](#).

aws_virginia_zec01

PERFORMANCE

CPU	RAM
2.3%	9.4%

DETAILS

- Name: aws_virginia_zec01
- Type: ZEC
- Tags: _lab2_aws_useast
- Events Configuration Profile: zen_demo_alerts_profile
- Location: Ashburn, Virginia, United States
- Network: amazon.com inc., Virginia, United States
- API User: admin
- API Credentials: Show / Copy Password
- SSH Key: aws_virginia_zen_tunnel_demo_key
- Termination protection: OFF
- Platform: Linux 64-bit
- Source IP: [Redacted]
- Uptime [at 1mm:ss]: 4:57:51:47
- Host ID: [Redacted]
- Activation Key: License Details
- Version: 1.16.4.44543
- Open Link


The following sections are shown in the info pane:

- **Details** – configuration details of the ZEC.
- **Status/Performance** – shows the main performance metrics for the ZEC.
- **Inputs** – shows a list of available inputs on the ZEC.
- **History** – a graphical display the Feeder's resource consumption over time.
- **Events** - all the related events that have been generated by the system, such as connections, errors, warnings and disconnections. To learn about the data that is

displayed in the Events tab see [EVENTS](#). Click **Quick Report** to generate a report of events related to this Channel and download the .xls file.

- **Notes** – free-form text can be added with pertinent information about this ZEC.
- **Configuration** – configuration procedures for manually connecting the ZEC to ZEN Master, including specific settings for this particular Feeder.

The main display shows following data:

Parameter	Description
	Select one or more ZECs and perform batch actions on all selected ZEC. Available actions are:
Selection Checkbox	<ul style="list-style-type: none"> • Mute All - disables notification for error/recovery events for the selected ZECs. • Unmute All – enables notification for error/recovery events for the selected ZECs. • Enable All – re-activates all active streams for the selected ZECs. • Disable All - stops all active streams for the selected Feeders without deleting the configuration of the ZECs. • Delete All – deletes the configuration for the selected ZECs.
Name	The name of the ZEC as configured in ZEN Master.
Status	<p>The connection status of the ZEC. Possible values:</p> <ul style="list-style-type: none"> • Green – OK • Red – error state • Gray – pending/disabled (waiting for initial connection) <p>The  icon next to a ZEC indicates that the Feeder is muted, disabling notifications for error/recovery events.</p>
IP	The remote ZEC IP address as seen by ZEN Master.
CPU	The CPU utilization on the ZEC source machine.
RAM	The RAM utilization on the ZEC source machine.
Uptime	The time period that the ZEC has been online.
Version	The Zixi ZEC software version.
Actions	
Open	Provides access to the ZEC UI (applicable to both cloud-based ZECs and on premise ZECs).



It is possible to add more columns to the list, see [Show/Hide Columns](#). If you want to view resources that were marked as **Priority**, add the **Priority** column and sort by it.

When one of the ZECs in the list is selected, the details of the ZEC, divided into tabs, appear at the right side of the screen.

Parameter	Description
Details Tab	
Name	The name of the ZEC as configured in ZEN Master.
Type	The type of Zixi Edge Device.
Tags	The Tag/s that is associated with this ZEC. You can edit the tag/s as follows: click the Edit icon. Then, delete the current tag by clicking the "X" next to the tag. Add a new tag/s by selecting one or more tags from the dropdown list.
Events Configuration Profile	The Events Profile that is applied to this ZEC.
API User	The username used to access the ZEC through the Zixi API in order to communicate between ZEN Master and the ZEC.
API Password	The password used to access the ZEC through the Zixi API. Click Show to display the password.
SSH Key	The name of the SSH key file.
Termination Protection	Indicates whether the termination protection is enabled or disabled. The termination protection prevents deleting the ZEC. To delete it, you will need to first disable the Termination Protection.
Platform	The OS platform on the ZEC.
Source IP	The Source IP of the ZEC.
Uptime	The time period that the ZEC has been online.
Host ID	The Host ID of the ZEC.
Activation Key	Click on License Details to show the license details of this resource.
Version	The software version of the ZEC.
Open	A link to the ZEC UI.
Status/Performance	Shows the current CPU and RAM usage of the ZEC.
Inputs	Shows a list of all Inputs available in the ZEC, including information about their Status, Type, Source and Bitrate.
History	A graphical representation of the CPU and RAM utilization of the selected ZEC, displayed over time.

Events	A list of the events that were generated in ZEN Master in relation to the selected ZEC. To learn about viewing event logs in ZEN Master, see EVENTS . Click Quick Report to generate a report of events related to this ZEC and download the .xls file.
Configuration	Shows an explanation of how to connect the selected ZEC to ZEN Master. This tab includes your personal connection configuration settings which are used to make the connection. See section CONNECTING THE ZEC (ZEC UI) .
Notes	Shows free-form notes relevant to the ZEC.

Actions on a ZEC

The **Info** pane contains buttons for taking the following actions on the selected ZEC:

- **Acknowledge/Clear Acknowledgment** (for ZECs in disconnected status) – mark/clear the status of this ZEC as acknowledged.
- **Report** –
- **Mute/Unmute** – disables/activates notification for error/recovery events. Set the date and time when the mute will automatically be cleared by clicking on the down arrow and selecting **mute until**.
- **Edit** – enables you to edit the ZEC configuration.
- **Clone** – create an additional ZEC based on the settings of the selected ZEC.
- **Disable/Enable** – Disabling a ZEC stops all active streams for that ZEC without deleting the configuration of the ZEC.
- **Delete** – deletes the ZEC configuration.
- **Accordions/Tabs** – view.

Adding a Zixi Feeder

The Zixi Feeders are accessed by ZEN Master through an API. As part of the configuration process, you are required to specify the API credentials for access and select one of the preconfigured remote access keys to enable SSH tunneling between the Zixi Feeder and ZEN Master. Access management and user permissions are managed through Tags. You can create a new Feeder with similar configuration to an existing Feeder by using the *Clone* feature. After adding a Zixi Feeder to ZEN Master, you will need to connect the Feeder using the procedure described in [CONNECTING THE ZIXI FEEDER \(ZIXI FEEDER UI\)](#).

The following procedure describes how to add a Zixi Feeder in ZEN Master. In addition, an explanation of each of the configuration parameters is given in the table below.

Adding a New Zixi Feeder

➔ **To add a Zixi Feeder:**

1. In the main navigation, click **Zixi Edge Devices**.
2. Click **+ Add**.

CREATE NEW ZIXI EDGE DEVICE

Select Zixi Edge Device Type


ZEC Zixi Edge Compute software used as a contribution endpoint or as a receiver endpoint.
Feeder Legacy Zixi Feeder software used as a contribution endpoint.
Receiver Legacy Zixi Receiver software used as a receiver endpoint.

3. Click **Feeder**.
The **Create New Feeder** screen is displayed:



CREATE NEW FEEDER

INFO


Name *





Tags * 


Events Configuration Profile

Location  

CONFIGURATION

API User * 

API Password *    

SSH Key * 

Termination protection

INITIAL STATE

Disabled

Muted

4. In the **Info** section, in the **Name** field, type a logical name for the Zixi Feeder.

5. In the **Tags** field, select one or more of the predefined Tags from the drop-down list. Tags are used for access control. By selecting a Tag, you are relating this Feeder to that Tag. Tags are associated with certain roles (through the Users & Roles screen), and roles, in turn, are associated with users and user groups. If you would like to create a new Tag, see [CREATING A TAG](#).
6. In the **Events Configuration Profile** field, select from the dropdown list the profile that you would like to apply to this Feeder. By default, the *Default* profile is applied.



Events Profiles consist of a series of rules that determine precisely how various types of Events are logged and what results they trigger.

7. The Feeder's location is used to represent it in the proper position in the Map display (see [MAPS](#)). By default, the location is determined automatically based on the Feeder's IP. If you would like to manually set the location of the Feeder (Optional), use the following procedure:
 - a. Click on the **Edit** icon next to the **Location** field.
A search box is shown below the **Location** field.
 - b. Enter identifying info for the location (e.g., street address, zip code, coordinates).
Search results are displayed below the search box as you type.
 - c. Click on the desired location.
The selected location populates the **Location** field.
8. In the **Configuration** section, in the **API User** field, enter the username for accessing the Zixi Feeder instance. This enables ZEN Master to use the API to monitor and manage the Zixi Feeder instance. (Default value: *admin*)
9. In the **API Password** field, enter the password for accessing the Zixi Feeder. The default password on Zixi Feeders is *1234*. Unless you have changed the password for this Feeder, enter *1234* in this field.
10. In the **SSH Key** field, select from the drop-down list one of the existing remote access keys to be used for SSH tunneling between the Zixi Feeder and ZEN Master.



If you would like to configure a new SSH Key, see [CONFIGURING SSH KEYS](#).

11. Select the **Termination protection** checkbox if you would like to prevent deletion of the Broadcaster Cluster.
12. In the **Initial State** section, select the **Disabled** checkbox if you would like to disable this Feeder upon initial configuration.
13. Select the **Muted** checkbox if you would like to disable error/recovery notifications for this Feeder upon initial configuration.



You can Enable/Unmute the Feeder at any time.

14. Click **Save**.
The Feeder is configured and will remain in *Pending* state until you configure the initial connection to the Zixi Feeder, see [CONNECTING THE ZIXI FEEDER \(ZIXI FEEDER UI\)](#).

Zixi Feeder Configuration Parameters Table

Parameter	Description
Info	
Name	Specify the name of the Zixi Feeder in ZEN Master.
Tags	Select one or more of the predefined Tags from the drop-down list. Tags are used for access control. By selecting a Tag, you are relating this Feeder to that Tag. Tags are associated with certain roles (through the Users & Roles screen), and roles, in turn, are associated with users and user groups. If you would like to create a new Tag, see CREATING A TAG .
Events Configuration Profile	Select from the dropdown list the profile that you would like to apply to this Feeder. By default, the <i>Default</i> profile is applied. NOTE: <i>Events Profiles</i> consist of a series of rules that determine precisely how various types of Events are logged and what results they trigger.
Location (Optional)	The Feeder's location is used to represent it in the proper position in the Map display (see MAPS). By default, the location is determined automatically based on the Feeder's IP. Enter identifying info for the location (e.g. street address, zip code, coordinates) and select the desired location from the suggestions that are shown.
Configuration	
API User	Enter the username for accessing the Zixi Feeder instance. This enables ZEN Master to use the API to monitor and manage the Zixi Feeder instance. The default username on Zixi Feeders is admin. Unless you have changed the username for this Feeder, verify that "admin" is entered in this field (default).
API Password	Enter the password for accessing the Zixi Feeder. The default password on Zixi Feeders is 1234. Unless you have changed the password for this Feeder, enter 1234 in this field.
SSH Key	Select from the drop-down list one of the existing remote access keys to be used for SSH tunneling between the Zixi Feeder and ZEN Master. If you would like to configure a new SSH Key, see CONFIGURING SSH KEYS .
Termination protection	Select this checkbox if you would like to prevent deletion of the Zixi Feeder. To delete it you will have to first disable the termination protection.

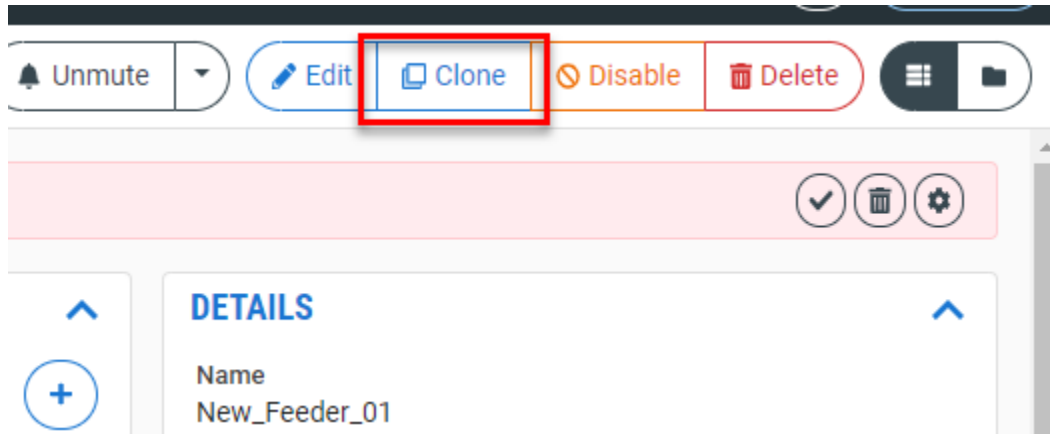
Initial State	
Disabled	Select this checkbox if you would like to disable this Feeder upon initial configuration.
Muted	Select this checkbox if you would like to disable error/recovery notifications for this Feeder upon initial configuration.

Cloning a Zixi Feeder

If you would like to create a new Feeder with properties similar to those of an existing Feeder, you can use the Clone feature to simplify the process.

➔ To Clone a Zixi Feeder:

1. In the main navigation, click **Zixi Edge Devices**.
2. Select the Feeder that you would like to Clone (i.e., the Feeder already configured in ZEN Master which has setting similar to those that you would like to set for the new Feeder that you are creating).
3. Click on the **Clone** button.



The **Feeder** window is displayed with all fields other than **Name** populated with the configuration data of the original Feeder.

4. In the **Name** field, enter the name of the new Feeder.
5. Change any of the fields that you would like to configure differently than the original Feeder. See section [ADDING A NEW ZIXI FEEDER](#).
6. Click **Save**.

The Feeder is configured and will remain in *Pending* state until you configure the initial connection to the Zixi Feeder, see the following section [CONNECTING THE ZIXI FEEDER \(ZIXI FEEDER UI\)](#).

Connecting the Zixi Feeder (Zixi Feeder UI)

For each Zixi Feeder component that has been configured in ZEN Master, you will need to configure the connection of the Zixi Feeder (using its Zixi Feeder UI) to ZEN Master. This will use

the configured SSH keys to enable the actual connection. This can either be done manually by entering the configuration settings into the Zixi Feeder UI or automatically using the ZEN tab in the Zixi Feeder UI (for v12 Feeders).



If you are using an SSH Key that was imported from the Feeder (not generated in ZEN Master) then you will need to use the manual method to connect the Feeder to ZEN Master and not the automatic method (i.e. v12 method).

➔ To connect the Zixi Feeder Manually (for v11 and below):

1. In the ZEN Master UI, in the main navigation, click **Zixi Edge Devices**.
2. Select the Feeder that you would like to connect
3. In the **Details** tab at the bottom of the screen, click on the download link for the **SSH Key**.

DETAILS	
Name	Test123
Access Tags	streams_east, sources, aTestEli
API User	admin
API Password	Show
SSH Key	sergata_default

4. In the **Configuration** section, you will find your personal connection configuration settings for use with Feeders *Version 1.11 and older*. You will use these settings to connect the Zixi Feeder (host, username, and remote source port), so you should write them down or keep this browser tab open while you configure the Zixi Feeder.
5. Login to the **Zixi Feeder UI** (it could be a locally installed Zixi Feeder, e.g. <http://localhost:4200> or a remote Zixi Feeder).
6. Go to Settings > SSH Tunnels.

Settings

SSH tunnels

Server connection

Host:

SSH Port:

Username:

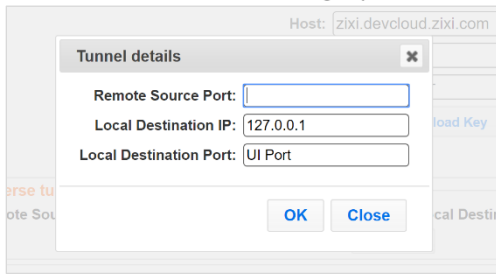
Key File: None

Reverse tunnels

Remote Source Port	Local Destination IP	Local Destination Port	Status
<input type="button" value="Add"/>			

7. In the **Key File** field, click **Upload Key** and select the downloaded SSH key file.
8. In the **Host** field, enter the host name that appeared in the *Configuration* section.
9. In the **Username** field, enter the username that appeared in the *Configuration* section.
10. Click **Apply**.

- In the **Reverse Tunnels** section (at the bottom) click **Add**. The **Tunnel Details** dialog opens:

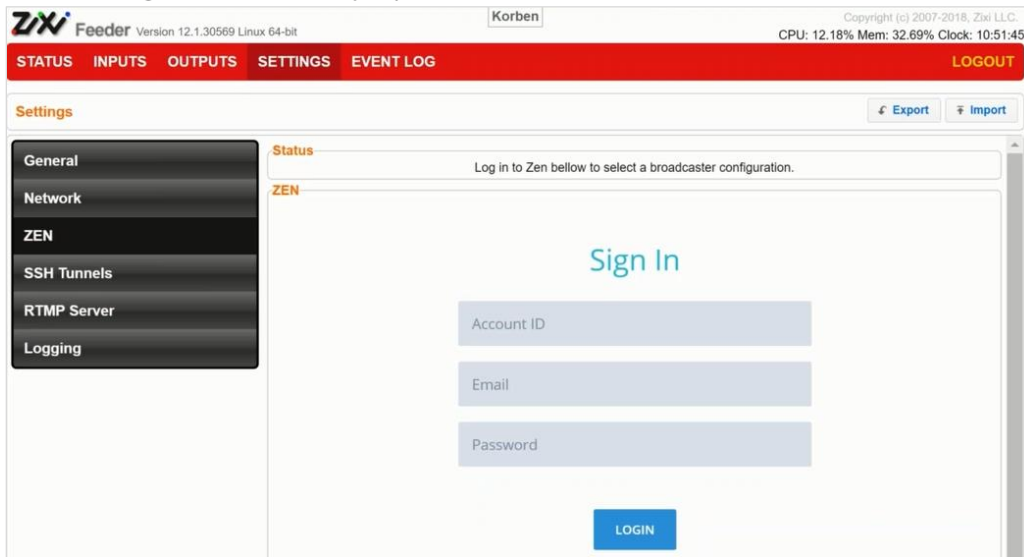


- In the **Remote Source Port** field, enter the Remote Source Port that appeared in the *Configuration Help*.
- Click **OK**.
- In ZEN Master, in the main navigation, click **Feeders** and check that the status of the newly connected Zixi Feeder has changed from *Pending* to *OK*.

Name	Status	IP	CPU	RAM	Version
Demo_ZEN_FX01	Ok	209.95.37.240	11.06%	35.19%	13.1.35616
LABFX02	Ok	199.188.233.146	23.9%	31.02%	13.1.35616
VZ_DATACENTER_FX05	Ok	199.188.233.146	4.02%	15.47%	13.1.35467
VZ_ONPREMISE_FX03	Ok	199.188.233.146	1.56%	11.93%	13.1.35467

➔ **To connect the Zixi Feeder Automatically (for v12 and above):**

- Login to the **Zixi Feeder UI** (it could be a locally installed Zixi Feeder, e.g. <http://localhost:4200> or a remote Zixi Feeder).
- Click the **ZEN** tab. The ZEN login fields are displayed.



- In the **Account ID** field, enter the customer domain of your ZEN Master account (e.g. if you login to ZEN at *demo.zen.zixi.com* then your Account ID is 'demo').

4. In the **Email** field, enter the username for your ZEN Master account.
5. In the **Password** field, enter the password for your ZEN Master account.
6. Click **Login**.

A list of Feeders configured in ZEN Master is displayed.

The screenshot shows the ZEN Master interface. At the top, there is a 'Status' section with the text 'Log in to ZEN Master bellow to select a broadcaster configuration.' Below this is the 'ZEN Master' section, which contains a 'FEEDERS' table. The table has columns for '#', 'Status', 'Name', 'IP', 'CPU', 'RAM', and 'Version'. There are two rows: the first row is for 'Feeder_Demo_Cloud' with status 'OK', and the second row is for 'New_Feeder_01' with status 'Pending'. A 'Refresh' button is visible in the top right of the table area.

#	Status	Name	IP	CPU	RAM	Version
1	OK	Feeder_Demo_Cloud	107.182.231.208	12%	23%	1.12.2.31890
2	Pending	New_Feeder_01		-	-	

7. For the Feeder that you are adding, which should currently be in **Pending** mode, click **Select**.

Details about the Feeder are shown in the **Status** section.

Click **Refresh**.

The connection is configured automatically.

8. Verify that the Status is shown as **On**.

The screenshot shows the 'Status' section for a specific feeder. It displays 'Host: zixi.io.zixi.com' and 'Port: 2829'. The 'Status: On' is highlighted with a green box. Below this, there is a 'Refresh' button.

9. In the ZEN Master UI, in the main navigation, click **Feeders** and check that the status of the newly connected Zixi Feeder has changed from *Pending* to *OK*.

The screenshot shows the 'FEEDERS' table in the ZEN Master UI. The table has columns for 'Name', 'Status', 'IP', 'CPU', 'RAM', and 'Version'. There are four rows, all with status 'OK'. The 'Status' column for the first row is highlighted with a green box. The table also includes a 'Filter' input, '+ Add' and 'Refresh' buttons, and a pagination control showing 'Showing: 1 - 4 of 4'.

Name	Status	IP	CPU	RAM	Version
Demo_ZEN_FX01	OK	209.95.37.240	11.06%	35.19%	13.1.35616
LABFX02	OK	199.188.233.146	23.9%	31.02%	13.1.35616
VZ_DATACENTER_FX05	OK	199.188.233.146	4.02%	15.47%	13.1.35467
VZ_ONPREMISE_FX03	OK	199.188.233.146	1.56%	11.93%	13.1.35467

Viewing Existing Zixi Feeders

After the Feeder resource is created, it is added to the list of Zixi Edge Devices. The list includes all types of Edge Devices, the type is indicated in the **Type** column. It is possible to filter the list by selecting the type with the checkboxes at the top.

ZIXI EDGE DEVICES + Add Refresh

Filter Feeder Receiver ZEC

Name	Status	Type	IP	CPU	RAM	Uptime	Version	
andrew_fozzie	Error	Feeder	-	-	-	-	-	Open
Korben	Error	Feeder	-	-	-	-	-	Open
matts_aws_feeder_01	Disabled	Feeder	-	-	-	-	-	Open
New_Feeder_01	Error	Feeder	-	-	-	-	-	Open
ProdMgmt_NUC_Feeder	Error	Feeder	-	-	-	-	-	Open
Tim_Broadberry_Feeder	Ok	Feeder	-	6.74%	10.61%	113:45:28	13.1.38327	Open
Wirecast	Error	Feeder	-	-	-	-	-	Open
IntelNUC	Error	Receiver	-	-	-	-	-	Open
Korben	Pending	Receiver	-	-	-	-	-	Open
matts_aws_receiver_01	Disabled	Receiver	-	-	-	-	-	Open
New_Receiver_01	Error	Receiver	-	-	-	-	-	Open
RECTEST	Error	Receiver	-	-	-	-	-	Open

When a Feeder is selected, the list pane is minimized and detailed info about the selected Feeder is shown on the right side of the screen. The info can be shown in *Tab* view or *Accordion* view, see [INFO PAGES](#).

ZIXI EDGE DEVICES + Add Refresh

Filter Report

Name

- Chris_F_Laptop
- DemoReceiver01
- DemoReceiver02
- DemoReceiver03
- LM_fx
- CF-Feeder
- DemoFeeder01
- DemoFeeder02
- DemoFeeder03
- LM_fx
- LM_fx_2

1 - 11 of 11 Rows: Auto

PERFORMANCE

CPU 0.4% RAM 28%

INPUTS

Name	Type	Source	Bitrate
bbb	FILE	/bbb_1080p_h264_aac.ts	0 kbps
imagine	FILE	/imagine_720p_H264_AAAC.ts	1746 kbps
mpts	UDP	224.0.0.30:1234	0 kbps
nasa	FILE	/nasa_ts.ts	0 kbps

HISTORY

System

EVENTS

Object	Date/Time	Message	Rule	Acti...
Feeder - LM_fx	Dec 27, 2022, 12:04:48 P...	OK	-	
Feeder - LM_fx	Dec 27, 2022, 11:59:24 A...	Tunnel connected from 80.178.255.226	-	
Feeder - LM_fx	Dec 22, 2022, 1:05:15 PM	Tunnel disconnected - Check Feeder net...	API - Error	
Feeder - LM_fx	Dec 22, 2022, 12:59:54 P...	Tunnel disconnected - Check Feeder net...	-	
Feeder - LM_fx	Dec 22, 2022, 12:59:50 P...	Unable to access Feeder API: Request fa...	API - Error	
Feeder - LM_fx	Dec 18, 2022, 3:36:30 PM	Tunnel connected from 80.178.255.226	-	
Feeder - LM_fx	Dec 18, 2022, 3:36:26 PM	Tunnel disconnected - Check Feeder net...	-	
Feeder - LM_fx	Dec 18, 2022, 3:29:31 PM	Tunnel connected from 80.178.255.226	-	
Feeder - LM_fx	Dec 18, 2022, 3:29:26 PM	Tunnel disconnected - Check Feeder net...	-	
Feeder - LM_fx	Dec 18, 2022, 3:20:41 PM	OK	-	

DETAILS

Name LM_fx

Type Feeder

Access Tags default

Events Configuration Profile Default

Location Petah Tiqva, Central District, Israel

Network Partner Communications Ltd., Central District, Israel

API User admin

API Credentials Show Copy Password

SSH Key Default

Termination protection OFF

Platform Windows 64-bit

Windows 64-bit

Source IP 80.178.255.226

Uptime [Hh:mm:ss] 315:58:41

Host ID fcaa1448416b

Activation Key License Details

Version 1.13.1.40511

Open Link

CONFIGURATION


- Login to the ZEC UI
- Go to the Settings page and select the SSH Connections tab
- Click Add Connection, set the Host and confirm Host: [emaia.io.zixi.com](#)
- Click Edit Credentials, set the User, upload the provided Key File and confirm User: [LM_fx-022j0](#)
- In the Reverse tunnels section, click Add, set the Remote Source Port and confirm Remote Source Port: [11827](#)

NOTES

The following sections are shown in the info pane:

- **Details** – configuration details of the Feeder.
- **Status/Performance** – shows the main performance metrics for the Feeder.
- **Inputs** – shows a list of available inputs on the Feeder.
- **History** – a graphical display the Feeder's resource consumption over time.
- **Events** - all the related events that have been generated by the system, such as connections, errors, warnings and disconnections. To learn about the data that is displayed in the Events tab see [EVENTS](#). Click **Quick Report** to generate a report of events related to this Channel and download the .xls file.
- **Notes** – free-form text can be added with pertinent information about this Feeder.
- **Configuration** – configuration procedures for manually connecting the Feeder to ZEN Master, including specific settings for this particular Feeder.

The main display shows following data:

Parameter	Description
	Select one or more Feeders and perform batch actions on all selected Feeders. Available actions are:
Selection Checkbox	<ul style="list-style-type: none"> • Mute All - disables notification for error/recovery events for the selected Feeders. • Unmute All – enables notification for error/recovery events for the selected Feeders. • Enable All – re-activates all active streams for the selected Feeders. • Disable All - stops all active streams for the selected Feeders without deleting the configuration of the Feeders. • Delete All – deletes the configuration for the selected Feeders.
Name	The name of the Zixi Feeder as configured in ZEN Master.
Status	<p>The connection status of the Zixi Feeder. Possible values:</p> <ul style="list-style-type: none"> • Green – OK • Red – error state • Gray – pending/disabled (waiting for initial connection) <p>The  icon next to a Feeder indicates that the Feeder is muted, disabling notifications for error/recovery events.</p>
IP	The remote Zixi Feeder IP address as seen by ZEN Master.
CPU	The CPU utilization on the Zixi Feeder source machine.
RAM	The RAM utilization on the Zixi Feeder source machine.
Uptime	The time period that the Zixi Feeder has been online.

Version	The Zixi Feeder software version.
Actions	
Open	Provides access to the Zixi Feeder UI (applicable to both cloud-based Zixi Feeders and on premise Zixi Feeders).



It is possible to add more columns to the list, see [Show/Hide Columns](#). If you want to view resources that were marked as **Priority**, add the **Priority** column and sort by it.

When one of the Feeders in the list is selected, the details of the Feeder, divided into tabs, appear at the right side of the screen.

Parameter	Description
Details Tab	
Name	The name of the Zixi Feeder as configured in ZEN Master.
Type	The type of Zixi Edge Device.
Tags	The Tag/s that is associated with this Feeder. You can edit the tag/s as follows: click the Edit icon. Then, delete the current tag by clicking the "X" next to the tag. Add a new tag/s by selecting one or more tags from the dropdown list.
Events Configuration Profile	The Events Profile that is applied to this Feeder.
API User	The username used to access the Zixi Feeder through the Zixi API in order to communicate between ZEN Master and the Zixi Feeder.
API Password	The password used to access the Zixi Feeder through the Zixi API. Click Show to display the password.
SSH Key	The name of the SSH key file.
Termination Protection	Indicates whether the termination protection is enabled or disabled. The termination protection prevents deleting the Zixi Feeder. To delete it, you will need to first disable the Termination Protection.
Platform	The OS platform on the Feeder.
Source IP	The Source IP of the Feeder.
Uptime	The time period that the Zixi Feeder has been online.
Host ID	The Host ID of the Feeder.
Activation Key	Click on License Details to show the license details of this resource.
Version	The software version of the Zixi Feeder.

Open	A link to the Feeder UI.
Status/Performance	Shows the current CPU and RAM usage of the Feeder.
Inputs	Shows a list of all Inputs available in the Feeder, including information about their Status, Type, Source and Bitrate.
History	A graphical representation of the CPU and RAM utilization of the selected Feeder, displayed over time.
Events	A list of the events that were generated in ZEN Master in relation to the selected Zixi Feeder. To learn about viewing event logs in ZEN Master, see EVENTS . Click Quick Report to generate a report of events related to this feeder and download the .xls file.
Configuration	Shows an explanation of how to connect the selected Feeder to ZEN Master. This tab includes your personal connection configuration settings which are used to make the connection. See section CONNECTING THE ZIXI FEEDER (ZIXI FEEDER UI) .
Notes	Shows free-form notes relevant to the Feeder.

Actions on a Feeder

Click on one of the Feeders to display information about the Feeder in the Info pane on the right side of the screen.

The **Info** pane contains buttons for taking the following actions on the selected Feeder:

- **Acknowledge/Clear Acknowledgment** (for Feeders in disconnected status) – mark/clear the status of this Feeder as acknowledged.
- **Report** –
- **Mute/Unmute** – disables/activates notification for error/recovery events. Set the date and time when the mute will automatically be cleared by clicking on the down arrow and selecting **mute until**.
- **Edit** – enables you to edit the Feeder configuration.
- **Clone** – create an additional Feeder based on the settings of the selected Feeder.
- **Disable/Enable** – Disabling a Feeder stops all active streams for that Feeder without deleting the configuration of the Feeder.
- **Delete** – deletes the Feeder configuration.
- **Accordions/Tabs** – view.

Adding a Zixi Receiver

The Zixi Receivers are accessed by ZEN Master through an API. As part of the configuration process, you need to specify the API credentials for access and select one of the preconfigured remote access keys to enable SSH tunneling between the Zixi Receiver and ZEN Master. Access management and user permissions are managed through Tags. After adding a Zixi Receiver to ZEN Master, you will need to follow the procedure described in

The following procedure describes how to add a Zixi Receiver in ZEN Master. In addition, an explanation of each of the configuration parameters is given in the table below.

Adding a New Zixi Receiver

➔ **To add a Zixi Receiver:**

1. In the main navigation, click **Zixi Edge Devices**.
2. Click **+ Add**.

CREATE NEW ZIXI EDGE DEVICE

Select Zixi Edge Device Type

ZEC

Zixi Edge Compute software used as a contribution endpoint or as a receiver endpoint.

Feeder

Legacy Zixi Feeder software used as a contribution endpoint.

Receiver

Legacy Zixi Receiver software used as a receiver endpoint.

✕ Cancel

3. Click **Receiver**.
The **Create New Receiver** screen is displayed:


CREATE NEW RECEIVER


INFO

Name *

Tags * 


Events Configuration Profile


Location 


CONFIGURATION

API User *

API Password * 

SSH Key * 

Termination protection

INITIAL STATE

Disabled

Muted

4. In the **Info** section, in the **Name** field, enter a logical name for the Zixi Receiver.

5. In the **Tags** field, select one or more of the predefined Tags from the drop-down list. Tags are used for access control. By selecting a Tag, you are relating this Receiver to that Tag. Tags are associated with certain roles (through the Users & Roles screen), and roles, in turn, are associated with users and user groups. If you would like to create a new Tag, see [CREATING A TAG](#).
6. In the **Events Configuration Profile** field, select from the dropdown list the profile that you would like to apply to this Receiver. By default, the *Default* profile is applied.



Events Profiles consist of a series of rules that determine precisely how various types of Events are logged and what results they trigger.

7. The Receiver's location is used to represent it in the proper position in the Map display (see [MAPS](#)). By default, the location is determined automatically based on the Receiver's IP. If you would like to manually set the location of the Receiver (Optional), use the following procedure:
 - a. Click on the **Edit** icon next to the **Location** field.
A search box is shown below the **Location** field.
 - b. Enter identifying info for the location (e.g. street address, zip code, coordinates).
Search results are displayed below the search box as you type.
 - c. Click on the desired location.
The selected location populates the **Location** field.
8. In the **Configuration** section, in the **API User** field, enter the username for accessing the Zixi Receiver instance. This enables ZEN Master to use the API to monitor and manage the Zixi Receiver instance. (Default value: *admin*)
9. In the **API Password** field, enter the password for accessing the Zixi Receiver. The default password on Zixi Receivers is *1234*. Unless you have changed the password for this Receiver, enter *1234* in this field.
10. In the **SSH Key** field, select from the drop-down list one of the existing remote access keys to be used for SSH tunneling between the Zixi Receiver and ZEN Master.



If you would like to configure a new SSH key, see [CONFIGURING SSH KEYS](#).

11. In the **Initial State** section, select the **Disabled** checkbox if you would like to disable this Receiver upon initial configuration.
12. Select the **Muted** checkbox if you would like to disable error/recovery notifications for this Receiver upon initial configuration.



You can Enable/Unmute the Receiver at any time.

13. Click **Save**.
After configuring the Receiver in ZEN Master you must make the actual connection between the Receiver and ZEN Master using the procedure described in [CONNECTING THE ZIXI RECEIVER \(ZIXI RECEIVER UI\)](#).


Zixi Receiver Configuration Parameters Table

Parameter	Description
Info	
Name	Specify a name for the Zixi Receiver in ZEN Master.
Tags	Select one or more of the predefined Tags from the drop-down list. Tags are used for access control. By selecting a Tag, you are relating this Receiver to that Tag. Tags are associated with certain roles (through the Users & Roles screen), and roles, in turn, are associated with users and user groups. If you would like to create a new Tag, see CREATING A TAG .
Events Configuration Profile	Select from the dropdown list the profile that you would like to apply to this Receiver. By default, the <i>Default</i> profile is applied. NOTE: <i>Events Profiles</i> consist of a series of rules that determine precisely how various types of Events are logged and what results they trigger.
Location (Optional)	The Receiver's location is used to represent it in the proper position in the Map display (see MAPS). By default, the location is determined automatically based on the Receiver's IP. Enter identifying info for the location (e.g. street address, zip code, coordinates) and select the desired location from the suggestions that are shown.
Configuration	
API User	Enter the username for accessing the Zixi Receiver instance. This enables ZEN Master to use the API to monitor and manage the Zixi Receiver instance. The default username on Zixi Receivers is <i>admin</i> . Unless you have changed the username for this Receiver, verify that " <i>admin</i> " is entered in this field (default).
API Password	Enter the password for accessing the Zixi Receiver. The default password on Zixi Receivers is <i>1234</i> . Unless you have changed the password for this Receiver, enter <i>1234</i> in this field.
SSH Key	Select from the drop-down list one of the existing remote access keys to be used for SSH tunneling between the Zixi Receiver and ZEN Master. If you would like to configure a new SSH Key, see CONFIGURING SSH KEYS .
Termination protection	Select this checkbox if you would like to prevent deletion of the Zixi Receiver. To delete it you will have to first disable the termination protection.

Initial State	
Disabled	Select this checkbox if you would like to disable this Receiver upon initial configuration.
Muted	Select this checkbox if you would like to disable error/recovery notifications for this Receiver upon initial configuration.

Connecting the Zixi Receiver (Zixi Receiver UI)

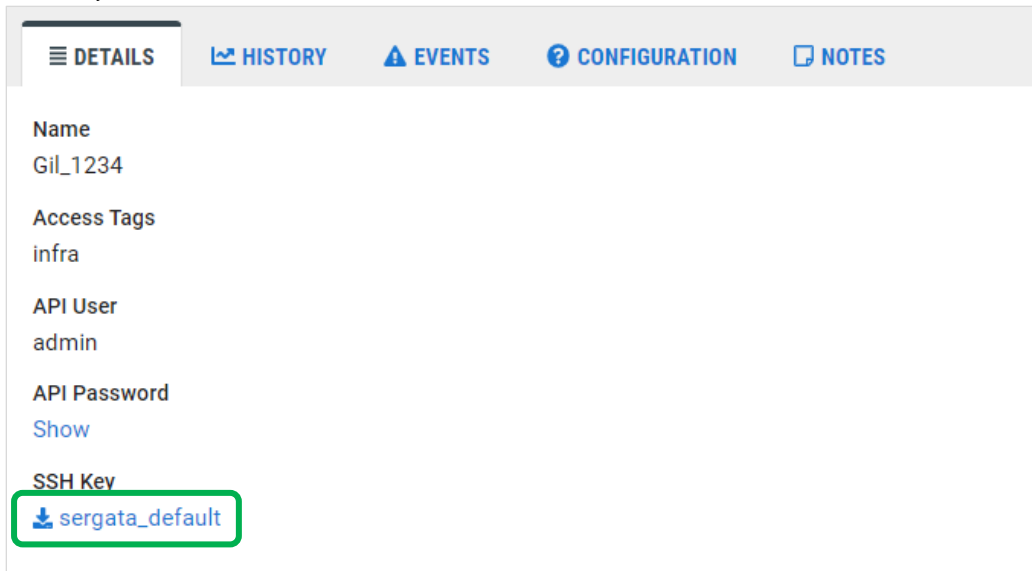
For each Zixi Receiver component that has been configured in ZEN Master, you will need to configure the connection of the Zixi Receiver (using its Zixi Receiver UI) to ZEN Master. This will enable the actual connection, using the configured SSH keys. This can either be done manually by entering the configuration settings into the Zixi Receiver UI or automatically using the ZEN tab in the Zixi Receiver UI (for v12 Receivers).



If you are using an SSH Key that was imported from the Receiver (not generated in ZEN Master) then you will need to use the manual method to connect the Receiver to ZEN Master and not the automatic method (i.e. v12 method).

➔ **To connect the Zixi Receiver Manually (for v11 and below):**

1. In the ZEN Master UI, in the main navigation, click **Zixi Edge Devices**.
2. Select the Receiver that you would like to connect.
3. In the **Details** section at the right side of the screen, click on the download link for the SSH Key.



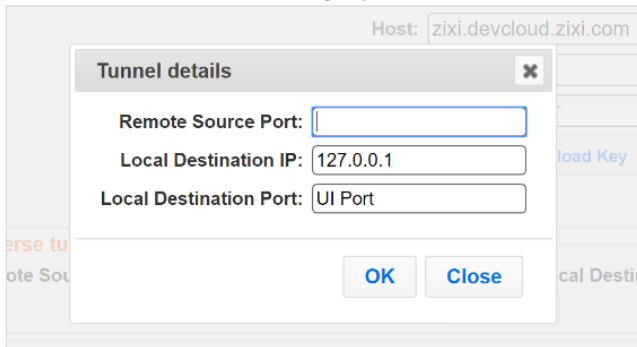
4. In the **Configuration** section you will find your personal connection configuration settings for use with Receivers *Version 1.11 and older*. You will be using these settings to connect the Zixi Receiver (host, username, and remote source port), so you should write them down or keep this browser tab open while you configure the Zixi Receiver.



In tab view, you need to select the **Configuration** tab. In accordion view, scroll down to the Configuration section.

5. Login to the **Zixi Receiver UI** (it could be a locally installed Zixi Receiver, e.g. <http://localhost:4200> or a remote Zixi Receiver).
6. Go to **Settings > SSH Tunnels**.
7. In the **Key File** field, click Upload Key and select the downloaded SSH key file.
8. In the **Host** field, enter the host name that appeared in the **Configuration Help**.
9. In the **Username** field, enter the username name that appeared in the **Configuration Help**.
10. Click **Apply**.
11. In the **Reverse Tunnels** section (at the bottom) click **Add**.

The **Tunnel Details** dialog opens:



12. In the **Remote Source Port** field, enter the Remote Source Port that appeared in the Configuration Help.
13. Click **OK**.
14. In ZEN Master, in the main navigation, click **Receivers**.
Verify that the status of the newly connected Zixi Receiver has changed from Pending to OK.

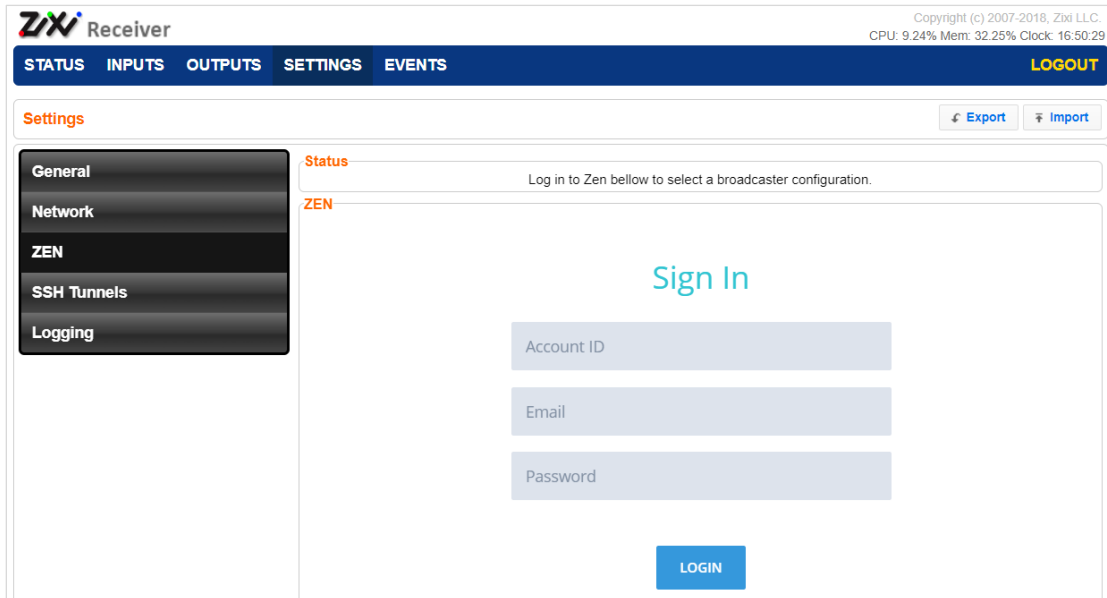
RECEIVERS						+ Add	Refresh
Filter							
<input type="checkbox"/> Name ▲	Status	IP	CPU	Version			
<input type="checkbox"/> Demo_ZEN_RX01	Ok	209.95.37.240	11.54%	13.1.35616	Open		
<input type="checkbox"/> LabMiniReceiver	Ok	199.188.233.146	13.08%	13.1.36674			
<input type="checkbox"/> LABRX01	Pending	-	-	-			
<input type="checkbox"/> LABRX02	Ok	199.188.233.146	19.47%	13.1.37160	Open		

Showing: 1 - 4 of 4 Rows 10

➔ **To connect the Zixi Receiver Automatically (for v12 and above):**

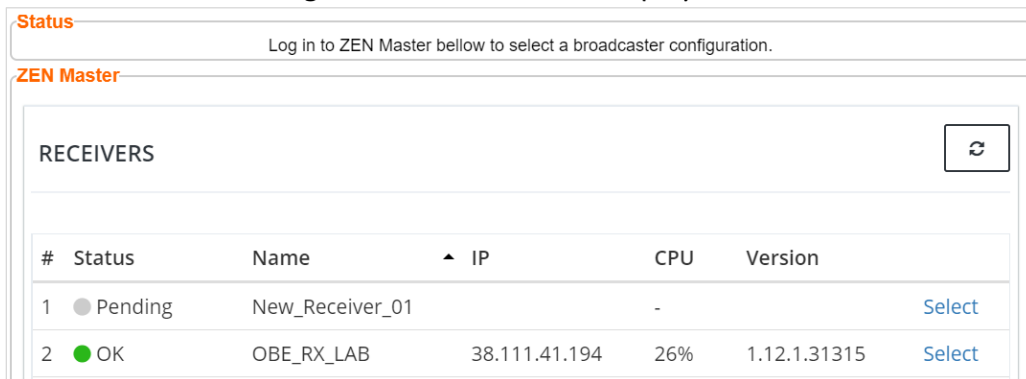
1. Login to the **Zixi Receiver UI** (it could be a locally installed Zixi Receiver, e.g. <http://localhost:4200> or a remote Zixi Receiver).
2. Click the **ZEN** tab.

The ZEN login screen is displayed.



3. In the **Account ID** field, enter the customer domain of your ZEN Master account (e.g. if you login to ZEN at *demo.zen.zixi.com* then your Account ID is 'demo').
4. In the **Email** field, enter the username for your ZEN Master account.
5. In the **Password** field, enter the password for your ZEN Master account.
6. Click **Login**.

A list of Receivers configured in ZEN Master is displayed.



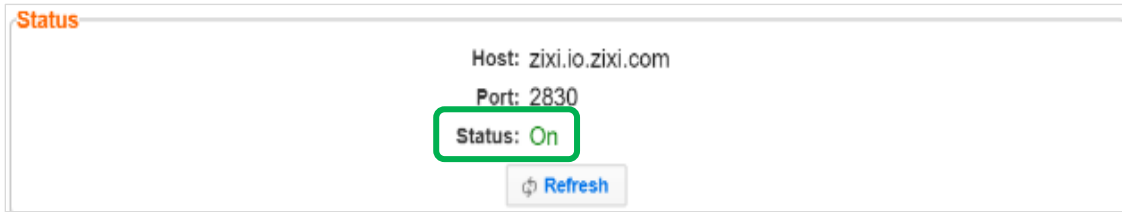
7. For the Receiver that you are adding, which should currently be in **Pending** mode, click **Select**.

Details about the Receiver are shown in the **Status** section.

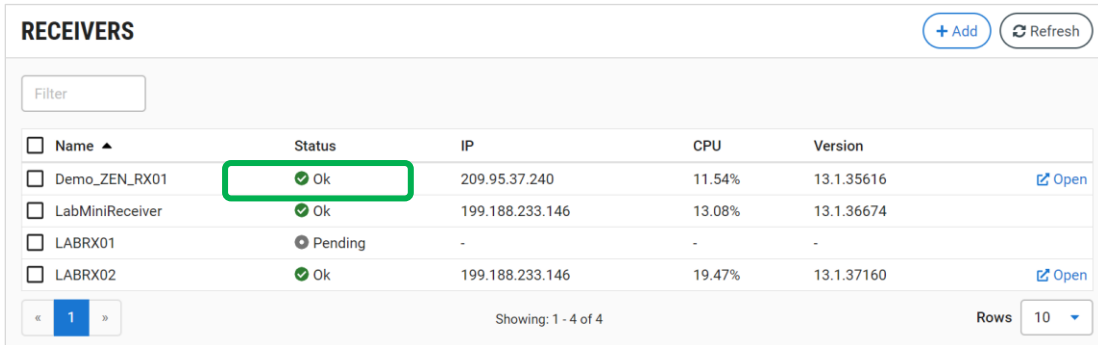
8. Click **Refresh**.

The connection is configured automatically.

- 9. Verify that the Status is shown as **On**.



- 10. In ZEN Master, in the main navigation, click **Receivers** and check that the status of the newly connected Zixi Receiver has changed from *Pending* to *OK*.



Viewing Existing Zixi Receivers

After the Receiver resource is created, it is added to the list of Zixi Edge Devices. The list includes all types of Edge Devices, the type is indicated in the **Type** column. It is possible to filter the list by selecting the type with the checkboxes at the top.

ZIXI EDGE DEVICES + Add Refresh

Filter Feeder Receiver ZEC

Name	Status	Type	IP	CPU	RAM	Uptime	Version	
<input type="checkbox"/> andrew_fozzie	Error	Feeder	-	-	-	-	-	Open
<input type="checkbox"/> Korben	Error	Feeder	-	-	-	-	-	Open
<input type="checkbox"/> matts_aws_feeder_01	Disabled	Feeder	-	-	-	-	-	
<input type="checkbox"/> New_Feeder_01	Error	Feeder	-	-	-	-	-	Open
<input type="checkbox"/> ProdMgmt_NUC_Feeder	Error	Feeder	-	-	-	-	-	Open
<input type="checkbox"/> Tim_Broadberry_Feeder	Ok	Feeder	-	6.74%	10.61%	113:45:28	13.1.38327	Open
<input type="checkbox"/> Wirecast	Error	Feeder	-	-	-	-	-	Open
<input type="checkbox"/> IntelNUC	Error	Receiver	-	-	-	-	-	Open
<input type="checkbox"/> Korben	Pending	Receiver	-	-	-	-	-	
<input type="checkbox"/> matts_aws_receiver_01	Disabled	Receiver	-	-	-	-	-	
<input type="checkbox"/> New_Receiver_01	Error	Receiver	-	-	-	-	-	Open
<input type="checkbox"/> RECTEST	Error	Receiver	-	-	-	-	-	Open

When a Receiver is selected, the list pane is minimized and detailed info about the selected Receiver is shown on the right side of the screen. The info can be shown in *Tab* view or *Accordion* view, see [INFO PAGES](#).

Receiver_vDCM Unmute Edit Clone Disable Delete

PERFORMANCE

CPU
17.4%

OUTPUTS

Name	Type	Target
stream1	UDP	1

1 - 1 of 1 Rows: Auto

HISTORY

Open Incident Last 6 hours

EVENTS

Error Warning Info Ok Quick Report Columns

Object	Date/Time	Message	Actions
--------	-----------	---------	---------

DETAILS

Name: Receiver_vDCM
 Type: Receiver
 Tags: _Ju_migrate
 Events Configuration Profile: Default
 Location: Council Bluffs, Iowa, United States
 Network: Google, Iowa, United States
 API User: admin
 API Credentials: Show
 Copy Password
 SSH Key: Default
 Termination protection: OFF
 Platform: Linux 64-bit
 Source IP:
 Uptime: [94:22:50] 1984236:50
 Host ID:
 Activation Key: License Details
 Version: 1.13.1.40511
 Open Link


When a Receiver is selected, the following sections are shown in the info pane:

- **Details** – configuration details of the Receiver.
- **History** – a graphical display of the Receiver's CPU consumption over time.
- **Events** - all the related events that have been generated by the system, such as connections, errors, warnings and disconnections. To learn about the data that is displayed in the Events tab see [EVENTS](#). Click **Quick Report** to generate a report of events related to this Channel and download the .xls file.
- **Configuration** – configuration procedures for connecting the Receiver to ZEN Master, including specific settings for this particular Feeder.
- **Notes** – free-form text can be added with pertinent information about this Receiver.

The top of the **Info** pane includes buttons for taking the following actions on the selected Receiver:

- **Acknowledge/Clear Acknowledgment** (for Sources in disconnected status) – mark/clear the status of this Source as acknowledged.
- **Mute/Clear Mute** – disables/activates notification for error/recovery events. Set the date and time when the mute will automatically be cleared by clicking on the down arrow and selecting **mute until**.
- **Edit** – enables you to edit the Zixi Receiver configuration.
- **Disable/Enable** – Disabling a Zixi Receiver stops all active outputs for that Receiver without deleting the configuration of the Zixi Receiver.
- **Delete** – deletes the Zixi Receiver configuration.

The main display shows following data:

Parameter	Description
Status	<p>The connection status of the Zixi Receiver. Possible values:</p> <ul style="list-style-type: none">• Green – OK• Red – error state• Pink (shown together with a checkmark) – acknowledged error state• Gray – pending/disabled (waiting for initial connection) <p>The  icon next to a Feeder indicates that the Receiver is muted, disabling notifications for error/recovery events.</p>
Name	The name of the Zixi Receiver as configured in ZEN Master.
IP	The remote Zixi Receiver IP address as seen by ZEN Master.
CPU	The CPU utilization on the Zixi Receiver source machine.
Uptime	The time period that the Zixi Receiver has been online.
Version	The Zixi Receiver software version.

Actions

Open	A link to the Zixi Receiver UI.
------	---------------------------------




It is possible to add more columns to the list, see [Show/Hide Columns](#). If you want to view resources that were marked as **Priority**, add the **Priority** column and sort by it.

When one of the Receivers in the list is selected, the details of the Receiver, divided into tabs, appear at the bottom of the screen.

Parameter	Description
-----------	-------------

Details Tab

Name	The name of the Zixi Receiver as configured in ZEN Master.
------	--

Tags	The Tag/s that is associated with this Receiver. You can edit the tag/s as follows: click the  icon. Then, delete the current tag by clicking the "X" next to the tag and/or add a new tag/s by selecting one or more tags from the drop-down list.
------	---

Events

Configuration Profile	The Events Profile that is applied to this Receiver.
-----------------------	--

API User	The user name used to access the Zixi API in order to communicate between ZEN Master and the Zixi Feeder.
----------	---

API Password	The Zixi Receiver API password. Click Show to display the password.
--------------	--

Tunnel Port	The port on the ZEN Master server assigned for communication with the Zixi Receiver.
-------------	--

SSH Key	The name of the SSH key file. Click on the link to download the SSH key onto your local machine.
---------	--

Termination Protection	Indicates whether the termination protection is enabled or disabled. The termination protection prevents deleting the Zixi Receiver. To delete it, you will need to first disable the Termination Protection.
------------------------	---

Available Outputs	Shows a list of all outputs available in the Receiver, including information about their Status, Type, and Target location.
-------------------	---

Activation Key	Click on License Details to show the license details of this resource.
----------------	---

History	A graphical representation of the CPU utilization of the selected Receiver, displayed over time.
----------------	--

Events	A list of the events that were generated in ZEN Master in relation to the selected Zixi Receiver. To learn about viewing event logs in ZEN Master, see EVENTS . Click Quick Report to generate a report of events related to this receiver and download the .xls file.
Configuration	Shows an explanation of how to connect the selected Receiver to ZEN Master. This tab includes your personal connection configuration settings which are used to make the connection. See section ERROR! REFERENCE SOURCE NOT FOUND..
Notes	Free-form text with information relevant to this broadcaster cluster.

Cloning a Zixi Receiver

If you would like to create a new Receiver with properties similar to those of an existing Receiver, you can use the *Clone* feature to simplify the process.

➔ To Clone a Zixi Receiver:

1. In the main navigation, click **Zixi Edge Device**.
2. Select the Receiver that you would like to Clone (i.e. the Receiver already configured in ZEN Master which has setting similar to those that you would like to set for the new ZEC that you are creating).
The Receiver full details are displayed.
3. Click **Clone** button, located at the top.
The **Clone Receiver** window is displayed with the all fields other than **Name** populated with the configuration data of the original Receiver.
4. In the **Name** field, enter the name of the new Receiver.
5. Change any of the fields that you would like to configure differently than the original Receiver. See [ADDING A NEW ZIXI RECEIVER](#).
6. Click **Save**.
After configuring the Receiver in ZEN Master you must make the actual connection between the Feeder and ZEN Master using the procedure described in [CONNECTING THE ZIXI FEEDER \(ZIXI FEEDER UI\)](#).

Editing the Tags and Configuration Profiles of Multiple Zixi Edge Devices

You can edit the Tags and Configuration Profiles of multiple Zixi Edge Devices at once.

For more information, see [CONFIGURING TAGS](#) and [CONFIGURING EVENTS PROFILES](#)

➔ To edit the tags and configuration profiles:

1. In the main navigation, click **Zixi Edge Device**.
2. Click the checkboxes to select multiple objects.

3. Click **Edit**.

ZIXI EDGE DEVICES + Add Refresh

Filter + Add Filter 🔍 🔔 **✎** 🔌 🔌 🗑️ Columns 📄

<input type="checkbox"/>	Name	Status	Type	IP	CPU	RAM	Uptime	Vers
<input checked="" type="checkbox"/>	Receiver_vDCM	🟢 Ok 🔍	Receiver	34.122.67.140	14.28 %	-	19675:04:20	13.1
<input checked="" type="checkbox"/>	aws_virginia_zec01	🟢 Ok	ZEC	54.80.242.46	2.22 %	10.29 %	4503:31:40	16.4
<input checked="" type="checkbox"/>	aws_virginia_zec02	🟢 Ok	ZEC	3.87.131.173	1.82 %	9.16 %	4503:24:07	16.4
<input type="checkbox"/>	lab_boston_edgecaster	🟡 Warning	ZEC	199.188.233.146	68.47 %	36.01 %	1051:56:38	16.3
<input type="checkbox"/>	lab_boston_zec01_A	🟢 Ok	ZEC	199.188.233.146	4.48 %	7.66 %	4862:19:37	16.5
<input type="checkbox"/>	lab_boston_zec02_A	🟢 Ok	ZEC	199.188.233.146	5.97 %	9.86 %	1453:06:19	16.4
<input type="checkbox"/>	Showfloor_ZEC	🔕 Disabled	ZEC	-	-	-	-	-

1 - 7 of 7 Rows: Auto 3 rows selected

The **Edit Zixi Edge Devices** screen is displayed.

4. To edit the tags, under the **Tags** section, click **Update**.

EDIT ZIXI EDGE DEVICES

Editing the following 3 zixi edge devices:

🔍 Receiver_vDCM aws_virginia_zec01 aws_virginia_zec02

Tags ⓘ

Update Overwrite Add Remove

Select Tags ▼

Events Configuration Profile

Update Default ▼

Cancel Save (3)

5. Select the action that you want to perform – **Overwrite**, **Add**, or **Remove**.
6. Click the drop-down menu and select the tag. It is possible to select multiple tags.
7. To edit the Events Configuration Profile of the objects, under **Events Configuration Profile**, click **Update**.
8. Click the drop-down menu and select the desired Events Configuration Profile.
9. Click **Save**.

Broadcasters

- **Zixi Broadcasters** - The Zixi Broadcaster serves as a central hub for management, processing, and distribution of content in various formats. The Zixi Broadcaster platform enables live linear and live event broadcast-quality video delivery over standard broadband Internet. Zixi Broadcaster can also transcode and deliver RTMP or HLS in various bit rates and protocols.
- **Broadcaster Clusters** are groups of Zixi Broadcasters that perform a certain task or tasks. A cluster can be configured to scale automatically or manually, enabling you to maximize the use of your resources.

Creating a Broadcaster Cluster

Broadcaster clusters are groups of Zixi Broadcasters that perform one or more tasks. This allows efficient management of resources and ensures performance and availability of resources. Each Broadcaster cluster can be used to perform multiple tasks of various types.

Creating a New Broadcaster Cluster

There are two management options available for the Broadcaster clusters:

- **Manual** – this option requires manual set up and configuration of each Zixi Broadcaster instance. You can then create a Manual cluster and add your specific broadcaster instances to the cluster.
- **Managed** – this option enables ZEN Master to spin up new broadcaster instances in your cloud account and manage them automatically. For this option there is no need to manually set up the actual Zixi Broadcaster instances. All you need to do is create a Managed cluster and then add the desired number of primary and secondary broadcasters to the cluster. This option is only available once you have configured your Amazon AWS, Microsoft Azure or Google GCP account in ZEN Master. To configure your credentials, see [CONFIGURING AWS ACCOUNT CREDENTIALS](#), [CONFIGURING MICROSOFT AZURE ACCOUNT CREDENTIALS](#) or [CONFIGURING GOOGLE GCP ACCOUNT CREDENTIALS](#).

The following procedure describes how to add a Broadcaster cluster in ZEN Master. In addition, an explanation of each of the configuration parameters is given in the table below.

Adding a Broadcaster Cluster – Manual

➔ To add a Manual Broadcaster Cluster:

1. In the main navigation, select **Broadcasters**.
2. Click **+ Add**.

The **Create New Broadcaster Cluster** screen is displayed:

CREATE NEW BROADCASTER CLUSTER

[Info](#) [Configuration](#) [Advanced](#)

INFO

Name *

Tags * ⓘ

Events Configuration Profile

DNS Prefix * 🔒

 .demo.io.zixi.com

IP Whitelist ⓘ
For AWS Clusters the IP Whitelist can optionally manage the security groups for the cluster, for other clusters the IP Whitelist will be enforced via authorization

DTLS
ZEN Master will automatically configure your broadcasters with DTLS support. DTLS feature is only supported in Zixi Broadcaster version 12.2 and newer.

Log SCTE-35
Requires version 13.1.40262 or newer Broadcasters

RTMP Server

CONFIGURATION

Management Type 🔒

Authorization Mode ⓘ

Broadcasters will be automatically configured to verify all connections against the ZEN Master backend server. Make sure that broadcasters will be able to access their assigned server on port 80 and 443.

Allow access to inputs not configured in ZEN Master

Push Inputs Pull Outputs

Termination protection

ADVANCED +

3. In the **Info** section, in the **Name** field, type a logical name for the Zixi Broadcaster Cluster resource.
4. In the **Tags** field, select one or more of the predefined Tags from the drop-down list. Tags are used for access control. By selecting a Tag, you are relating this Cluster to that Tag. Tags are associated with certain roles (through the Users & Roles screen), and roles,

in turn, are associated with users and user groups. If you would like to create a new Tag, see [CREATING A TAG](#).

5. In the **Events Configuration Profile** field, select from the dropdown list the profile that you would like to apply to this cluster. By default, the *Default* profile is applied.



Events Profiles consist of a series of rules that determine precisely how various types of Events are logged and what results they trigger.

6. In the **DNS Prefix** field, enter a unique domain name for sending the streams to/from this cluster.
7. Select the **IP Whitelist** checkbox if you would like to control access to this cluster by limiting access to Push inputs and Pull outputs to specific IP address (for an AWS cluster this will enable you to control the AWS security groups)¹.



If you select **IP Whitelist**, then you must use ZEN authorization mode for this cluster.



If you select **IP Whitelist**, then after configuring the Broadcaster Cluster you must input the IPs that will have access to this cluster, see [ADDING IPS TO THE WHITELIST](#).

8. Select the **DTLS** checkbox if you would like to encrypt the stream dynamically using DTLS. (This feature is only supported for Broadcasters running v12.2+.)
9. If you selected the **DTLS** checkbox then the **Ignore DTLS certificate when not supported** checkbox appears. Select this checkbox if you would like to enable resources using older versions of Zixi software (<v12.2) that don't support verification of the ZEN DTLS certificate to connect to this cluster.
10. Select the **Log SCTE-35** checkbox if you would like to log SCTE-35 markers for streams in this cluster.



To log SCTE-35 markers, SCTE-35 needs to be enabled both on the Ingest Cluster and in the Source configuration.



SCTE-35 logging is only available for v13.1.40262+ Broadcasters.

11. Select the **RTMP Server** checkbox if you would like to receive RTMP push inputs.

¹ If you activate IP Whitelisting then you must use ZEN authorization mode for this cluster.

12. In the **Configuration** section, in the **Management Type** field, for manual management, verify that **Manual** is selected. After creating a Broadcaster Cluster with manual management, you must add Broadcaster instances for use in the cluster. To do this, see [ADDING A BROADCASTER TO A MANUAL CLUSTER](#).



To create a Broadcaster Cluster with ZEN Master managed Broadcasters, see [ADDING A BROADCASTER CLUSTER – MANAGED](#).

The manual configuration fields are shown:

CONFIGURATION

Management Type

Manual

Authorization Mode

ZEN Master

Broadcasters will be automatically configured to verify all connections against the ZEN Master backend server. Make sure that broadcasters will be able to access their assigned server on port 80 and 443.

Allow access to inputs not configured in ZEN Master

Push Inputs Pull Outputs

Termination protection

ADVANCED +

13. In the **Authorization Mode** field, select one of the following options:
- **ZEN Master** – ZEN Master automatically verifies the authorization for each ZEN entity (e.g. Sources, Channels and Targets) that accesses the Broadcaster cluster. If you would like to allow access to inputs/outputs that are not configured in ZEN Master, then in the **Allow access...** section, select the **Push Inputs** and/or **Pull Outputs** checkbox.
 - **External Server** – the request for content is relayed to an Authorization Server. In the **Authorization Server** field, enter the URL of the external server.
 - **Global Password** – Broadcasters are automatically configured to authorize all connections using a single global password. The global password will be used in the Source Password field when you configure a Source. In the **Password** field, enter the password OR click **Random** to generate a random password.
 - **Free for All** – Broadcasters will be automatically configured to allow all inputs/outputs to connect. Select **Inputs** and/or **Outputs** to automatically allow them to connect.

- **Manual** – ZEN will not authorize connections. You will need to authorize each connection independently.
14. Under **Allow access to inputs not configured in ZEN Master**, select the **Push Inputs** checkbox if you would like to automatically allow access to Push Inputs. Select the **Pull Outputs** checkbox if you would like to automatically allow access to Pull Outputs.
 15. Select the **Termination protection** checkbox if you would like to prevent deletion of the Broadcaster Cluster.

16. If you would like to adjust the advanced settings, click **Advanced**.
The **Advanced** settings window is displayed:

ADVANCED —

Load Balance Pull Targets

Minimize the number of broadcasters Uniform distribution

HTTP Streaming Port *

7777

Bandwidth Limits [Mbps]

Input Output

Input Output

Bandwidth limits are checked per broadcaster

Transcode Thresholds

CPU Threshold [%] Memory Threshold [%]

60 60

GPU Threshold [%] GPU Memory Threshold [%]

60 60

GPU Decoder Threshold [%] GPU Encoder Threshold [%]

60 60

Billing Codes

Inputs Billing Code

Inputs Billing Code

Inputs Billing Password

Inputs Billing Password

Validate billing code

Outputs Billing Code

Outputs Billing Code

Outputs Billing Password

Outputs Billing Password

Validate billing code

External Authorization

Server Endpoint

https://authorization.example.com/api/zen-master

Authorization Header Type Authorization Header Credentials

e.g. Basic e.g. YWRtaW46MTIzNA==

Install AgentZ automatically

Enhanced Monitoring

✕ Cancel ✓ Save

17. Adjust the following advanced settings as desired:

- **Balance Pull Targets** – select one of the following load balancing methods for Pull outputs:
 - **Minimize the number of broadcasters** (default)– transfers excess load to other broadcasters only when the allotted capacity on the host broadcaster is filled.
 - **Uniform distribution** – distributes the load equally between all available broadcasters under all circumstances.
- **HTTP Streaming Port** – You can change the HTTP streaming port from the default (7777) to a custom port. The custom port should match the configuration on the Zixi Broadcaster.
- **Bandwidth Limits** – set the bandwidth limits.
- The **Transcode Thresholds** are used by ZEN Master to determine whether an additional transcoded Channel can be added to the broadcaster. Adjust the following thresholds as desired:
 - **CPU Threshold** – percentage of CPU being used.
 - **Memory Threshold** – percentage of memory being used.
 - **GPU Threshold** – percentage of GPU being used.
 - **GPU Memory Threshold** – percentage of GPU memory being used.
 - **GPU Decoder Threshold** – percentage of GPU decoder pipeline being used.
 - **GPU Encoder Threshold** – percentage of GPU encoder pipeline being used.
- If you would like to track usage for this Broadcaster, enter your **Billing Code** details, see [BILLING CODES](#). (Supported for Broadcasters v14.8+).
- **External Authorization** - if you want, in addition to the to the standard internal authorization process, you can add an external authorization service. In this case, the requests for connections will be redirected to the external service for authorization. For example, an external pay-per-view application can confirm that a requesting end-device belongs to an account that has paid for a live event. Another example could be some external security management application that is managing firewalls accepting requests from dynamic IPs in a consumer network. To enable, set the following parameters:
 - **Server Endpoint** - the URL of the external authorization server endpoint.
 - **Authorization Header Type (optional)** - the type of authorization header schema (e.g., basic)
 - **Authorization Header Credentials (optional)** - the authorization header credentials code.
- If you want to install AgentZ automatically, select the **Install AgentZ automatically** checkbox. Agent Z is a Sidecar tool that sits on a Zixi Broadcaster, it acquires the system health data and other statistics locally and pushes it to ZEN Master. By enabling this option, ZEN Master will automatically install AgentZ on any existing and future Broadcasters connected to the Cluster. The feature is off by default. Due to AgentZ installation requiring a restart, ZEN Master will not

auto-install AgentZ on a Broadcaster that already contains any inputs to avoid disturbing active streams. It is also possible to install AgentZ manually on a Broadcaster. Unlike the ZEN Master install, the manual install does not force a Broadcaster restart. The manual AgentZ installer can be downloaded from the Zixi Customer Portal and instructions are provided in the AgentZ Installation Guide.

18. Click **Save**.



The Broadcaster Cluster will only be functional once you add one or more Broadcaster instances to the cluster. First you need to add the Broadcaster (see [ADDING A BROADCASTER TO A MANUAL CLUSTER](#)), [Adding Broadcasters to](#) and then you need to connect the Broadcasters to ZEN Master (see [CONNECTING THE ZIXI BROADCASTER \(ZIXI BROADCASTER UI – FOR MANUAL\)](#)).

Adding a Broadcaster Cluster – Managed

When creating a ZEN Master managed Broadcaster cluster, you specify the AWS, Azure or GCP instance type that will be used for this cluster. Make sure to select an instance type that supports the type of processing that will be done on this cluster. ZEN Master supports both standard CPU instances as well as Nvidia GPU instances on AWS, Azure and GCP (including Tesla V100 and T4, which support both HEVC decoding and encoding).

In addition, ZEN Master supports 5G Contribution and Distribution using the AWS Wavelength Zone. Before launching a wavelength zone instance, opt into the wavelength zone service, by enabling the feature via your AWS console. Due to instant type and public IP differences, wavelength zone and non-wavelength zone subnets are not interchangeable, and clusters can only choose one. For more information, see -

<https://docs.aws.amazon.com/wavelength/latest/developerguide/what-is-wavelength.html>

➔ **To add a managed Broadcaster Cluster:**

1. In the main navigation, click **Broadcasters**.
2. Click **+ Add**.
The **Create New Broadcaster Cluster** screen is displayed.
3. In the **Info** section, in the **Name** field, type a logical name for the Zixi Cluster resource.
4. In the **Tags** field, select one or more of the predefined Tags from the drop-down menu. Tags are used for access control. By selecting a Tag, you are relating this Cluster to a Tag. Tags are associated with certain roles (through the Users & Roles screen), and roles, in turn, are associated with users and user groups. If you would like to create a new Tag, see [CREATING A TAG](#).
5. In the **DNS Prefix** field, enter a unique domain name for sending Sources to this cluster.
6. Under **Cluster Type**, select one or both of the following options (a single cluster can be defined as multiple types):
 - **Ingest** – An Ingest cluster is used to configure inputs and make them available as Sources in ZEN Master.

- **Channel Processing** – A Channel Processing cluster is used to process Sources and/or to send them to specified Targets.



To create a Broadcaster Cluster with manual management, see [ADDING A BROADCASTER CLUSTER – MANUAL](#).

7. Select the **IP Whitelist** checkbox if you would like to control access to this cluster by limiting access to Push inputs and Pull outputs to specific IP address (for an AWS cluster this will enable you to control the AWS security groups)¹.



If you select **IP Whitelist**, then you must use ZEN authorization mode for this cluster.



If you selected **IP Whitelist** then after configuring the Broadcaster Cluster you must input the IPs that will have access to this cluster, see [ADDING IPS TO THE WHITELIST](#).

8. Select the **DTLS** checkbox if you would like to activate DTLS encryption and authentication. (This feature is only supported for Broadcasters running v12.2+.)
9. If you selected the **DTLS** checkbox then the **Ignore DTLS certificate when not supported** checkbox appears. Select this checkbox if you would like to enable resources using older versions of Zixi software (<v12.2) that don't support verification of the ZEN DTLS certificate to connect to this cluster.
10. Select the **Log SCTE-35** checkbox if you would like to log SCTE-35 markers for streams on this cluster.



To log SCTE-35 markers, SCTE-35 needs to be enabled both on the Ingest Cluster and in the Source configuration.



SCTE-35 logging is only available for v13.1.40262+ Broadcasters.

11. Select the **RTMP Server** checkbox if you would like to receive RTMP push inputs.
12. In the **Configuration** section, in the **Management Type** field, for a managed cluster, select one of the AWS, Azure or GCP accounts configured in ZEN Master from the list shown under *AWS*, *Azure* or *GCP* in the drop-down menu. To create a new cloud service account, see [LINKING AN AWS ACCOUNT](#), [LINKING AN AZURE ACCOUNT](#) or [LINKING A GOOGLE GCP ACCOUNT](#).

¹ If you activate IP Whitelisting then you must use ZEN authorization mode for this cluster.

The Configuration fields for the selected type of managed cluster are displayed.

CONFIGURATION

Management Type

Demo AWS Account

Region *

Select Region

Key Pair *

Select Key Pair

VPC *

Select VPC

Subnets *

Select Subnets

Security Groups *

Select Security Groups

Architecture

64-bit (Arm) 64-bit (x86)

Instance Type *

Select Instance Type

Root Device Size [GiB] *

32

Activation Key *

Activation Key

API User * API Password *

admin API Password

Broadcaster Version

16.4.44543

Authorization Mode

ZEN Master

Broadcasters will be automatically configured to verify all connections against the ZEN Master backend server.
Make sure that broadcasters will be able to access their assigned server on port 80 and 443.

Allow access to inputs not configured in ZEN Master

Push Inputs Pull Outputs

Termination protection

13. Fill in your cloud service account details as follows:

- For an **AWS** cluster –
 - In the **Region** field, specify the AWS region.
 - In the **Key Pair** field, select from the drop-down list one of the available Key Pairs to access the cluster. If no Key Pair is displayed, then go to your Amazon account to setup your Key Pair.

- In the **VPC** field, select from the drop-down list one of the available VPC (Virtual Private Cloud) networks to which the cluster will be connected.
- In the **Subnets** field, select from the drop-down list one or more of the subnets that are available in this VPC. AWS Wavelength subnets are indicated with "WAVES-BOS". For more information about Wavelength, see - <https://docs.aws.amazon.com/wavelength/latest/developerguide/what-is-wavelength.html>
- In the **Security Groups** field, select from the drop-down list one or more of the security groups associated with this VPC. If no Security Group is displayed then go to your Amazon Account to configure your security groups (for guidance in setting up your Security Groups see [AMAZON SECURITY GROUPS](#)) or use the ZEN IP Whitelist to manage your AWS security (see the following step).
- If you selected **IP Whitelist** option (on the previous screen) then the **Manage security groups via Zen IP Whitelist** option is displayed. Select this checkbox to use the IP Whitelist to manage your AWS security.
- In the **Architecture** field, select **64-bit (Arm)**, or **64-bit (x86)**.
- In the **Instance Type** field, select from the drop-down list one of the available AWS instance types that will be used in this cluster.
- In the **Root Device Size** field, enter the capacity of the hard drive (in GiB).
- For an **Azure** cluster –
 - a. In the **Region** field, select from the drop-down list the location of the account to be used for this cluster.
 - b. In the **Virtual Network** field, select from the drop-down list a VN in your Azure account.



You need to have a Virtual Network in your Azure account in order to be able to create a Broadcaster Cluster in ZEN Master. If you don't have a VN in your account, you can create one via the Azure portal.

- c. In the **Subnet** field, select from the drop-down list a subnet that is available in the specified VN.
 - d. In the **Network Security Group** field, select from the drop-down list a network security group for this cluster.
- For a **GCP** account –
 - a. In the **Region** field, select from the drop-down list the region of the GCP account.
 - b. In the **Zones** field, select from the drop-down list one or more zones in the specified region.
 - c. In the **Network** field, select from the drop-down list one or more of the subnets that are available in the specified region.
 - d. In the **Machine Type** field, select from the drop-down list the type of machine to be used for the cluster.



Both n1 and n2 machine types are supported.

- e. In the **GPU Type** field, select from the drop-down list the type of GPU to be used for the cluster.
- f. In the **Root Device Size** field, specify the size of the root device in GiB.
14. In the **Activation Key** field, input the activation key for your Zixi Broadcaster license.
15. In the **API User** field, enter the username for accessing the Zixi Broadcaster via API.
16. In the **API Password** field, enter the password for accessing the Zixi Broadcaster via API.
17. In the **Broadcaster Version** field, select from the drop-down list the desired Broadcaster version that you would like to run on your cloud service machines.



The Broadcaster versions available for your account can be viewed and modified on the Customer Portal.



Make sure to select a Broadcaster version that supports the type of processing that will be done on this cluster

18. In the **Authorization Mode** field, select one of the following options:
 - **ZEN Master** – ZEN Master automatically verifies the authorization for each ZEN entity (e.g. Sources, Channels and Targets) that accesses the Broadcaster cluster. If you would like to allow access to inputs/outputs that are not configured in ZEN Master, then in the **Allow access...** section, select the **Push Inputs** and/or **Pull Outputs** checkbox.
 - **External Server** – the request for content is relayed to an Authorization Server. In the **Authorization Server** field, enter the URL of the external server.
 - **Global Password** – Broadcasters are automatically configured to authorize all connections using a single global password. The global password will be used in the Source Password field when you configure a Source. In the **Password** field, enter the password OR click **Random** to generate a random password.
 - **Free for All** – Broadcasters will be automatically configured to allow all inputs/outputs to connect. Select **Inputs** and/or **Outputs** to automatically allow them to connect.
 - **Manual** – ZEN will not authorize connections. You will need to authorize each connection independently.



All authorization modes other than *Manual* will override the authorization configured on your Broadcasters. Therefore, if you have streams on your Broadcasters that are not configured on ZEN Master, then any mode other than *Manual* or *Free for All* may interrupt those streams.

19. Under **Allow access to inputs not configured in ZEN Master**, select the **Push Inputs** checkbox if you would like to automatically allow access to Push Inputs. Select the **Pull Outputs** checkbox if you would like to automatically allow access to Pull Outputs.
20. Select the **Termination protection** checkbox if you would like to prevent deletion of the Broadcaster Cluster.

21. If you would like to adjust the advanced settings, click **Advanced**.
The **Advanced** settings are displayed:

ADVANCED —

Load Balance Pull Targets

Minimize the number of broadcasters Uniform distribution

HTTP Streaming Port *

7777

Elastic IP Allocation IDs

Comma separated Elastic IP Allocation IDs (e.g. eipalloc-e543f2ea,eipalloc-b456c1ba)

Require Elastic IP ⓘ

Bandwidth Limits [Mbps]

Input Output

Bandwidth limits are checked per broadcaster

Default HLS segment configuration

Count Duration [seconds]

Default CMAF (DASH + fMP4 HLS) segment configuration

Count Duration [seconds]

Warning - Playback might stall if less than 5 segments are configured

Transcode Thresholds

CPU Threshold [%] Memory Threshold [%]

GPU Threshold [%] GPU Memory Threshold [%]

GPU Decoder Threshold [%] GPU Encoder Threshold [%]

Enable Real-time Broadcaster process priority

Billing Codes

Inputs Billing Code

Inputs Billing Password

Outputs Billing Code

Outputs Billing Password

External Authorization

Server Endpoint

Authorization Header Type Authorization Header Credentials

Launch Script

Launch Script

See AWS documentation for valid launch scripts [here](#).

Install AgentZ automatically

Enhanced Monitoring

22. You can adjust the following settings:

- **Balance Pull Targets** – select one of the following load balancing methods for Pull outputs:
 - **Minimize the number of broadcasters** (default)– transfers excess load to other broadcasters only when the allotted capacity on the host broadcaster is filled.
 - **Uniform distribution** – distributes the load equally between all available broadcasters under all circumstances.
- **HTTP Streaming Port** – You can change the HTTP streaming port from the default (7777) to a custom port. The custom port should match the configuration on the Zixi Broadcaster.
- **Elastic IP Allocation IDs** – Enter comma separated Elastic IP Allocation IDs. Elastic IPs are a set of fixed IPs provided by AWS, so that when ZEN Master launches an instance it will assign this instance with one one of these "known" elastic IP addresses. This known IP address can be configured in the Firewall security solution.
- **Require Elastic IP** - select this checkbox to prevent ZEN Master from launching an instance if there are no more available Elastic IPs.
- **Bandwidth Limits**– set the bandwidth limits.
- **HLS/CMAF(DASH+fMP4 HLS) segment configuration** – configure the *Count* and *Duration* parameters for HLS and DASH segments on this Broadcaster Cluster.
- The **Transcode Thresholds** are used by ZEN Master to determine whether an additional transcoded Channel can be added to the broadcaster. The following thresholds can be adjusted:
 - **CPU Threshold** – percentage of CPU being used.
 - **Memory Threshold** – percentage of memory being used.
 - **GPU Threshold** – percentage of GPU being used.
 - **GPU Memory Threshold** – percentage of GPU memory being used.
 - **GPU Decoder Threshold** – percentage of GPU decoder pipeline being used.
 - **GPU Encoder Threshold** – percentage of GPU encoder pipeline being used.
- **Enable Real-time Broadcaster process priority** – this setting is deselected by default. You can increase the Broadcaster’s process priority by selecting it. This may be beneficial for sending streams to highly sensitive IRDs. However, this should not be done without consulting with your customer success agent.
- If you would like to track usage for this Broadcaster, enter your **Billing Code** details, see [BILLING CODES](#). (Supported for Broadcasters v14.8+).
- **External Authorization** - ZEN Master can, in addition to its standard internal authorization process, redirect the authorization of connections to an external service. For example, an external pay-per-view application, which confirms that a requesting end-device belongs to an account that has paid for a live event.

- Server endpoint - an external authorization URL for the server endpoint.
- Optional authorization header schema and credentials to access the service.
- If you would like to install AgentZ automatically, select the **Install AgentZ automatically** checkbox. Agent Z is a Sidecar tool that sits on a Zixi Broadcaster, it acquires the system health data and other statistics locally and pushes it to ZEN Master. By enabling this option, ZEN Master will automatically install AgentZ on any existing and future Broadcasters connected to the Cluster. The feature is off by default. Due to AgentZ installation requiring a restart, ZEN Master will not auto-install AgentZ on a Broadcaster that already contains any inputs to avoid disturbing active streams.

23. Click **Save**.

The new Broadcaster cluster is created in the system and added to the list of Broadcaster clusters. The status should change from *Pending* to *OK* after a few minutes.



The Broadcaster cluster will only be functional once you add one or more Broadcaster instances to the cluster, see [ADDING BROADCASTERS TO A MANAGED CLUSTER](#).

Broadcaster Cluster Configuration Parameters Table (for Manual and Managed Clusters)

Parameter	Description
Info	
Name	Specify the name of the Broadcaster Cluster in ZEN Master.
Tags	Select one or more of the predefined Tags from the drop-down list. Tags are used for access control. By selecting a Tag, you are relating this Broadcaster Cluster to that Tag. Tags are associated with certain roles (through the Users & Roles screen), and roles, in turn, are associated with users and user groups. If you would like to create a new Tag, see CREATING A TAG .
Events Configuration Profile	Select from the dropdown list the profile that you would like to apply to this Cluster. By default, the <i>Default</i> profile is applied. NOTE: <i>Events Profiles</i> consist of a series of rules that determine precisely how various types of Events are logged and what results they trigger.
DNS Prefix	Specify a unique domain name for sending Sources to this cluster.

Broadcasters

IP Whitelist	<p>Select this checkbox if you would like to control access to this cluster by limiting access to Push inputs and Pull outputs to specific IP address (for an AWS cluster this will enable you to control the AWS security groups).</p> <p>NOTE: If you select IP Whitelist, then you must use ZEN Authorization mode for this cluster.</p> <p>NOTE: If you selected IP Whitelist then after configuring the Broadcaster Cluster you must input the IPs that will have access to this cluster, see ADDING IPS TO THE WHITELIST.</p>
DTLS	<p>Select this checkbox if you would like to encrypt the stream dynamically using DTLS. (This feature is supported for v12.2+ Broadcasters)</p>
Ignore DTLS certificate when not supported (for DTLS)	<p>Select this checkbox if you would like to enable resources using older versions of Zixi software (<v12.2) that don't support verification of the ZEN DTLS certificate to connect to this cluster.</p>
Log SCTE-35	<p>Select this checkbox if you would like to log SCTE-35 markers for streams in this cluster.</p> <p>NOTE: To log SCTE-35 markers, SCTE-35 needs to be enabled both on the Ingest Cluster and in the Source configuration.</p> <p>NOTE: SCTE-35 logging is only available for v13.1.40262+ Broadcasters</p>
RTMP Servers	<p>Select this checkbox if you need to receive RTMP push inputs.</p>
RTMP Server Port	<p>Specify the port in the Broadcaster that will be used to receive the RTMP push inputs.</p>
Configuration (Managed)	
Management Type	<p>Select one of the AWS, Azure or GCP accounts configured in ZEN Master from the list shown under AWS, Azure or GCP in the drop-down menu. To create a new cloud service account, see LINKING AN AWS ACCOUNT, LINKING AN AZURE ACCOUNT or LINKING A GOOGLE GCP ACCOUNT.</p>
For an AWS Cluster	
Region	<p>Select from the drop-down list the AWS region.</p>
Key Pair	<p>Select from the drop-down list one of the available Key Pairs to access the cluster. If no Key Pair is displayed, then go to your Amazon account to setup your Key Pair.</p>
VPC	<p>Select from the drop-down list one of the available VPC (Virtual Private Cloud) networks to which the cluster will be connected.</p>
Subnets	<p>Select from the drop-down list one or more of the subnets that are available in this VPC.</p>

Broadcasters

Security Groups	Select from the drop-down list one or more of the security groups associated with this VPC. If no Security Group is displayed then go to your Amazon Account to configure your security groups (for guidance in setting up your Security Groups see Amazon Security Groups) or use the ZEN IP Whitelist to manage your AWS security (see the following step).
Manage security groups via ZEN Master IP Whitelist (for IP Whitelist)	Select this checkbox to use the IP Whitelist to manage your AWS security.
Instance Type	Select from the drop-down list one of the available AWS instance types that will be used in this cluster.
Root Device Size [GiB]	Specify the capacity of the hard drive (in GiB).
Initial Cluster Size	Specify the minimal number of instances that will be created in the cluster. (Default value: 1)
<i>For an Azure Cluster</i>	
Region	Select from the drop-down list the location of the account to be used for this cluster.
Virtual Network	Select from the drop-down list a VN in your Azure account. Note: You need to have a Virtual Network in your Azure account in order to be able to create a Broadcaster Cluster in ZEN Master. If you don't have a VN in your account, you can create one via the Azure portal.
Subnet	Select from the drop-down list a subnet that is available in the specified VN.
Network Security Group	Select from the drop-down list a network security group for this cluster.
<i>For a GCP account</i>	
Region	Select from the drop-down list the region of the GCP account.
Zones	Select from the drop-down list one or more zones in the specified region.
Network	Select from the drop-down list one or more of the subnets that are available in the specified region.
Machine Type	Select from the drop-down list the type of machine to be used for the cluster. Note: Both n1 and n2 machine types are supported.

Broadcasters

GPU Type	Select from the drop-down list the type of GPU to be used for the cluster.
Root Device Size	Specify the size of the root device in GiB.
For all Managed clusters	
Activation Key	Enter the activation key for your Zixi Broadcaster license.
API User	Enter the username for accessing the Zixi Broadcaster via API.
API Password	Enter the password for accessing the Zixi Broadcaster via API.
Broadcaster Version	Select from the drop-down list the Zixi Broadcaster version that you want to install.
Authorization Mode	<p>Select one of the following options:</p> <ul style="list-style-type: none">• ZEN Master – ZEN Master automatically verifies the authorization for each ZEN entity (e.g. Sources, Channels and Targets) that accesses the Broadcaster cluster. If you would like to allow access to inputs/outputs that are not configured in ZEN Master, then in the Allow access... section, select the Push Inputs and/or Pull Outputs• External Server – the request for content is relayed to an Authorization Server. In the Authorization Server field, enter the URL of the external server.• Global Password – Broadcasters are automatically configured to authorize all connections using a single global password. The global password will be used in the Source Password field when you configure a Source. In the Password field, enter the password OR click Random to generate a random password.• Free for All – Broadcasters will be automatically configured to allow all inputs/outputs to connect. Select Inputs and/or Outputs to automatically allow them to connect.• Manual – ZEN will not authorize connections. You will need to authorize each connection independently. <p>Note: All authorization modes other than <i>Manual</i> will override the authorization configured on your Broadcasters. Therefore, if you have streams on your Broadcasters that are not configured on ZEN Master, then any mode other than <i>Manual</i> or <i>Free for All</i> may interrupt those streams.</p>

Allow Access to inputs not configured in ZEN Master (for ZEN Master Authorization)	Select the Push Inputs checkbox if you would like to automatically allow access to Push Inputs. Select the Pull Outputs checkbox if you would like to automatically allow access to Pull Outputs.
--	---

Termination protection	Select this checkbox if you would like to prevent deletion of the Broadcaster Cluster.
------------------------	--

Configuration (for Manual)

Management Type	Select Manual . After creating a manual Broadcaster cluster, you must configure each Broadcaster instance for use in the cluster. To do this, see ADDING A BROADCASTER TO A MANUAL CLUSTER .
-----------------	---

Select one of the following options:

Authorization Mode

- **ZEN Master** – ZEN Master automatically verifies the authorization for each ZEN entity (e.g. Sources, Channels and Targets) that accesses the Broadcaster cluster. If you would like to allow access to inputs/outputs that are not configured in ZEN Master, then in the **Allow access...** section, select the **Push Inputs** and/or **Pull Outputs**
- **External Server** – the request for content is relayed to an Authorization Server. In the **Authorization Server** field, enter the URL of the external server.
- **Global Password** – Broadcasters are automatically configured to authorize all connections using a single global password. The global password will be used in the Source Password field when you configure a Source. In the **Password** field, enter the password OR click **Random** to generate a random password.
- **Free for All** – Broadcasters will be automatically configured to allow all inputs/outputs to connect. Select **Inputs** and/or **Outputs** to automatically allow them to connect.
- **Manual** – ZEN will not authorize connections. You will need to authorize each connection independently.

Note: All authorization modes other than *Manual* will override the authorization configured on your Broadcasters. Therefore, if you have streams on your Broadcasters that are not configured on ZEN Master, then any mode other than *Manual* or *Free for All* may interrupt those streams.

Broadcasters

Allow access to inputs not configured in ZEN Master (for ZEN Master Authorization)	Select the Push Inputs checkbox if you would like to automatically allow access to Push Inputs. Select the Pull Outputs checkbox if you would like to automatically allow access to Pull Outputs.
Termination Protection	Select this checkbox if you would like to prevent deletion of the Broadcaster Cluster.
Advanced	
	Select one of the following load balancing methods for Pull outputs:
Load Balance Pull Targets	<ul style="list-style-type: none">• Minimize the number of broadcasters (default) – transfers excess load to other broadcasters only when the allotted capacity on the host broadcaster is filled.• Uniform distribution – distributes the load equally between all available broadcasters under all circumstances.
HTTP Streaming Port	You can change the HTTP streaming port from the default (7777) to a custom port. The custom port should match the configuration on the Zixi Broadcaster.
Elastic IP Allocation IDs (for Managed)	Enter comma separated Elastic IP Allocation IDs.
Bandwidth Limits Input/Output	Specify the bandwidth limits in Mbps.
Default HLS/ CMAF (DASH + fMP4 HLS) segment configuration (for Managed)	Specify the Count and Duration parameters for HLS and DASH segments on this Broadcaster Cluster.
Transcode Thresholds	These are used by ZEN Master to determine whether an additional transcoded Channel can be added to the broadcaster. Adjust the following thresholds as desired:
CPU Threshold [%]	Specify the percentage of CPU being used.
Memory Threshold [%]	Specify the percentage of memory being used.
GPU Threshold [%]	Specify the percentage of GPU being used.
GPU Memory Threshold [%]	Specify the percentage of GPU memory being used.
GPU Decoder Threshold [%]	Specify the percentage of GPU decoder pipeline being used.

Broadcasters

GPU Encoder Threshold [%]	Specify the percentage of GPU encoder pipeline being used.
Process Priority (for Managed clusters)	This setting determines the process priority of your Broadcasters.
Enable Real-time Broadcasters process priority	This setting is deselected by default. You can increase the Broadcaster's process priority by selecting it. This may be beneficial for sending streams to highly sensitive IRDs. However, this should not be done without consulting with your customer success agent.
Billing Codes	If you would like to track usage for this Broadcaster, enter your Billing Code details, see BILLING CODES . (Supported for Broadcasters v14.8+)
Install AgentZ automatically	Select this checkbox to install AgentZ automatically. Agent Z is a Sidecar tool that sits on a Zixi Broadcaster, it acquires the system health data and other statistics locally and pushes it to ZEN Master. By enabling this option, ZEN Master will automatically install AgentZ on any existing and future Broadcasters connected to the Cluster. The feature is off by default. Due to AgentZ installation requiring a restart, ZEN Master will not auto-install AgentZ on a Broadcaster that already contains any inputs to avoid disturbing active streams.

Adding Broadcasters to a Cluster

After creating a Broadcaster cluster, you need to add one or more Broadcasters to the cluster in order for the cluster to become functional. Assign the appropriate number of Broadcasters and type of instances according to the load that you plan on using on the cluster.

Adding a Broadcaster to a Manual Cluster

If when adding the Broadcaster Cluster, you selected the **Manual** option for the *Management Type*, you need to manually add Broadcasters to the cluster as follows.

➔ To manually add a Broadcaster to a Cluster:

1. In the main navigation, select **Broadcasters**.
2. From the list of Broadcaster clusters, select the cluster to which you want to add a Broadcaster.

The details of the cluster are displayed at the right of the screen:

The screenshot displays the 'BROADCASTER CLUSTERS' management interface. On the left, a list of clusters is shown, with 'WLBroadcaster' selected. The main panel shows the details for 'WLBroadcaster'. At the top, there are buttons for 'Unmute', 'Edit', and 'Delete'. Below this, there is a '+ Add Broadcaster' button. The 'BROADCASTERS' section contains a table with columns: Status, Name, IP, SSH Key, Streams, CPU, RAM, Version, and Actions. One broadcaster named 'bx1' is listed with a status of 'Disconnected'. Below this is the 'IP WHITELIST' section with a '+ Add Rule' button and a table with columns: CIDR, Ports Range, Description, and Date Added. Two entries are shown: '127.0.0.1' (localhost) and '38.111.41.194' (us office). The 'EVENTS' section shows 'No Events' and a 'Quick Report' button. The 'DETAILS' section on the right lists various attributes like Name, Access Tags, Cluster Type, Scaling, and Authorization Mode. The 'NOTES' section at the bottom has a text area for notes.

3. In the Broadcasters section, click **+ Add Broadcaster**.



In tab view, you need to first select the **Broadcasters** tab and then click on the **+ Add Broadcaster** button.

- The **Create New Broadcaster** window is displayed.

CREATE NEW BROADCASTER

INFO

Name *

Location ⓘ

CONFIGURATION

API User * API Password *

SSH Key * ⓘ

Type ⓘ

Primary Backup

Backup Broadcasters will only receive Sources if manually configured or if all primary Broadcasters are unavailable.

ADVANCED +

× Cancel ✓ Save

- In the **Info** section, in the **Name** field, type a logical name for the Broadcaster. This name is internal, so you don't necessarily need to use exactly the same name used to configure the Zixi Broadcaster.
- The Broadcaster's location is used to represent it in the proper position in the Map display (see [MAPS](#)). By default, the location is determined automatically based on the Broadcaster's IP. If you would like to manually set the location of the Broadcaster (Optional), use the following procedure:
 - Click on the **Edit** icon next to the **Location** field.
A search box is shown below the **Location** field.
 - Enter identifying info for the location (e.g. street address, zip code, coordinates).
Search results are displayed below the search box as you type.
 - Click on the desired location.
The selected location populates the **Location** field.
- In the **Configuration** section, in the **API User** field, enter the username for accessing the Zixi Broadcaster via API. (Default value: *admin*)
- In the **API Password** field, enter the password for accessing the Zixi Broadcaster. The default password on Zixi Broadcasters is *1234*. Unless you have changed the password for this Broadcaster, enter *1234* in this field. Next to this field, you can use the following features:

Broadcasters

- Generate password - click the key icon to optionally generate a password.
 - Show password - click the eye icon to show/reveal the password on screen.
 - Copy password - click the clipboard icon to copy the password to your clipboard.
9. In the **SSH Key** field, select from the drop-down list one of the existing remote access keys to be used for SSH tunneling between the Zixi Broadcaster and ZEN Master.



To learn how to configure a new SSH Key, see [CONFIGURING SSH KEYS](#).

10. Select the Broadcaster **Type**. Options are:
- **Primary** (default) – The Broadcaster functions as an active member of the cluster.
 - **Backup** – The Broadcaster does not receive Sources/Channels unless all Primary Broadcasters are unavailable (or it is manually configured to receive that Source).
11. If you would like to adjust the advanced settings, click on **Advanced**. The **Advanced** settings are displayed:

ADVANCED —

Streaming IP

Auto Detect

Private IP

Use Streaming IP

Bandwidth Limits [Mbps]

Input	Output
Input	Output

12. In the **Streaming IP** section, the **Auto Detect** checkbox is selected by default. If you would like to manually specify the streaming IP, **deselect** the checkbox and enter the broadcaster's *public* IP in the **IP** field.
13. In the **Private IP** section, the **Use Streaming IP** checkbox is selected by default. If you would like to specify a separate private IP, deselect the checkbox and enter the broadcaster's *private* IP in the **IP** field.



By specifying a private IP, you enable ZEN Master to access streams through the private IP. This enables you to view Source previews over the private IP.

14. In the **Bandwidth Limits** section, you can specify limits for the **Input** and **Output** bandwidth.
15. Click **Save**.

Connecting the Zixi Broadcaster (Zixi Broadcaster UI – For Manual)

For each Zixi Broadcaster instance that has been added to the cluster (for manual management), you will need to configure the connection of the Zixi Broadcaster (using its Zixi Broadcaster UI). This includes configuring the SSH tunnel. This can either be done manually by entering the configuration settings into the Zixi Broadcaster UI or automatically using the ZEN tab in the Zixi Broadcaster UI (for v12 Broadcasters).



If you are using an SSH Key that was imported from the Broadcaster (not generated in ZEN Master) then you will need to use the manual method to connect the Broadcaster to ZEN Master and not the automatic method (i.e. v12 method).

➔ To connect the Zixi Broadcaster Automatically (for v12 and above):

1. In ZEN Master, in the main navigation, click **Configuration**.
2. In the **SSH Security & Keys** tab, click **Download** on the relevant SSH Key to download the key to your machine.
3. Login to the **Zixi Broadcaster UI** (it could be a locally installed Zixi Broadcaster, e.g. <http://localhost:4444> or a remote Zixi Broadcaster).
The Zixi Broadcaster UI opens.
4. In the main navigation, click **ZEN Master**.
The ZEN Master login fields are displayed.

The screenshot shows the Zixi Broadcaster UI interface. At the top, there's a header with the Zixi logo, version information (Version 14.0.40460 Linux 64-bit), and system status (CPU: 7.33%, Disk: 32.51%, Mem: 25.43%, Clock: 15:16:27). Below the header is a navigation bar with tabs: STATUS, INPUTS, OUTPUTS, ADAPTIVE, VOD, FILES, TRANSCODER, SETTINGS, EVENT LOG, MATRIX, and LOGOUT. The main content area is titled 'Settings' and has buttons for 'Export', 'Import', and 'Delete Settings'. On the left, there's a sidebar menu with various settings categories. The 'ZEN Master' section is active, showing a 'Sign In' form with fields for 'Account ID', 'Email', and 'Password', and a 'LOGIN' button.

5. In the **Account ID** field, enter the customer domain of your ZEN Master account (e.g. if you login to ZEN at *demo.zen.zixi.com* then your Account ID is 'demo').
6. In the **Email** field, enter the username for your ZEN Master account.
7. In the **Password** field, enter the password for your ZEN Master account.
8. Click **Login**.

A list of Manual Broadcaster Clusters that are configured in ZEN Master is displayed.

- Click on the Broadcaster Cluster to which you would like to add this Broadcaster. A list of Broadcasters in that cluster is shown at the bottom of the screen.

The screenshot shows the ZEN interface with two sections. The top section, titled "BROADCASTER CLUSTERS", contains a table with one entry:

#	Status	Name	Scaling	Broadcasters	Cluster Type
1	OK	ProdMgmt_Bx_Manual_Cluster	Manual		Ingest, Channel Processing

The bottom section, titled "PRODMGMT_BX_MANUAL_CLUSTER", contains a table with one entry:

#	Status	Name	IP	CPU	RAM	Version
1	Pending	ManBx	-	-	-	-

A "Select" button is highlighted in the bottom right corner of the second table.

- For the Broadcaster that you are adding, which should currently be in **Pending** mode, click **Select**.

Details about the ZEN Master connection are shown in the **Status** section.

- Click **Refresh**.

The connection is configured automatically.

- Verify that the Status is shown as **On**.

The screenshot shows the "Status" section with the following details:

- Host: zixi.io.zixi.com
- Port: 2812
- Status: On

A "Refresh" button is located below the status information.

- In ZEN Master, in the main navigation, click **Broadcasters**.

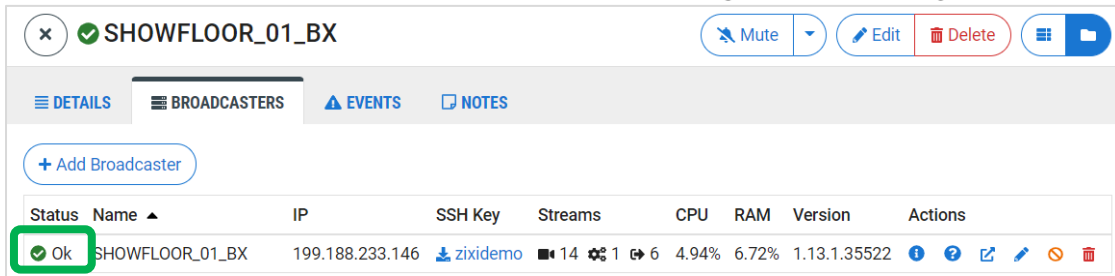
- Verify that the status of the newly configured Broadcaster cluster is **OK**.

The screenshot shows the "BROADCASTER CLUSTERS" section with a filter input and a table of clusters:

Name	Status	Scaling	Broadcasters	Cluster Type
SHOWFLOOR_01_BX	OK	Manual	1	Ingest, Channel Processing
SHOWFLOOR_02_BX	OK	Manual	1	Ingest, Channel Processing
TD-test	OK	Manual	1	Ingest, Channel Processing
TESTSERVER-G4	Error	Manual	1	Ingest, Channel Processing

The "Status" column for the first two rows is highlighted with a green box.

15. Select the new Broadcaster cluster. In the Broadcaster section, verify that the status of the Broadcaster that was added to the cluster has changed from *Pending* to *OK*.

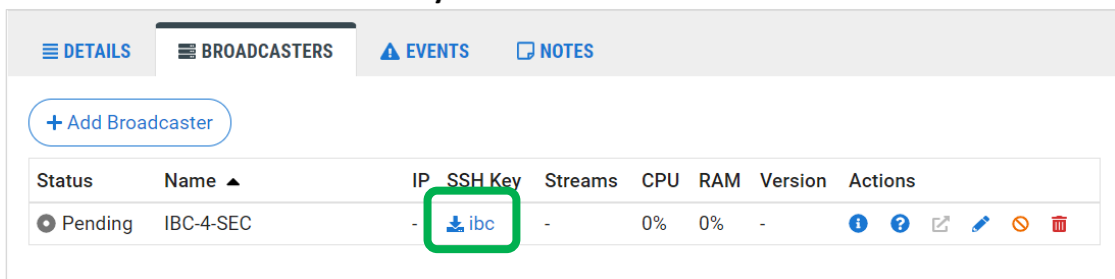


The screenshot shows the ZEN Master UI for a cluster named SHOWFLOOR_01_BX. The 'BROADCASTERS' tab is selected. A table lists the broadcaster with the following data:

Status	Name	IP	SSH Key	Streams	CPU	RAM	Version	Actions
Ok	SHOWFLOOR_01_BX	199.188.233.146	zixidemo	14	4.94%	6.72%	1.13.1.35522	[Info] [Help] [Share] [Edit] [Delete]

➔ **To connect the Zixi Broadcaster Manually (for v11 and below):**

1. In the ZEN Master UI, in the main navigation, click **Broadcasters**. The **Broadcasters** screen opens.
2. Select the Broadcaster cluster on which you would like to connect the broadcaster. The details of the cluster are displayed at the right side of the screen.
3. In the **Broadcasters** section, for the broadcaster that you would like to connect, click on the download link for the **SSH Key**.



The screenshot shows the ZEN Master UI for a cluster named IBC-4-SEC. The 'BROADCASTERS' tab is selected. A table lists the broadcaster with the following data:

Status	Name	IP	SSH Key	Streams	CPU	RAM	Version	Actions
Pending	IBC-4-SEC	-	ibc	-	0%	0%	-	[Info] [Help] [Share] [Edit] [Delete]



In tab view, you need to first select the **Broadcasters** tab. In accordion view the Broadcasters section is shown at the top of the Info pane.

4. Under **Actions**, click on **Configuration**.

The Configuration help instructions are shown, containing specific configuration settings for the selected broadcaster.

Configuration - IBC-4-SEC

Version 12 and newer

1. Login to the Broadcaster UI
2. Go to the Settings page and select the ZEN Master tab
3. Sign in with your credentials and select the Cluster and Broadcaster from the list. Credentials must be a non-SSO account. If only SSO accounts are available, use method described under Version 1.11 below

Version 1.11 and older

1. Login to the Broadcaster UI
2. Go to the Settings page and select the SSH Connections tab
3. Click Add Connection, set the Host and confirm
Host: **zixi.stagingio.devcloud.zixi.com**
4. Click Edit Credentials, set the User, upload the provided Key File and confirm
User: **IBC-4-SEC-ibc4-local-clstr-sec**
[ibc](#)
5. In the Reverse tunnels section, click Add, set the Remote Source Port and confirm
Remote Source Port: **2284**

Close

5. You will be using the settings that are shown in the section for *Version 1.11 and older* to connect the Zixi Broadcaster (host, user, and remote source port) to ZEN Master, so you should write them down or keep this browser tab open while you configure the Zixi Broadcaster.
6. Login to the **Zixi Broadcaster UI** (it could be a locally installed Zixi Broadcaster, e.g. <http://localhost:4444> or a remote Zixi Broadcaster).

STATUS INPUTS OUTPUTS ADAPTIVE VOD FILES SETTINGS EVENT LOG MATRIX LOGOUT

Settings Export Import Delete Settings

General
Live Protocols
Multicast Pool
File Transfer & VOD
Cluster
SSH Connections
Authorization

SSH Connections

Defined Connections

+ Add Connection

Refresh

7. Click + Add Connection.
The Add SSH Connection dialog opens:

Add SSH connection.

Host:

Port:

Apply Close

8. In the **Host** field, enter the host name that appeared in the **Configuration Help**.
9. Click **Apply**.
10. Click Edit Credentials.
11. In the **User** field, enter the User that appeared in the **Configuration Help**.
12. In the **Key File** field, click **Upload Key** and select the SSH key file.
13. Click **Apply**.
14. In the **Reverse Tunnels** section (at the bottom) click **Add**.

The **Tunnel Details** dialog opens:

15. In the **Remote Source Port** field, enter the Remote Source Port value that appeared in the **Configuration Help**.
16. Click **OK**.
17. In ZEN Master, in the main navigation, click **Broadcasters**.
18. Verify that the status of the newly configured Broadcaster cluster is **OK**.

BROADCASTER CLUSTERS					
Filter					
<input type="checkbox"/> Name	Status	Scaling	Broadcasters	Cluster Type	
<input type="checkbox"/> SHOWFLOOR_01_BX	Ok	Manual	1	Ingest, Channel Processing	
<input type="checkbox"/> SHOWFLOOR_02_BX	Ok	Manual	1	Ingest, Channel Processing	
<input type="checkbox"/> TD-test	Ok	Manual	1	Ingest, Channel Processing	
<input type="checkbox"/> TESTSERVER-G4	Error	Manual	1	Ingest, Channel Processing	

19. Select the new Broadcaster cluster. In the Broadcaster section in the Info pane, verify that the status of the Broadcaster that was added to the cluster has changed from **Pending** to **OK**.

Status	Name	IP	SSH Key	Streams	CPU	RAM	Version	Actions
Ok	SHOWFLOOR_01_BX	199.188.233.146	zixidemo	14	4.94%	6.72%	1.13.1.35522	[Info] [Help] [Share] [Edit] [Delete]

Adding Broadcasters to a Managed Cluster

➔ **To add one or more Broadcasters to a Managed cluster:**

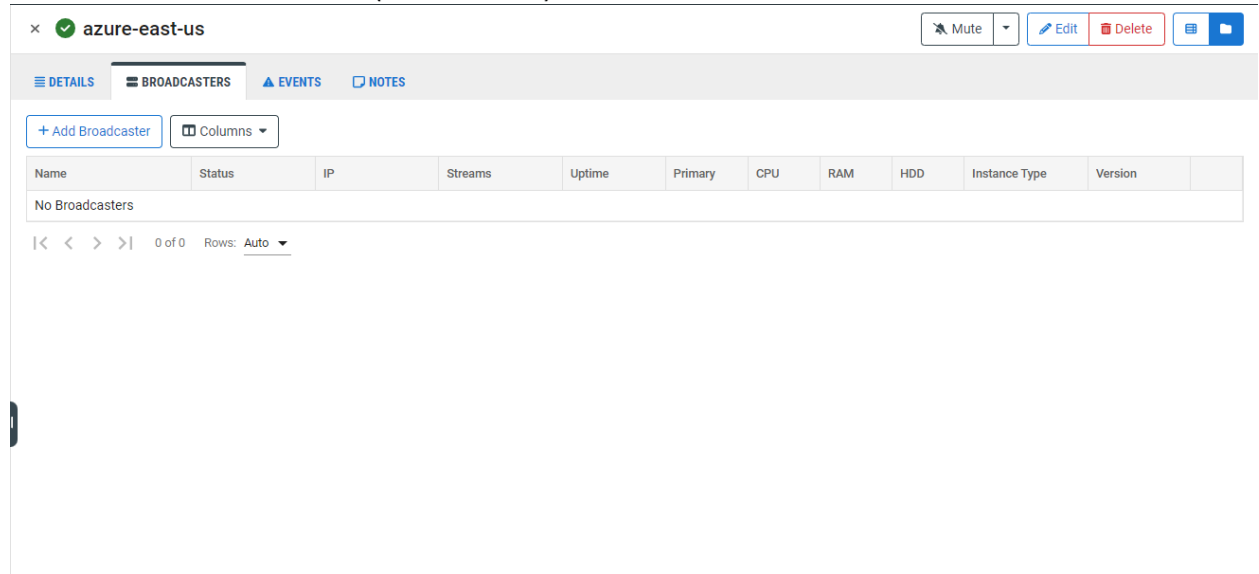
1. In the main navigation, select **Broadcasters**.

Broadcasters

- From the list of Broadcaster clusters, select the cluster to which you want to add a Broadcaster.

The details of the cluster are displayed at the right of the screen.

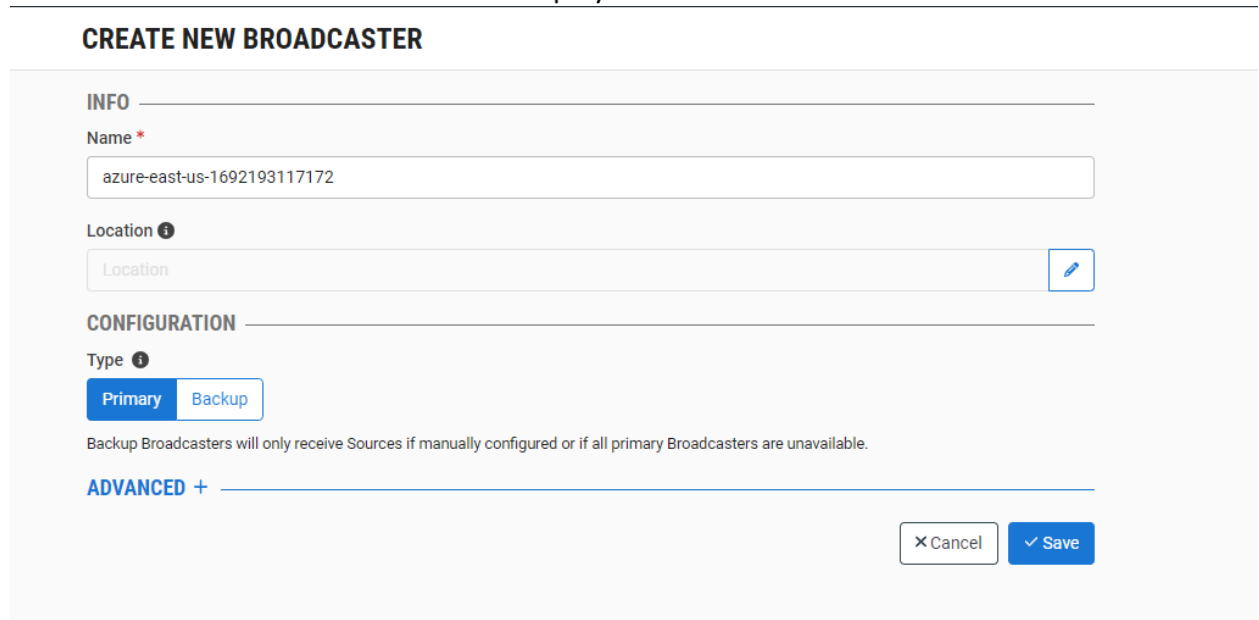
- Select the Broadcasters tab (for Tab view).



The screenshot shows the 'azure-east-us' cluster view with the 'BROADCASTERS' tab selected. The interface includes a top navigation bar with 'DETAILS', 'BROADCASTERS', 'EVENTS', and 'NOTES' tabs. Below the tabs, there is a '+ Add Broadcaster' button and a 'Columns' dropdown menu. A table with columns for Name, Status, IP, Streams, Uptime, Primary, CPU, RAM, HDD, Instance Type, and Version is displayed. The table currently shows 'No Broadcasters'. At the bottom of the table, there are navigation arrows and a 'Rows: Auto' dropdown.

- Click **+ Add Broadcaster**.

The **Create New Broadcaster** screen is displayed.



The 'CREATE NEW BROADCASTER' form is divided into three sections: 'INFO', 'CONFIGURATION', and 'ADVANCED +'. The 'INFO' section contains a 'Name *' field with the value 'azure-east-us-1692193117172' and a 'Location' field with a placeholder 'Location' and an edit icon. The 'CONFIGURATION' section has a 'Type' field with two buttons: 'Primary' (selected) and 'Backup'. Below this, a note states: 'Backup Broadcasters will only receive Sources if manually configured or if all primary Broadcasters are unavailable.' The 'ADVANCED +' section is currently collapsed. At the bottom right, there are 'Cancel' and 'Save' buttons.

- In the **Info** section, In the **Name** field, by default, the name is pre-filled based on the cluster name and a timestamp, however it is possible to edit this name.
- The Broadcaster's location is used to represent it in the proper position in the Map display (see [MAPS](#)). By default, the location is determined automatically based on the Broadcaster's IP. If you would like to manually set the location of the Broadcaster (Optional), use the following procedure:

- a. Click on the **Edit** icon next to the **Location** field.
A search box is shown below the **Location** field.
 - b. Enter identifying info for the location (e.g. street address, zip code, coordinates).
Search results are displayed below the search box as you type.
 - c. Click on the desired location.
The selected location populates the **Location** field.
7. Select the Broadcaster **Type**. Options are:
- **Primary** (default) – The Broadcaster functions as an active member of the cluster.
 - **Backup** – The Broadcaster does not receive Sources/Channels unless all Primary Broadcasters are unavailable (or it is manually configured to receive that Source).
8. If you would like to adjust the advanced settings, click on **Advanced**.
The **Advanced** settings are displayed:

The screenshot shows a settings panel titled "ADVANCED" with a minus sign. It contains three sections: "Streaming IP" with a checked "Auto Detect" checkbox; "Private IP" with a checked "Use Streaming IP" checkbox; and "Bandwidth Limits [Mbps]" with two input fields labeled "Input" and "Output". At the bottom right are "Cancel" and "Save" buttons.

9. In the **Streaming IP** section, the **Auto Detect** checkbox is selected by default. If you would like to manually specify the streaming IP, **deselect** the checkbox and enter the broadcaster's *public* IP in the **IP** field.
10. In the **Private IP** section, the **Use Streaming IP** checkbox is selected by default. If you would like to specify a separate private IP, deselect the checkbox and enter the broadcaster's *private* IP in the **IP** field.



By specifying a private IP, you enable ZEN Master to access streams through the private IP. This enables you to view Source previews over the private IP.

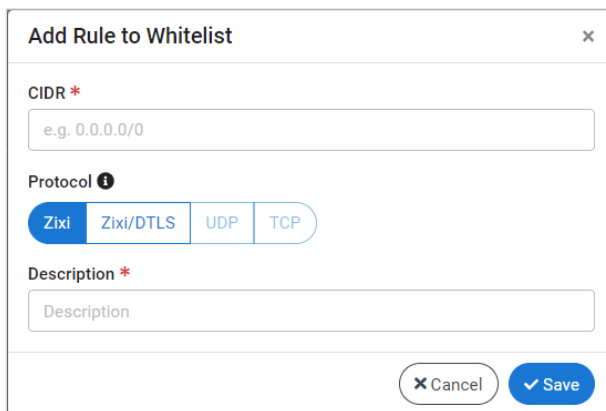
11. In the **Bandwidth Limits** section, you can specify limits for the **Input** and **Output** bandwidth.
12. Click **Save**.

Adding IPs to the Whitelist

For broadcaster clusters that were configured to use IP whitelisting, you must add IPs to the whitelist to enable them to access the cluster.

➔ **To add IPs to the whitelist:**

1. In the main navigation, select **Broadcasters**.
2. From the list of Broadcaster clusters, select a cluster configured for IP whitelisting to which you would like to add IPs.
If the selected cluster is configured for IP whitelisting, then an **IP Whitelist** tab appears at the right of the screen.
3. In the **IP Whitelist** tab click **+ Add Rule**.



4. In the **CIDR** field, enter the CIDR for the range of IPs that you would like to include.
5. Under **Protocol**, select the protocol to include in the whitelist as follows:
 - For a **Manual** cluster – select either Zixi or Zixi/DTLS protocol.
 - For a **Managed** cluster – select one of the available protocols (Zixi, Zixi/DTLS, UDP or TCP). If you selected **UDP** or **TCP** then you must also enter a port range in the **Port** field.
6. In the **Description** field enter a description of the whitelisted entity.
7. Click **Save**.

Viewing Existing Clusters

The Broadcaster Cluster screen displays all existing clusters, and information about the clusters' status and configuration. Broadcaster Clusters that include configured Broadcasters in them are marked with a drop-down icon. Clicking the drop-down icon reveals the underlying Broadcasters.

You can click on the **Insights** button to show the Insights graphs for Broadcasters. For more information, see [INSIGHTS](#).



Insights is an add-on feature that is licensed separately, and it is not shown in standard ZEN Master accounts.

Broadcasters

BROADCASTER CLUSTERS

[Insights](#) [+ Add](#) [Refresh](#)

Filter							+ Add Filter	Columns	Report
<input type="checkbox"/>	<input type="checkbox"/>	Name	Status	Management	Broadcasters	Instance Type			
<input type="checkbox"/>	<input type="checkbox"/>	aws_canada_ingest	Ok	AWS	3	t4g.small			
<input type="checkbox"/>	<input type="checkbox"/>	aws_oregon_egress	Ok	AWS	1	t4g.small			
<input type="checkbox"/>	<input type="checkbox"/>	aws_oregon_ingest	Ok	AWS	1	t4g.small			
<input type="checkbox"/>	<input type="checkbox"/>	aws_virginia_egress	Ok	AWS	1	c6g.large			
<input type="checkbox"/>	<input type="checkbox"/>	aws_virginia_events_A	Ok	AWS	1	c6g.large			
<input type="checkbox"/>	<input type="checkbox"/>	aws_virginia_events_B	Ok	AWS	1	c6g.large			
<input type="checkbox"/>	<input type="checkbox"/>	aws_virginia_impairment	Ok	AWS	2	t4g.small			
<input type="checkbox"/>	<input type="checkbox"/>	aws_virginia_ingest	Ok	AWS	1	c6g.4xlarge			
<input type="checkbox"/>	<input type="checkbox"/>	aws_virginia_lab_bx01_AB	Ok	-	1	-			
<input type="checkbox"/>	<input type="checkbox"/>	aws_virginia_lab_bx02_AB	Ok	-	1	-			
<input type="checkbox"/>	<input type="checkbox"/>	aws_virginia_monitoring	Ok	AWS	1	t4g.small			
<input type="checkbox"/>	<input type="checkbox"/>	aws_virginia_transcode	Ok	AWS	1	g4dn.xlarge			
<input type="checkbox"/>	<input type="checkbox"/>	azure-east-us	Ok	Azure	-	Standard_NC4as_T4_v3			
<input type="checkbox"/>	<input type="checkbox"/>	azure-eastus-egress	Ok	Azure	-	Standard_B2s			
<input type="checkbox"/>	<input type="checkbox"/>	azure-eastus-ingest	Ok	Azure	1	Standard_B2s			
<input type="checkbox"/>	<input type="checkbox"/>	azure-eastus-transcode	Ok	Azure	-	Standard_NC4as_T4_v3			
<input type="checkbox"/>	<input type="checkbox"/>	azure-eastus-transcode-2	Ok	Azure	-	Standard_NC4as_T4_v3			
<input type="checkbox"/>	<input type="checkbox"/>	ZIXL_DEMOHD	Ok	-	1	-			
<input type="checkbox"/>	<input type="checkbox"/>	EGDE-DEVICE-DMZ	Ok	-	1	-			

1 - 19 of 27 Rows: Auto



It is possible to add more columns to the list, see [Show/Hide Columns](#). If you want to view resources that were marked as **Priority**, add the **Priority** column and sort by it.

When a cluster is selected, the list pane is minimized and detailed info about the selected cluster is shown on the right side of the screen. The info can be shown in *Tab* view or *Accordion* view, see [INFO PAGES](#).

BROADCASTER CLUSTERS [+](#) [Refresh](#)
aws_virginia_egress [Mute](#) [Edit](#) [Delete](#) [Info](#)

Filter

- Name
- aws_canada_ingest
- aws_oregon_egress
- aws_oregon_ingest
- aws_virginia_egress
 - Broadcaster
 - aws_virginia_egress-ql5ld
- aws_virginia_events_A
- aws_virginia_events_B
- aws_virginia_impairment
- aws_virginia_ingest
- aws_virginia_lab_bx01_AB
- aws_virginia_lab_bx02_AB
- aws_virginia_monitoring
- aws_virginia_transcode
- azure-east-us
- azure-eastus-egress
- azure-eastus-ingest
- azure-eastus-transcode
- azure-eastus-transcode-2
- ZIXL_DEMOHD

1 - 19 of 27 Rows: Auto

DETAILS | BROADCASTERS | EVENTS | INSIGHTS | NOTES

Name: aws_virginia_egress
 Region: US-East (N. Virginia)
 Key Pair:
 VPC: vpc-
 Subnet: subnet-0-
 Security Group: sg-
 Instance Type: c6g.large
 Broadcaster Version: 16.6.44654

DNS Prefix: aws-virginia-egress

Tags: _lab2, amd, aws, useast

Events Configuration Profile: zen_demo_alerts_profile

Management Type: AWS

Termination protection: OFF

Enhanced Monitoring: ON

Account Name: Demo AWS Account

Activation Key:

API Credentials: admin / [Show Password](#) / [Copy Password](#)

Log SCTE-35: Enabled


Authorization Mode: ZEN Master

Broadcasters

The following sections are shown in the Info pane:

- **Details** – shows configuration details of the cluster.
- **Broadcasters** – shows a list of the Broadcasters that are related to this cluster and data about the Broadcasters. You can also add or delete Broadcasters in this tab.
- **Events** – shows all events related to this cluster that have been generated by the system, such as connections, errors, warnings and disconnections.
- **Insights** – shows Insights graphs for the cluster. For more information, see **Insights**.
- **Notes** – free-form text can be added with pertinent information about this Cluster.

The main display includes the following data for each Broadcaster Cluster:

Parameter	Description
Name	The name of the cluster as configured in ZEN Master.
Status	<p>The connection status of the Broadcaster cluster. Possible values:</p> <ul style="list-style-type: none">• Green (OK) – None of the Broadcasters are in error state• Red (Error) – all Broadcasters are in error state <p>The  icon next to a Broadcaster cluster indicates that the Broadcaster cluster is muted, disabling notifications for error/recovery events.</p>
Management	<p>The type of management. Possible types are:</p> <ul style="list-style-type: none">• Manual – management is done manually by adding specific Zixi Broadcaster instances (see ADDING A BROADCASTER TO A MANUAL CLUSTER).• AWS – the cluster is managed by ZEN Master in your AWS cloud service (see ADDING A BROADCASTER CLUSTER – MANAGED).• Azure – the cluster is managed by ZEN Master in your Azure cloud service (see ADDING A BROADCASTER CLUSTER – MANAGED).• GCP - the cluster is managed by ZEN Master in your GCP cloud service (see ADDING A BROADCASTER CLUSTER – MANAGED).

Broadcasters

	The number of related Zixi Broadcasters and their connection status:
Broadcasters	<ul style="list-style-type: none">• Green – OK (i.e. connected)• Red – error state• Gray – pending/disabled
	The type of tasks performed by the cluster. Possible tasks are:
Cluster Type	<ul style="list-style-type: none">• Ingest – An Ingest cluster is used to configure inputs and make them available as Sources in ZEN Master.• Channel Processing – A Channel Processing cluster is used to process Sources and/or to send them to specified Targets.
Instance Type (for Managed clusters)	The Instance Type the cloud service account is using.



It is possible to add more columns to the list, see [Show/Hide Columns](#). If you want to view resources that were marked as **Priority**, add the **Priority** column and sort by it.

Broadcasters

When one of the clusters is selected, the details of that cluster, divided into sections, appear at the right side of the screen.

Parameter	Description
Details Tab	
Name	The name of the cluster.
DNS Prefix	The first label in the DNS name of the domain.
Tags	The Tags that are associated with this cluster. Tags are managed by Administrators via Configuration > Tags and assigned to non-Admin users via Roles.
Elastic IPs (AWS only)	The number of used Elastic IPs out of the number of available IPs. If no more Elastic IPs are available, a UI warning is displayed.
Events Configuration Profile	The Events Configuration Profile that was assigned to this Cluster. Events Profiles are used to customize the way that Events are handled in ZEN Master.
Cluster Type	The type of tasks performed by the cluster.
Management Type	The management type: manual, AWS, Azure or GCP.
Termination Protection	A mechanism that prevents accidental deletion.
Enhanced Monitoring	An AWS mechanism that enables "detailed monitoring", in which data is available in 1-minute periods, as opposed to the 5-minute period of the "basic monitoring" option. The more frequent data is sent to Cloudwatch customers. This service incurs an extra charge directly by AWS. To allow this feature you must enable "detailed monitoring" in your AWS account.
Account Name (for Managed)	The name of the cloud provider account under which the managed cluster is registered.
Activation key	The cluster's activation key.
API Credentials	The username and password for accessing the APIs.
Log SCTE-35	When enabled, SCTE-35 events are logged, and SCTE-35 notifications are sent. Requires version 13.1.40262 or newer Broadcasters.
Authorization Mode	The method used to verify authorization to access the broadcaster cluster. Possible values are: ZEN Master, External Server, Global Password, Free for All and Manual.
Cloud Service Fields	Additional details are shown for AWS, Azure and GCP clusters showing details about the AWS or Azure account.

Broadcasters

Broadcasters Tab	View details about Broadcasters in the cluster. Add broadcasters manually; edit, disable and delete existing Broadcasters. The Broadcasters can be viewed in grid or table display.
	The connection status of the Zixi Broadcaster:
Status	<ul style="list-style-type: none">• Green – OK• Red – error state• Gray – pending/disabled
Name	The name of the Zixi Broadcaster.
IP	The IP address of the Broadcaster.
SSH Key	The SSH key used to connect to ZEN Master.
Streams	The total number inputs, outputs and adaptive groups currently active on the Broadcaster.
Uptime	The time period that the Zixi Broadcaster has been online.
Primary	Yes - the Broadcaster is configured as "primary". No - the Broadcaster is configured as "backup".
CPU	The percentage of CPU utilization on the Zixi Broadcaster machine.
RAM	The percentage of RAM utilization on the Zixi Broadcaster machine.
Version	The software version of the Zixi Broadcaster.
Instance Type	The AWS instance type.

The following actions are available for each individual Broadcaster:

- Actions**
- Copy Password – copies the Broadcaster’s password to the clipboard.
 - Mute - disables notification for error/recovery events for the selected Broadcaster.
 - Set Maintenance – turns on maintenance mode which prevents new streams from being assigned to this Broadcaster.
 - Configuration (for Manual) – shows configuration info for connecting the broadcaster to ZEN Master.
 - Open – provides access to the Zixi Broadcaster UI (applicable to both cloud-based Zixi Broadcasters and on premise Zixi Broadcasters).
 - Edit (for Manual) – opens the configuration window for the Broadcaster enabling you to edit the details.
 - Disable/Enable (for Manual) – changes the status to *Disabled*, meaning that any active streams will be stopped without deleting the configuration of the Zixi Broadcaster.
 - Delete – delete this broadcaster from the cluster.

Note: The Configuration, Disable/Enable and Edit options are not available for managed Broadcasting clusters.

Events Tab Shows a list of the events that were generated in ZEN Master in relations to the specific cluster and its broadcasters. To learn about viewing event logs in ZEN Master, see [EVENTS](#). Click **Quick Report** to generate a report of events related to this broadcaster cluster and download the .xls file.

Insights Tab Shows a set of graphs that leverage our Intelligent Data Platform (IDP) to show a visualization that enables you to identify outliers and likely areas of instability in the Broadcaster. For more information, see [Insights](#).

Notes Tab Free-form text with information relevant to this broadcaster cluster.

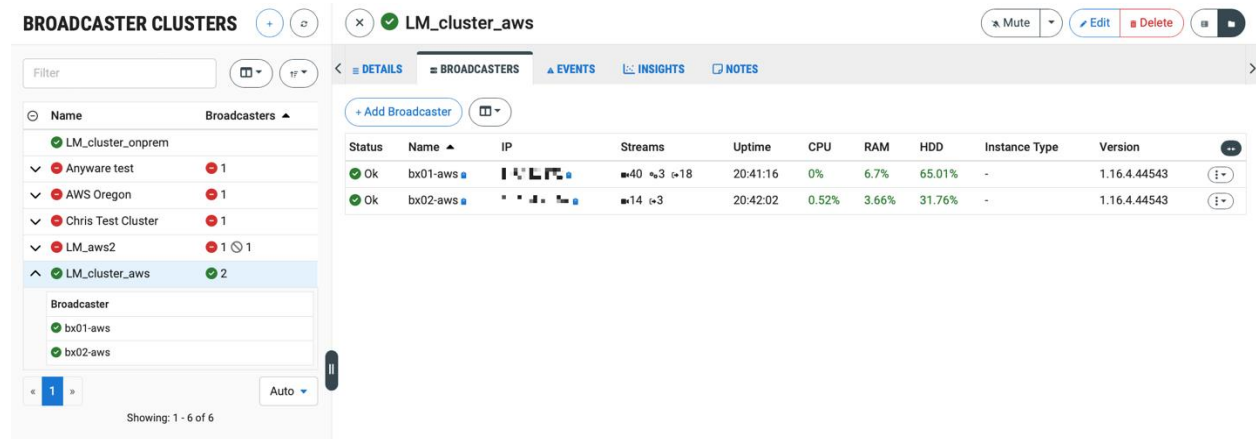
Actions on Broadcaster Clusters

The top of the Info pane includes buttons for taking the following actions on the selected Broadcaster Cluster:

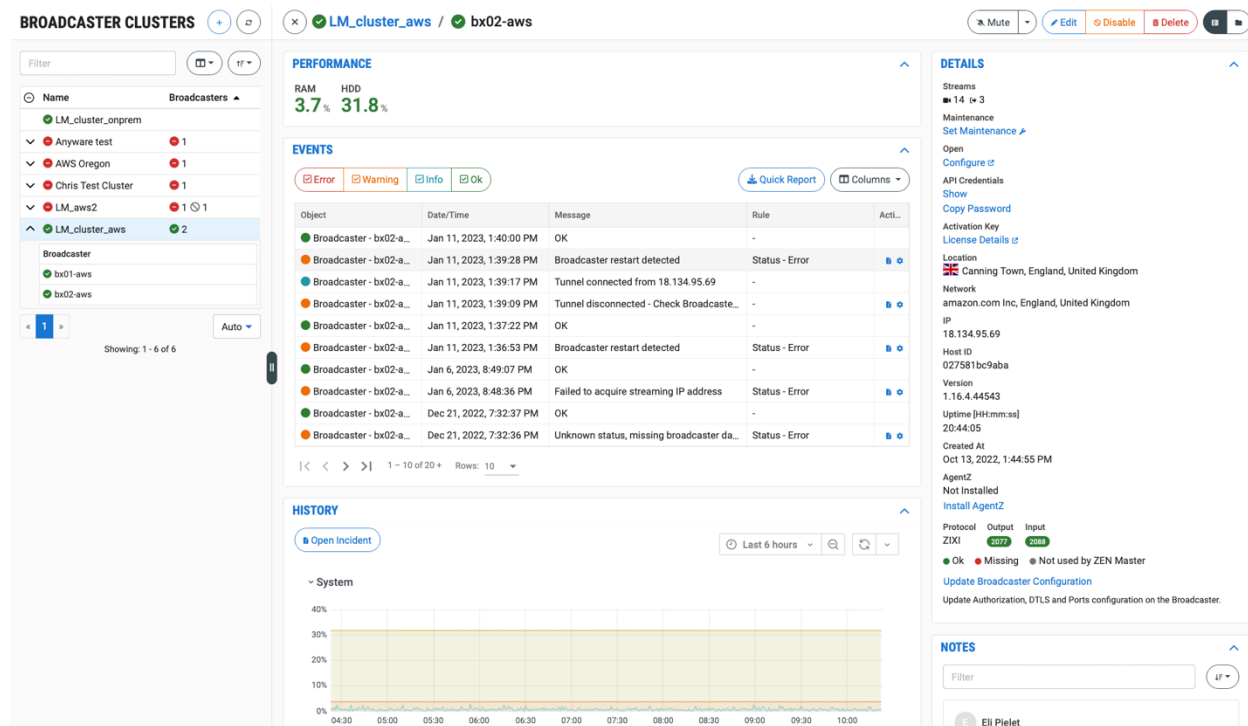
- **Mute/Unmute** – disables/activates notification for error/recovery events. Set the date and time when the mute will automatically be cleared by clicking on the down arrow and selecting **mute until**.
- **Edit** – enables you to edit the Broadcaster Cluster configuration.
- **Delete** – deletes the Broadcaster Cluster.
- **Accordion/Tab** view.

Viewing Existing Broadcasters

The **Broadcasters** tab displays details on the various Broadcasters within the cluster.



You can click on the **Actions Menu > Details** for a specific Broadcaster or click the Broadcaster name on the left menu to show details about this Broadcaster.



The following is a brief description of the sections that are shown:

- **Performance** – shows graphs resources utilization metrics (CPU, RAM, HDD)
- **Details** - shows details about the broadcaster (e.g. IP, Host ID, Version etc.) as well as its status and license status. It also shows details about the protocol and ports used by the Broadcaster. If there is a configuration error then click the **Update**

- Configuration** button to automatically update the configuration settings. This may require a restart of the Broadcaster.
- **History** - shows a graphical representation of the system usage over time. The following graphs are shown:
 - **System** - shows system performance metrics over time. For broadcasters that are using NVIDIA GPU for transcoding, the History graph shows the GPU usage of the encoder pipeline, decoder pipeline and CUDA pipeline. The GPU memory consumption is also shown.
 - **Network** – shows the send and receive bitrates over time.
 - **UDP Statistics** - shows a graphical representation of the UDP Receive Errors that occurred over time. (This is helpful for isolating errors that occurred on the broadcaster itself from errors that occurred in the network).
 - **Events** – shows all events related to this Broadcaster that have been generated by the system, such as connections, errors, warnings and disconnections. To learn about the data that is displayed in the Events tab see [EVENTS](#). Click **Quick Report** to generate a report of events related to this Channel and download the .xls file.
 - **Insights** – shows Insights graphs for the Broadcaster. For more information, see [Insights](#).
 - **Notes** – free-form text can be added with pertinent information about this Broadcaster.

Viewing Broadcaster Details

When one of the Broadcasters is selected, the details of that Broadcaster, divided into tabs, appears at the right side of the screen.

Parameter	Description
Details Tab	
CPU	The CPU utilization rate
RAM	The memory utilization rate
HDD	The Hard Drive utilization rate
Streams	Displays the number of Inputs, Adaptive Groups and Outputs (left to right).
Maintenance	Click Set Maintenance to turn on maintenance mode which prevents new streams from being assigned to this Broadcaster.
Open	Click to access the Zixi Broadcaster UI.
API Credentials	Click Show to displays the API credentials between the ZEN Master and the Broadcaster. Click Copy Password to copy the password.
Activation Key	Click License Details to view the license status.

Broadcasters

Location	The location of the Broadcaster. By default, the location is determined automatically based on the Broadcaster's IP. However it is possible to specify another location during configuration.
Network	The Network in which the Broadcaster is located. The Networks are discovered automatically by ZEN Master using IP-to-location method. A network is defined as an ASN from a specific country and region/state.
IP	The IP address of the Broadcaster.
Host ID	The Host ID of the Broadcaster.
Instance Type	The AWS instance type.
Version	The software version of the Broadcaster.
Uptime	The time period that the Broadcaster has been online.
Created At	The date and time in which the Broadcaster object was defined in ZEN Master.
Instance ID	The ID of the AWS instance.
Agent Z	Indicates whether AgentZ has been installed for this Broadcaster. Agent Z is a Sidecar tool that sits on a Zixi Broadcaster, it acquires the system health data and other statistics locally and pushes it to ZEN Master. By enabling this option, ZEN Master will automatically install AgentZ on any existing and future Broadcasters connected to the Cluster. The feature is off by default. Due to AgentZ installation requiring a restart, ZEN Master will not auto-install AgentZ on a Broadcaster that already contains any inputs to avoid disturbing active streams.
System Logs	Click Download Logs to download Broadcaster system logs. Indicates the Protocols used on this Broadcaster, the ports used for each protocol and their status:
Protocol	<ul style="list-style-type: none">• Green - OK• Red- missing• Gray - not used by Zen Master
DTLS Certificate	Indicates whether the DTLS certificate has been installed and its expiration date.
Events Tab	Shows a list of the events that were generated in ZEN Master in relations to the specific cluster and its broadcasters. To learn about viewing event logs in ZEN Master, see EVENTS . Click Quick Report to generate a report of events related to this broadcaster cluster and download the .xls file.

Actions on Broadcasters

The top of the Info pane includes buttons for taking the following actions on the selected Broadcaster:

- **Mute/Unmute** – disables/activates notification for error/recovery events. Set the date and time when the mute will automatically be cleared by clicking on the down arrow and selecting **mute until**.
- **Edit** – enables you to edit the Broadcaster configuration.
- **Delete** – deletes the Broadcaster.
- **Accordion/Tab** view.

Broadcaster History

The History section shows a graphic display of the Broadcaster's activity and performance over time. You can create an Incident to group together related network failures and see network data for the relevant time period. This is done by selecting a time range on a graph and clicking the Open Incident button. For more information about Incidents, see [Incidents](#).



Data is shown on separate line graphs for each topic that is relevant for the selected Broadcaster. Click on the section headings to expand/collapse the graph display.

Each graph shows color coded lines indicating the events that occurred over time. A key indicating the colors used to represent various types of data is shown below each graph.

The graphs have the following functionality:

- Set the time range of the display either by selecting one of the preset time ranges or by entering a custom time range. (Default: Last 6 hr)
- One year of history is saved in the ZEN Master database even though the graphs show larger timeframes. Contact Zixi if you require more than one year of history.
- Manually refresh graph data or set the automatic refresh frequency.
- Hover over a point on the graph to show the total values for that time.
- Click and drag the cursor over a time range to zoom in on that time range.
- Double click on the graph to zoom out on the graph (i.e., expand the time range).
- Click on the title of a data element in the key to display only that element.

ZEN Master treats all graphs as a single component so that the zoom time range set for one graph is automatically applied to all graphs on that screen. Similarly, when you hover over a point on one graph, the tool-tip values are shown for the same point in time on all of the graphs.



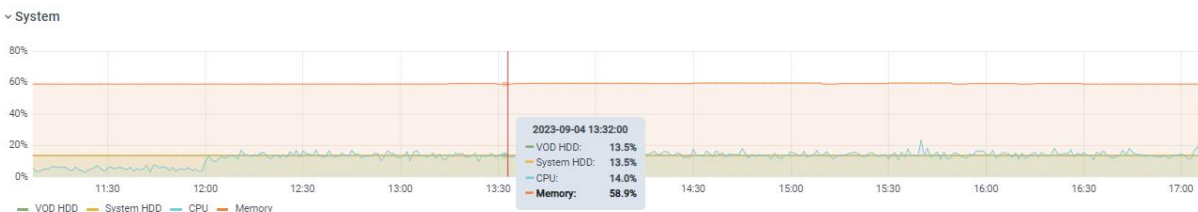
The granularity of the graph depends on the zoom level. Most graphs can zoom in to a resolution of one datapoint per minute.



For broadcasters v14.1+, data is gathered at 5 second intervals. This enables ZEN Master to show min. and max. values for RTT, jitter and bitrates based on 5 second intervals within a given data point.

Broadcaster History System

The System graph shows system performance metrics over time. For Broadcasters that are using NVIDIA GPU for transcoding, the graph shows the GPU usage of the encoder pipeline, decoder pipeline and CUDA pipeline. The GPU memory consumption is also shown.



ZEN Master shows data for the following parameters in the System graph:

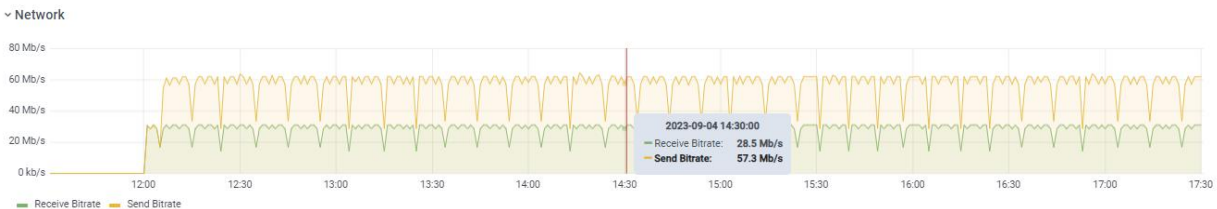
Broadcasters

- VOD HDD – The hard drive utilization for VOD.
- System HDD – The hard drive utilization of the Broadcaster.
- CPU – The CPU utilization level.
- Memory – The memory utilization level.

Broadcaster History Network

This graph shows network activity over time. This includes the following:

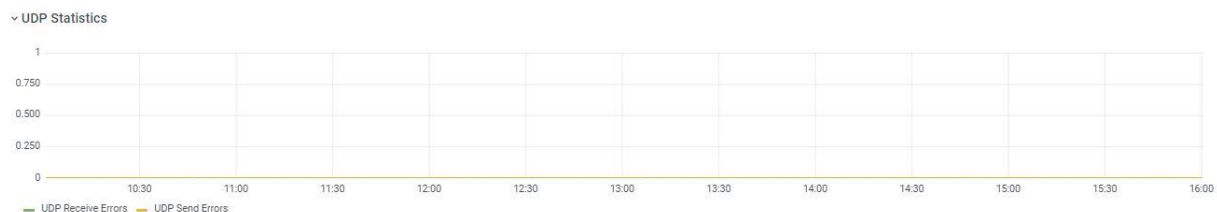
- Received Bitrate - the bitrate amount (in Mb/s) of incoming traffic.
- Send Bitrate - the bitrate amount (in Mb/s) of outgoing traffic.



Broadcaster History UDP Statistics

This graph shows a graphical representation of the UDP Receive and Send Errors that occurred over time. The graph includes the following:

- UDP Receive Errors - indicates the number of UDP Receive errors over time. If there are 10 errors at a certain point in time the value in the Y-axis will go up to 10.
- UDP Send Errors - indicates the number of a UDP Send error over time. If there are 10 errors at a certain point in time the value in the Y-axis will go up to 10.



Sources

Sources are the input streams, which are managed in ZEN Master. A Source can originate from a Zixi Feeder, a ZEC, a Zixi Broadcaster or an external Source, such as external encoder, or an external Zixi Feeder/ZEC that has not been configured in the ZEN Master system. All Sources are managed on Broadcaster Ingest clusters on ZEN Master. If the input has already been configured on a Broadcaster cluster, then you can select *Monitor Only* in the *New Source* menu in order to manage the input in ZEN with limited functionality. If you would like to add a new input to a Broadcaster cluster and configure it to be managed in ZEN then select *Zixi* in the *New Source* menu. In the *New Source* menu, you also specify the entity from which the Source is being received, e.g., Feeder, ZEC, or Broadcaster.

You can also combine two or more binary identical Sources to create a unified *Failover* group that uses Zixi's patented DNA like re-sequencing algorithm to fill in missing packets for the Sources.

If you would like to create a new Source with a configuration similar to an existing Source you can use the Clone feature, see [CLONING A SOURCE](#).

Adding a Zixi Source – ZEC

You can add an input from a ZEC to a Broadcaster cluster to be managed as a Source in ZEN. This is done by selecting **Zixi** in the **New Source** menu.

When configuring a Source using a Push stream from a ZEC to a Zixi Broadcaster you can apply *Network Bonding* to the stream. This divides the stream into several network Channels using multiple NICs and subsequently reunites them at the Zixi Broadcaster. You can specify which NICs are used for Bonding or you can select *Automatic* to enable ZEN Master to divide the bandwidth evenly among all available NICs.

You can select several inputs from a single ZEC to simultaneously create a new Source in ZEN Master for each input.

The following procedure describes how to add a ZEC Source in ZEN Master. In addition, an explanation of each of the configuration parameters is given in the table below.

➔ To add a Zixi Source:

1. In the main navigation, click **Sources**.
2. Click **+ Add**.
The **New Source** selection window is displayed.

CREATE NEW SOURCE

ZEN MASTER

[Zixi](#) - Zixi push from a connected Feeder, Broadcaster, AWS MediaConnect, or other Zixi enabled device to ZEN Master.

[Monitor Only](#) - Monitor an existing input on a ZEN Master enabled Broadcaster. Limited functionality.

[Failover](#) - Combine existing Sources into a single Source that will switch between them to maintain quality.

[Transcoded](#) - Transcode an existing source into a new one.

[PID Mapping](#) - Create a Source with modified PIDs from an existing source

[Inter-Cluster](#) - Send a Source from one cluster to another

[UDP/RTP](#) - Receive UDP or RTP stream directly.>

[File](#) - Create a Source from a .ts file on a Broadcaster

[SRT](#) - Receive stream via SRT protocol

[RIST](#) - Receive stream via RIST protocol

[NDI](#) - Receive an NDI stream in the local network and encode it for transmission

[RTMP](#) - Receive stream via RTMP protocol

[HLS](#) - Receive stream via HLS protocol

[Demux](#) - Create a Demux Source on a Broadcaster

[Multiviewer](#) - Collection of selected sources in a grid

[Multiplex](#) - Create a Multiplex Source on a Broadcaster

AWS MEDIA

[AWS MediaConnect](#) - Create a Source to use with an AWS MediaConnect Flow.

[AWS Elemental Link](#) - Source from AWS Elemental Link device to AWS MediaLive

✕ Cancel

- Click on **Zixi**.
The **Create Zixi Source** window opens.

CREATE NEW ZIXI SOURCE

INFO

Name *

Tags *

Events Configuration Profile

Location

INPUT

Mode

Push Pull

Application

ZEC *

ZEC Input *

No inputs

Bonding

ZEC Output NIC *

CONFIGURATION

Ingest Cluster *

Target Broadcaster/s *

Latency [ms] *

Enable Encryption

PID Mapping Profile

Alert on PID Changes

Enable Traceroute History

Log SCTE-35
Requires Cluster configuration and version 13.1.40262 or newer Broadcasters

Enable SCTE-35 alerts
Requires SCTE-35 Logging

Public Output

Allow Password

Enable Content Analysis

Monitor CEA-608/CEA-708 Closed Captions
Requires version 14.4 or newer Broadcaster

Disable Auto-Pull
Disabling Auto-Pull will lock Channels using this Source to the Source's Ingest Cluster and Targets to the Source's current active Broadcaster.

Auto-Pull Latency [ms] *

WebRTC Playback

Disabled Pass-Through Auto 1080p 720p 480p 360p

Using WebRTC to monitor a stream requires transcoding (except in Pass-through mode). When playback begins, Zen Master starts transcoding on the Broadcaster, while respecting the Broadcaster's transcoding thresholds.
In Auto mode, the Source is transcoded separately for each active WebRTC client (which consumes additional resources).

INITIAL STATE

Disabled

Muted

ADVANCED +

< Back X Cancel ✓ Save

- In the **Info** section, in the **Name** field, type a logical name for the ZEC Source.

5. In the **Tags** field, select one or more of the predefined Tags from the drop-down list. Tags are used for access control. By selecting a Tag, you are relating this Source to that Tag. Tags are associated with certain roles (through the Users & Roles screen), and roles, in turn, are associated with users and user groups. If you would like to create a new Tag, see [CREATING A TAG](#).
6. In the **Events Configuration Profile** field, select from the dropdown list the profile that you would like to apply to this Source. By default, the *Default* profile is applied.



Events Profiles consist of a series of rules that determine precisely how various types of Events are logged and what results they trigger.

7. The Source's location is used to represent it in the proper position in the Map display (see [MAPS](#)). By default, the location is determined automatically based on the Source's IP. If you would like to manually set the location of the Source (Optional), use the following procedure:
 1. Click on the **Edit** icon next to the **Location** field.
A search box is shown below the **Location** field.
 - d. Enter identifying info for the location (e.g., street address, zip code, coordinates). Search results are displayed below the search box as you type.
 - e. Click on the desired location.
The selected location populates the **Location** field.
 2. In the **Input** section, verify under **Mode** that **Push** is selected (default), and under **Application** that the **ZEC** radio button is selected (default).
 3. In the **ZEC** field, select from the drop-down list one of the available ZECs.
 4. In the **ZEC Input** field, select the desired input.
 5. If you want the Source to be sent over a single NIC (i.e. no bonding) then do the following:
 1. Do not select the **Bonding** checkbox.
 2. In the **ZEC Output NICs** field, if you would like to specify which NIC is used, then select the IP of that NIC from the drop-down list. By default, **Any** is selected.
 3. If you would like to use **Bonding**, then do the following:
 - a. Select the **Bonding** checkbox.
 4. Select two or more NICs by clicking the **+** button for each of the desired NICs.
 5. Selected NICs are shown above the Filter box. (You can remove a NIC by clicking the **-** button for that NIC).
 6. For each NIC that is selected you can adjust the following parameters:
 - In the **Max Bitrate** field, enter the maximum bitrate to be used on this NIC.
 - If you want to use this NIC only when there isn't sufficient bandwidth available on the other NICs, then select the **Backup** checkbox.



If the **Backup** checkbox is not selected then this NIC is used in parallel with the other selected NICs.

7. In the **Configuration** section, in the **Ingest Cluster** field, select from the drop-down list one of the available Ingest Clusters as the destination for the Source.
8. In the **Target Broadcaster/s** field, select your broadcaster preference. Either select a specific broadcaster to be used OR specify your preference for using primary vs. backup broadcasters, options are: *Prefer Primary Broadcasters*, *Primary Broadcasters only*, *Backup Broadcasters only* or *Prefer Backup Broadcasters*.



For managed clusters, it is not recommended to select a specific broadcaster, as the broadcaster's availability may not remain stable.

9. In the **Latency [ms]** field, select the latency time for the stream (default 4000).
10. If you would like to enable the Zixi auto encryption feature for encrypting the Source stream, select the **Enable Encryption** checkbox.
11. If you would like to apply a **PID Mapping** profile to this Source, then in the **PID Mapping Profile** field, select the desired profile from the dropdown list.



Using this method creates a single Source in ZEN Master with PID Mapping applied. If you would like to maintain a Source with the original PIDs and create an additional Source with PID Mapping (e.g. if you want to create several different PID Mapped variations), then use the method described in [ADDING A SOURCE – PID MAPPING](#).

To create a new PID Mapping Profile, see [ADDING PID MAPPING PROFILES](#).

12. If you would like to generate email notifications whenever a PID change is detected, select the **Alert on PID changes** checkbox.
13. Select the **Log SCTE-35** checkbox if you would like to log SCTE-35 markers for this stream.



To log SCTE-35 markers, SCTE-35 needs to be enabled both on the Ingest Cluster and in the Source configuration.



SCTE-35 logging is only available for v13.1.40262+ Broadcasters.

14. If **Log SCTE-35** was selected, you can choose to receive alerts for SCTE-35 markers by selecting the **Enable SCTE-35 alerts** checkbox.
15. In the **Public Output** field, if you would like to allow access to the stream directly through a supported player, select the **Allow** checkbox.
16. If you selected the **Allow** checkbox, then enter a password in the **Password** field to authenticate access to the stream.
17. If you would like enable Content Analysis (CQA), verify that the **Enable Content Analysis** checkbox is selected (default).



It is generally recommended to enable Content Analysis unless it is causing technical problems. If Content Analysis is disabled, the system won't detect errors in the video and audio content of the stream and won't generate warnings for such events. Even when Content Analysis is disabled the system will still detect TR101 errors in the stream.

18. If you would like to monitor CEA-608/CEA-708 closed captions, select the **Monitor CEA-608/CEA-708** checkbox.



Monitoring CEA-608/CEA-708 Closed Captions requires using a version 14.4 or newer Broadcaster.

19. If you would like to disable auto-pull, select the **Disable Auto-Pull** checkbox.



Disabling Auto-Pull will lock Channels using this Source to the Source's Ingest Cluster and Targets to the Source's current active Broadcaster. This setting only applies to Pass-Through Channels.

20. If Auto-Pull is *enabled*, in the **Auto-Pull Latency [ms]** field, specify the desired latency for auto-pull actions. (Default: 1000 ms)

21. In the **WebRTC Playback** section, select the desired playback method.



WebRTC enables you to monitor the stream via web browsers and mobile applications with real-time communication (RTC). WebRTC needs to be activated independently for each Source in ZEN Master (by default it is disabled).

Select one of the following options:

- **Disabled** – users will not be able to view this Source using WebRTC (default)
- **Pass-Through** – passes the stream through to WebRTC without transcoding. This option *can only be used* if the input stream is already in a WebRTC compliant format (video - H.264 codec with *Baseline* or *Main* profile and no B frames, Audio – Opus codec).
- **Auto** - ZEN Master automatically transcodes the stream using the optimal profile for each specific user. In this option Zixi Broadcaster will decode the video, transforming it into RAW frames, which will be passed to the WebRTC library, where it will be re-encoded for each individual user.



Best quality. However, if monitored by multiple users this can consume extensive resources.

- **1080p/720p/480p/360p** – ZEN Master transcodes the stream to a *WebRTC compliant* profile with the specified resolution. The transcoding is done by Zixi Broadcaster's transcoder.



This method requires a Zixi Broadcaster with X264 or Nvidia for transcoding. This method allows many users to monitor the stream without encoding separately for each individual user, which saves CPU capacity. Since there is only one stream version, it is recommended to encode to a low resolution and low bitrate so that the stream will be viewable by all users monitoring the stream.

22. In the **Initial State** section, select the **Disabled** checkbox if you would like to disable this Source upon initial configuration.
23. Select the **Muted** checkbox if you would like to disable error/recovery notifications for this Source upon initial configuration.



You can Enable/Unmute the Source at any time.

24. If you would like to adjust the advanced settings, click **Advanced**.
The **Advanced** settings fields are displayed:

ADVANCED –

Billing Code

Billing Password

Validate billing code

Auto-Pull Billing Code

Auto-Pull Billing Password

Validate billing code

Auto Pull MTU

Frozen Video Minimal Duration

Broadcasters older than version 16.3 will ignore this setting

Blanc Video Minimal Duration

Broadcasters older than version 16.3 will ignore this setting

< Back × Cancel **✓ Save**



25. If you would like to track usage for this Source, enter your **Billing Code** details. See [BILLING CODES](#).
26. In the **Auto Pull MTU** field, specify the maximum transmission unit (largest data packet that a network-connected device will accept) in bytes for the Auto Pull.
27. To set the detection of frozen video, in the **Frozen Video Minimal Duration** field, specify the default minimal duration in seconds of frozen video after which the Broadcaster will trigger a Frozen video alert. Default: 10 seconds. This setting is supported for Broadcaster version 16.3 and higher.
28. To set the detection of blank video, in the **Blank Video Minimal Duration** field, specify the default minimal duration in seconds of blank video after which the Broadcaster will trigger a Blank video alert. Default: 10 seconds. This setting is supported for Broadcaster version 16.3 and higher.

29. Click **Save**.

ZEC Source Configuration Parameters Table

Parameter	Description
Info	
Name	Specify a name for the Zixi Source in ZEN Master.
Tags	Select one or more of the predefined Tags from the drop-down list. Tags are used for access control. By selecting a Tag, you are relating this Source to that Tag. Tags are associated with certain roles (through the Users & Roles screen), and roles, in turn, are associated with users and user groups. If you would like to create a new Tag, see CREATING A TAG .
Events Configuration Profile	Select from the dropdown list the profile that you would like to apply to this Source. By default, the <i>Default</i> profile is applied. NOTE: <i>Events Profiles</i> consist of a series of rules that determine precisely how various types of Events are logged and what results they trigger.
Location (Optional)	The Source's location is used to represent it in the proper position in the Map display (see MAPS). By default, the location is determined automatically based on the Source's IP. Enter identifying info for the location (e.g., street address, zip code, coordinates) and select the desired location from the suggestions that are shown.
Input	
Mode	To create a ZEC Source, verify that Push is selected (default).
Application	To create a ZEC Source, verify that the ZEC radio button is selected (default).
ZEC	Select from the drop-down list one of the available ZECs.
ZEC Input	Select the relevant ZEC Input.
Bonding	Select the checkbox if you would like to use bonding.

Sources

	<p>If you would like to specify which NIC is used, then select the IP of that NIC from the drop-down list. By default, <i>Any</i> is selected.</p>
ZEC Output NIC/s (for <i>None</i> and <i>Manual</i> bonding)	<p>If you selected <i>Manual</i> for Bonding, then click the  button for each of the NICs that you would like to use.</p> <p>Selected NICs are shown above the Filter box. (You can remove a NIC by clicking the  button for that NIC).</p> <p>For each selected NIC, you can adjust the following parameters:</p> <ul style="list-style-type: none">• In the Max Bitrate field, enter the maximum bitrate to be used on this NIC.• If you want to use this NIC only when there isn't sufficient bandwidth available on the other NICs, then select the Backup checkbox. If the Backup checkbox is not selected then this NIC is used in parallel with the other selected NICs.

Configuration

Ingest Cluster	Select from the drop-down list one of the available Ingest Clusters as the destination for the Source.
Target Broadcaster/s	<p>Select your Broadcaster preferences. Either select a specific Broadcaster to be used OR specify your preference for using primary vs. backup Broadcasters. Options are: <i>Prefer Primary Broadcasters</i>, <i>Primary Broadcasters only</i>, <i>Backup Broadcasters only</i> or <i>Prefer Backup Broadcasters</i>.</p> <p>Note: For managed clusters, it is not recommended to select a specific Broadcaster, as the Broadcaster's availability may not remain stable.</p>
Latency [ms]	Select the latency time for the stream (default 4000).
Enable Encryption	If you would like to enable the Zixi auto encryption feature for encrypting the Source stream, select this checkbox.
Password (Optional)	If you would like to set a password to authenticate the stream from the Feeder, enter the password or generate a random password by clicking on Random . You need to enter the identical password on the Feeder.
PID Mapping Profile (Optional)	<p>If you would like to apply a PID Mapping profile to this Source, then select the desired profile from the dropdown list.</p> <p>To create a new PID Mapping Profile, see ADDING PID MAPPING PROFILES.</p> <p>Note: Using this method creates a single Source in ZEN Master with PID Mapping applied. If you would like to maintain a Source with the original PIDs and create an additional Source with PID Mapping (e.g. if you want to create several different PID Mapped variations), then use the method described in ADDING A SOURCE – PID MAPPING.</p>
Alert on PID changes	If you would like to generate email notifications whenever a PID change is detected, select this checkbox.

Sources

Log SCTE-35	Select this checkbox if you would like to log SCTE-35 markers for this stream. NOTE: To log SCTE-35 markers, SCTE-35 needs to be enabled both on the Ingest Cluster and in the Source configuration. NOTE: SCTE-35 logging is only available for v13.1.40262+ Broadcasters
Enable SCTE-35 alerts (for Log SCTE-35)	If you would like to receive alerts for SCTE-35 markers, select this checkbox.
Public Output	If you would like to allow access to the stream directly through a supported player, select the Allow checkbox.
Password (for Public Output)	If you selected Allow in the <i>Public Output</i> field, specify a password in this field to authenticate access to the stream.
Enable Content Analysis	If you would like to enable Content Analysis (CQA), verify that this checkbox is selected (default). Note: It is generally recommended to enable Content Analysis unless it is causing technical problems. If Content Analysis is disabled, the system won't detect errors in the video and audio content of the stream and won't generate warnings for such events. Even when Content Analysis is disabled the system will still detect TR101 errors in the stream.
Monitor CEA-608/CEA-708 Closed Captions	If you would like to monitor CEA-608/CEA-708 closed captions, select this checkbox. NOTE: Monitoring CEA-608/CEA-708 Closed Captions requires using a version 14.4 or newer Broadcaster.
Disable Auto-Pull	If you would like to disable auto-pull, select this checkbox. NOTE: Disabling Auto-Pull will lock Channels using this Source to the Source's Ingest Cluster and Targets to the Source's current active Broadcaster. This setting only applies to Pass-Through Channels.
Auto-Pull Latency [ms]	Specify the desired latency for auto-pull actions. (Default: 1,000 ms)

Select the desired playback method.

NOTE: WebRTC enables you to monitor the stream via web browsers and mobile applications with real-time communication (RTC). WebRTC needs to be activated independently for each Source in ZEN Master (by default it is disabled).

Select one of the following options:

- **Disabled** – users will not be able to view this Source using WebRTC (default)
- **Pass-Through** – passes the stream through to WebRTC without transcoding. This option *can only be used* if the input stream is already in a WebRTC compliant format (video – H.264 codec with *Baseline* or *Main* profile and no B frames, Audio – Opus codec).
- **Auto** – ZEN Master automatically transcodes the stream using the optimal profile for each specific user. In this option Zixi Broadcaster will decode the video, transforming it into RAW frames, which will be passed to the WebRTC library, where it will be re-encoded for each individual user.

WebRTC
Playback

NOTE: Best quality. However, if monitored by multiple users this can consume extensive resources.

- **1080p/720p/480p/360p** – ZEN Master transcodes the stream to a WebRTC compliant profile with the specified resolution. The transcoding is done by Zixi Broadcaster's transcoder.

NOTE: This method requires a Zixi Broadcaster with X264 or Nvidia for transcoding. This method allows many users to monitor the stream without encoding separately for each individual user, which saves CPU capacity. Since there is only one stream resolution, it is recommended to encode to a low resolution and low bitrate so that the stream will be viewable by all users monitoring the stream.

Initial State

Disabled	Select this checkbox if you would like to disable this Source upon initial configuration.
Muted	Select this checkbox if you would like to disable error/recovery notifications for this Source upon initial configuration.

Advanced

Billing Codes	If you would like to track usage for this Source, enter your Billing Code details, see BILLING CODES . (Supported for Broadcasters v14.8+)
Auto Pull MTU	Specify the maximum transmission unit (largest data packet that a network-connected device will accept) in bytes for the Auto Pull.

Frozen Video Minimal Duration	Specify the default minimal duration in seconds of frozen video after which the Broadcaster will trigger a Frozen video alert. Default: 10 seconds. This setting is supported for Broadcaster version 16.3 and higher. For existing sources, you may need to restart the source.
Blank Video Minimal Duration	Specify the default minimal duration in seconds of blank video after which the Broadcaster will trigger a Blank video alert. Default: 10 seconds. This setting is supported for Broadcaster version 16.3 and higher. For existing sources, you may need to restart the source.

Adding a Zixi Source – Zixi Feeder

You can add an input from a Zixi Feeder to a Broadcaster cluster to be managed as a Source in ZEN. This is done by selecting **Zixi** in the New Source menu.

When configuring a Source using a Push stream from a Zixi Feeder to a Zixi Broadcaster you can apply *Network Bonding* to the stream. This divides the stream into several network Channels using multiple NICs and subsequently reunites them at the Zixi Broadcaster. You can specify which NICs are used for Bonding or you can select *Automatic* to enable ZEN Master to divide the bandwidth evenly among all available NICs.

You can select several inputs from a single Feeder to simultaneously create a new Source in ZEN Master for each input.

The following procedure describes how to add a Zixi Feeder Source in ZEN Master. In addition, an explanation of each of the configuration parameters is given in the table below.

➔ To add a Zixi Source:

1. In the main navigation, click **Sources**.
2. Click **+ Add**.
The **New Source** selection window is displayed.

CREATE NEW SOURCE

ZEN MASTER

Zixi - Zixi push from a connected Feeder, Broadcaster, AWS MediaConnect, or other Zixi enabled device to ZEN Master.

Monitor Only - Monitor an existing input on a ZEN Master enabled Broadcaster. Limited functionality.

Failover - Combine existing Sources into a single Source that will switch between them to maintain quality.

Transcoded - Transcode an existing source into a new one.

PID Mapping - Create a Source with modified PIDs from an existing source

Inter-Cluster - Send a Source from one cluster to another

UDP/RTP - Receive UDP or RTP stream directly.>

File - Create a Source from a .ts file on a Broadcaster

SRT - Receive stream via SRT protocol

RIST - Receive stream via RIST protocol

NDI - Receive an NDI stream in the local network and encode it for transmission

RTMP - Receive stream via RTMP protocol

HLS - Receive stream via HLS protocol

Demux - Create a Demux Source on a Broadcaster

Multiviewer - Collection of selected sources in a grid

Multiplex - Create a Multiplex Source on a Broadcaster

AWS MEDIA

AWS MediaConnect - Create a Source to use with an AWS MediaConnect Flow.

AWS Elemental Link - Source from AWS Elemental Link device to AWS MediaLive

✕ Cancel

3. Click on Zixi.

The **Create Zixi Source** window opens.

CREATE NEW ZIXI SOURCE

INFO

Name *
Name

Access Tags * 0
Select Access Tags

Events Configuration Profile
Default

Location 0
Location

INPUT

Mode
Push Pull

Application
 ZEC Feeder Broadcaster AWS MediaConnect Other

Feeder *
Select Feeder

Create multiple Sources from multiple Inputs

Feeder Input *
Select Feeder Input

No Inputs

Bonding
None Manual Auto

Feeder Output NIC *
Any

Max Bitrate *
Select Max Bitrate

CONFIGURATION

Ingest Cluster *
Select Cluster

Target Broadcaster/s *
Select Broadcaster/s

Latency [ms] *
4000

Enable Encryption

PID Mapping Profile
Select PID Mapping Profile

Alert on PID Changes

Log SCTE-35
Requires Cluster configuration and version 13.1.40262 or newer Broadcasters

Enable SCTE-35 alerts
Requires SCTE-35 Logging

Public Output
 Allow Password

Enable Content Analysis 0

Monitor CEA-608/CEA-708 Closed Captions
Requires version 14.4 or newer Broadcaster

Disable Auto-Pull
Disabling Auto-Pull will lock Channels using this Source to the Source's Ingest Cluster and Targets to the Source's current active Broadcaster.

Auto-Pull Latency [ms] *
1000

WebRTC Playback
Disabled Pass-Through Auto 1080p 720p 480p 360p

Using WebRTC to monitor a stream requires transcoding (except in Pass-through mode). When playback begins, Zen Master starts transcoding on the Broadcaster, while respecting the Broadcaster's transcoding thresholds.
In Auto mode, the Source is transcoded separately for each active WebRTC client (which consumes additional resources).

INITIAL STATE

Disabled

Muted

ADVANCED +

< Back X Cancel ✓ Save

4. In the **Info** section, in the **Name** field, type a logical name for the Zixi Source.
5. In the **Tags** field, select one or more of the predefined Tags from the drop-down list. Tags are used for access control. By selecting a Tag, you are relating this Source to that Tag. Tags are associated with certain roles (through the Users & Roles screen), and roles, in turn, are associated with users and user groups. If you would like to create a new Tag, see [CREATING A TAG](#).
6. In the **Events Configuration Profile** field, select from the dropdown list the profile that you would like to apply to this Source. By default, the *Default* profile is applied.



Events Profiles consist of a series of rules that determine precisely how various types of Events are logged and what results they trigger.

7. The Source's location is used to represent it in the proper position in the Map display (see [MAPS](#)). By default, the location is determined automatically based on the Source's IP. If you would like to manually set the location of the Source (Optional), use the following procedure:
 - b. Click on the **Edit** icon next to the **Location** field.
A search box is shown below the **Location** field.
 - c. Enter identifying info for the location (e.g. street address, zip code, coordinates).
Search results are displayed below the search box as you type.
 - d. Click on the desired location.
The selected location populates the **Location** field.
8. In the **Input** section, verify under **Mode** that **Push** is selected (default), and under **Application** that the **Feeder** radio button is selected (default).
9. In the **Feeder** field, select from the drop-down list one of the available Feeders.
10. Specify the input/s for the Source.
 - If you would like to create a Source from a single input, *do not* select the **Create multiple Sources from multiple Inputs** checkbox, and in the **Feeder Input** field, select from the drop-down list the desired Input.
 - If you would like to create Sources from multiple inputs, use the following procedure:
11. Select the Create multiple Sources from multiple Inputs checkbox.



When you select this option, each input that is selected creates a **separate** Source in ZEN Master. Each Source is named independently in the **Feeder Inputs** section and the *Name* field in the Info section is disabled.



You can create up to 25 Sources at once.

- e. In the **Feeder Inputs** field select from the list one or more Inputs by clicking the **+** button for the desired input.

Selected Inputs are shown above the **Filter** box. (You can remove an Input by clicking the **-** button for that Input).

For each input that is selected you can adjust the following parameters:

- In the **Name** field, edit the name of the Source. Default: the name of the input on the Feeder.
- In the **Max Bitrate** field, select from the drop-down list the maximum bitrate for this Source.

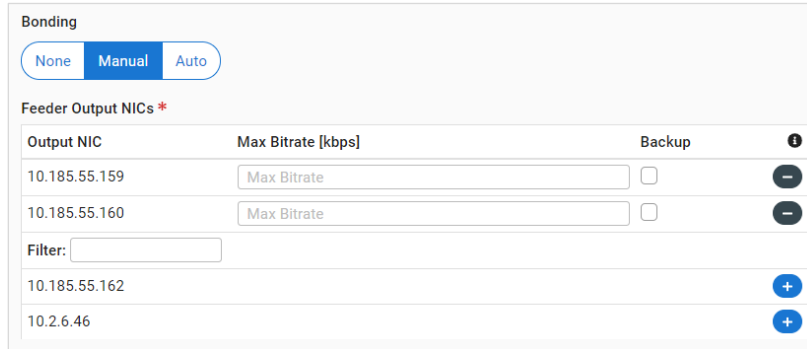


Make sure that the value is greater than the max bitrate of the input. The default is set automatically based on the current bitrate of the input.

12. If you would like the Source configured in ZEN Master to replace (i.e. stop) any current Outputs configured on the Feeder, select the **Replace existing manual outputs** checkbox.
13. In the **Bonding** section, select the desired bonding mode. Options are:
- **None** (default) – no bonding
 - **Manual** – you specify which NICs are used for bonding
 - **Auto** – all available NICs are used for bonding
- If you selected *Auto*, proceed to step 14. If you selected *Manual* proceed to step 13. If you selected *None* then continue with the following step.
14. If you selected *None* for Bonding, then in the **Feeder Output NIC** field, if you would like to specify which NIC is used, then select the IP of that NIC from the drop-down list. By default, *Any* is selected.
- Proceed to step 14.
15. If you selected *Manual* for **Bonding**, then in the **Feeder Output NIC** field, use the following procedure to specify which NICs are used.
- a. Select two or more NICs by clicking the **+** button for each of the desired NICs.

Output NIC	Max Bitrate [kbps]	Backup	
Filter: <input type="text"/>			
10.185.55.159			+
10.185.55.160			+
10.185.55.162			+
10.2.6.46			+

- b. Selected NICs are shown above the **Filter** box. (You can remove a NIC by clicking the  button for that NIC).



Output NIC	Max Bitrate [kbps]	Backup
10.185.55.159	<input type="text" value="Max Bitrate"/>	<input type="checkbox"/>
10.185.55.160	<input type="text" value="Max Bitrate"/>	<input type="checkbox"/>
10.185.55.162		<input type="checkbox"/>
10.2.6.46		<input type="checkbox"/>

- c. For each selected NIC, you can adjust the following parameters:
- In the **Max Bitrate** field, enter the maximum bitrate to be used on this NIC.
 - If you want to use this NIC only when there isn't sufficient bandwidth available on the other NICs, then select the **Backup** checkbox.



If the **Backup** checkbox is not selected then this NIC is used in parallel with the other selected NICs.

16. In the **Configuration** section, in the **Ingest Cluster** field, select from the drop-down list one of the available Ingest Clusters as the destination for the Source.
17. In the **Target Broadcaster/s** field, select your broadcaster preference. Either select a specific broadcaster to be used OR specify your preference for using primary vs. backup broadcasters, options are: *Prefer Primary Broadcasters*, *Primary Broadcasters only*, *Backup Broadcasters only* or *Prefer Backup Broadcasters*.



For managed clusters, it is not recommended to select a specific broadcaster, as the broadcaster's availability may not remain stable.

18. In the **Latency [ms]** field, select the latency time for the stream (default 4000).
19. If you would like to enable the Zixi auto encryption feature for encrypting the Source stream, select the **Enable Encryption** checkbox.
20. If you would like to set a password to authenticate the stream from the Feeder, in the **Source Password** field, enter the password or generate a random password by clicking on **Random**. You need to configure the identical password (case sensitive) on the Feeder.
21. If you would like to apply a PID Mapping profile to this Source, then in the **PID Mapping Profile** field, select the desired profile from the dropdown list.



Using this method creates a single Source in ZEN Master with PID Mapping applied. If you would like to maintain a Source with the original PIDs and create an additional Source with PID Mapping (e.g. if you want to create several different PID Mapped variations), then use the method described in [ADDING A SOURCE – PID MAPPING](#).

To create a new PID Mapping Profile, see [ADDING PID MAPPING PROFILES](#).

22. If you would like to generate email notifications whenever a PID change is detected, select the **Alert on PID changes** checkbox.
23. Select the **Log SCTE-35** checkbox if you would like to log SCTE-35 markers for this stream.



To log SCTE-35 markers, SCTE-35 needs to be enabled both on the Ingest Cluster and in the Source configuration.



SCTE-35 logging is only available for v13.1.40262+ Broadcasters.

24. If **Log SCTE-35** was selected, you can choose to receive alerts for SCTE-35 markers by selecting the **Enable SCTE-35 alerts** checkbox.
25. In the **Public Output** field, if you would like to allow access to the stream directly through a supported player, select the **Allow** checkbox.
26. If you selected the **Allow** checkbox, then enter a password in the **Password** field to authenticate access to the stream.
27. If you would like enable Content Analysis (CQA), verify that the **Enable Content Analysis** checkbox is selected (default).



It is generally recommended to enable Content Analysis unless it is causing technical problems. If Content Analysis is disabled, the system won't detect errors in the video and audio content of the stream and won't generate warnings for such events. Even when Content Analysis is disabled the system will still detect TR101 errors in the stream.

28. If you would like to monitor CEA-608/CEA-708 closed captions, select the **Monitor CEA-608/CEA-708** checkbox.



Monitoring CEA-608/CEA-708 Closed Captions requires using a version 14.4 or newer Broadcaster.

29. If you would like to disable auto-pull, select the **Disable Auto-Pull** checkbox.



Disabling Auto-Pull will lock Channels using this Source to the Source's Ingest Cluster and Targets to the Source's current active Broadcaster. This setting only applies to Pass-Through Channels.

30. If Auto-Pull is *enabled*, in the **Auto-Pull Latency [ms]** field, specify the desired latency for auto-pull actions. (Default: 1000 ms)
31. In the **WebRTC Playback** section, select the desired playback method.



WebRTC enables you to monitor the stream via web browsers and mobile applications with real-time communication (RTC). WebRTC needs to be activated independently for each Source in ZEN Master (by default it is disabled).

Select one of the following options:

- **Disabled** – users will not be able to view this Source using WebRTC (default)
- **Pass-Through** – passes the stream through to WebRTC without transcoding. This option *can only be used* if the input stream is already in a WebRTC compliant format (video - H.264 codec with *Baseline* or *Main* profile and no B frames, Audio – Opus codec).
- **Auto** - ZEN Master automatically transcodes the stream using the optimal profile for each specific user. In this option Zixi Broadcaster will decode the video, transforming it into RAW frames, which will be passed to the WebRTC library, where it will be re-encoded for each individual user.



Best quality. However, if monitored by multiple users this can consume extensive resources.

- **1080p/720p/480p/360p** – ZEN Master transcodes the stream to a *WebRTC compliant* profile with the specified resolution. The transcoding is done by Zixi Broadcaster's transcoder.



This method requires a Zixi Broadcaster with X264 or Nvidia for transcoding. This method allows many users to monitor the stream without encoding separately for each individual user, which saves CPU capacity. Since there is only one stream version, it is recommended to encode to a low resolution and low bitrate so that the stream will be viewable by all users monitoring the stream.

32. In the **Initial State** section, select the **Disabled** checkbox if you would like to disable this Source upon initial configuration.
33. Select the **Muted** checkbox if you would like to disable error/recovery notifications for this Source upon initial configuration.



You can Enable/Unmute the Source at any time.

34. If you would like to adjust the advanced settings, click **Advanced**.
The **Advanced** settings fields are displayed:

ADVANCED —

Billing Code
Billing Code

Billing Password
Billing Password

Validate billing code

Auto-Pull Billing Code
Auto-Pull Billing Code

Auto-Pull Billing Password
Auto-Pull Billing Password

Validate billing code

Auto Pull MTU
MTU

Frozen Video Minimal Duration
10
Broadcasters older than version 16.3 will ignore this setting





Blanc Video Minimal Duration
10
Broadcasters older than version 16.3 will ignore this setting

< Back X Cancel ✓ Save

35. If you would like to track usage for this Source, enter your **Billing Code** details. See [BILLING CODES](#).
36. In the **Auto Pull MTU** field, specify the maximum transmission unit (largest data packet that a network-connected device will accept) in bytes for the Auto Pull.
37. To set the detection of frozen video, in the **Frozen Video Minimal Duration** field, specify the default minimal duration in seconds of frozen video after which the Broadcaster will trigger a Frozen video alert. Default: 10 seconds. This setting is supported for Broadcaster version 16.3 and higher.
38. To set the detection of blank video, in the **Blank Video Minimal Duration** field, specify the default minimal duration in seconds of blank video after which the Broadcaster will trigger a Blank video alert. Default: 10 seconds. This setting is supported for Broadcaster version 16.3 and higher.
39. Click **Save**.

Zixi Feeder Source Configuration Parameters Table

Parameter	Description
Info	
Name	Specify a name for the Zixi Source in ZEN Master.
Tags	<p>Select one or more of the predefined Tags from the drop-down list.</p> <p>Tags are used for access control. By selecting a Tag, you are relating this Source to that Tag. Tags are associated with certain roles (through the Users & Roles screen), and roles, in turn, are associated with users and user groups. If you would like to create a new Tag, see CREATING A TAG.</p>
Events Configuration Profile	<p>Select from the dropdown list the profile that you would like to apply to this Source. By default, the <i>Default</i> profile is applied.</p> <p>NOTE: <i>Events Profiles</i> consist of a series of rules that determine precisely how various types of Events are logged and what results they trigger.</p>
Location (Optional)	The Source's location is used to represent it in the proper position in the Map display (see MAPS). By default, the location is determined automatically based on the Source's IP. Enter identifying info for the location (e.g. street address, zip code, coordinates) and select the desired location from the suggestions that are shown.
Input	
Mode	To create a Zixi Feeder Source, verify that Push is selected (default).
Application	To create a Zixi Feeder Source, verify that the Feeder radio button is selected (default).
Feeder	Select from the drop-down list one of the available Feeders.
Create multiple Sources from multiple Inputs	<p>If you would like to create Sources from multiple inputs, select this checkbox.</p> <p>When you select this option, each input that is selected creates a separate Source in ZEN Master. Each Source is named independently in the Feeder Inputs section and the Name field in the Info section is disabled.</p> <p>NOTE: You can create up to 25 Sources at once.</p>

Feeder Input/s	<p>Select from the list one or more of the Inputs that are available on the selected Feeder.</p> <p>For multiple Inputs, click on the  button for each of the desired Inputs.</p> <p>Selected Inputs are shown above the Filter box. (You can remove an Input by clicking the  button for that Input).</p> <p>For each input that is selected you can adjust the following parameters:</p> <ol style="list-style-type: none"> 1. In the Name field, edit the name of the Source. Default: the name of the input on the Feeder. 2. In the Max Bitrate field, select from the drop-down list the maximum bitrate for this Source. Make sure that the value is greater than the max bitrate of the input. The default is set automatically based on the current bitrate of the input.
Replace existing manual outputs	<p>If you would like the Source configured in ZEN Master to replace (i.e. stop) any current Outputs configured on the Feeder, select this checkbox.</p>
Bonding	<p>Select the desired bonding mode. Options are:</p> <ul style="list-style-type: none"> • None (default) – no bonding • Manual – you specify which NICs are used for bonding • Auto – all available NICs are used for bonding
Feeder Output NIC/s (for <i>None</i> and <i>Manual</i> bonding)	<p>If you would like to specify which NIC is used, then select the IP of that NIC from the drop-down list. By default, <i>Any</i> is selected.</p> <p>If you selected <i>Manual</i> for Bonding, then click the  button for each of the NICs that you would like to use.</p> <p>Selected NICs are shown above the Filter box. (You can remove a NIC by clicking the  button for that NIC).</p> <p>For each selected NIC, you can adjust the following parameters:</p> <ul style="list-style-type: none"> • In the Max Bitrate field, enter the maximum bitrate to be used on this NIC. • If you want to use this NIC only when there isn't sufficient bandwidth available on the other NICs, then select the Backup checkbox. If the Backup checkbox is not selected then this NIC is used in parallel with the other selected NICs.

Configuration	
Ingest Cluster	Select from the drop-down list one of the available Ingest Clusters as the destination for the Source.
Target Broadcaster/s	Select your Broadcaster preferences. Either select a specific Broadcaster to be used OR specify your preference for using primary vs. backup Broadcasters. Options are: <i>Prefer Primary Broadcasters, Primary Broadcasters only, Backup Broadcasters only</i> or <i>Prefer Backup Broadcasters</i> . Note: For managed clusters, it is not recommended to select a specific Broadcaster, as the Broadcaster's availability may not remain stable.
Latency [ms]	Select the latency time for the stream (default 4000).
Enable Encryption	If you would like to enable the Zixi auto encryption feature for encrypting the Source stream, select this checkbox.
Source Password (Optional)	If you would like to set a password to authenticate the stream from the Feeder, enter the password or generate a random password by clicking on Random . You need to enter the identical password on the Feeder.
PID Mapping Profile (Optional)	If you would like to apply a PID Mapping profile to this Source, then select the desired profile from the dropdown list. To create a new PID Mapping Profile, see ADDING PID MAPPING PROFILES . Note: Using this method creates a single Source in ZEN Master with PID Mapping applied. If you would like to maintain a Source with the original PIDs and create an additional Source with PID Mapping (e.g. if you want to create several different PID Mapped variations), then use the method described in ADDING A SOURCE – PID MAPPING .
Alert on PID changes	If you would like to generate email notifications whenever a PID change is detected, select this checkbox.
Log SCTE-35	Select this checkbox if you would like to log SCTE-35 markers for this stream. NOTE: To log SCTE-35 markers, SCTE-35 needs to be enabled both on the Ingest Cluster and in the Source configuration. NOTE: SCTE-35 logging is only available for v13.1.40262+ Broadcasters

Sources

Enable SCTE-35 alerts (for Log SCTE-35)	If you would like to receive alerts for SCTE-35 markers, select this checkbox.
Public Output	If you would like to allow access to the stream directly through a supported player, select the Allow checkbox.
Password (for Public Output)	If you selected Allow in the <i>Public Output</i> field, specify a password in this field to authenticate access to the stream.
Enable Content Analysis	<p>If you would like to enable Content Analysis (CQA), verify that this checkbox is selected (default).</p> <p>Note: It is generally recommended to enable Content Analysis unless it is causing technical problems. If Content Analysis is disabled, the system won't detect errors in the video and audio content of the stream and won't generate warnings for such events. Even when Content Analysis is disabled the system will still detect TR101 errors in the stream.</p>
Monitor CEA-608/CEA-708 Closed Captions	<p>If you would like to monitor CEA-608/CEA-708 closed captions, select this checkbox.</p> <p>NOTE: Monitoring CEA-608/CEA-708 Closed Captions requires using a version 14.4 or newer Broadcaster.</p>
Disable Auto-Pull	<p>If you would like to disable auto-pull, select this checkbox.</p> <p>NOTE: Disabling Auto-Pull will lock Channels using this Source to the Source's Ingest Cluster and Targets to the Source's current active Broadcaster. This setting only applies to Pass-Through Channels.</p>
Auto-Pull Latency [ms]	Specify the desired latency for auto-pull actions. (Default: 1,000 ms)

Select the desired playback method.

NOTE: WebRTC enables you to monitor the stream via web browsers and mobile applications with real-time communication (RTC). WebRTC needs to be activated independently for each Source in ZEN Master (by default it is disabled).

Select one of the following options:

- **Disabled** – users will not be able to view this Source using WebRTC (default)
- **Pass-Through** – passes the stream through to WebRTC without transcoding. This option *can only be used* if the input stream is already in a WebRTC compliant format (video – H.264 codec with *Baseline* or *Main* profile and no B frames, Audio – Opus codec).
- **Auto** – ZEN Master automatically transcodes the stream using the optimal profile for each specific user. In this option Zixi Broadcaster will decode the video, transforming it into RAW frames, which will be passed to the WebRTC library, where it will be re-encoded for each individual user.

WebRTC Playback

NOTE: Best quality. However, if monitored by multiple users this can consume extensive resources.

- **1080p/720p/480p/360p** – ZEN Master transcodes the stream to a WebRTC compliant profile with the specified resolution. The transcoding is done by Zixi Broadcaster's transcoder.

NOTE: This method requires a Zixi Broadcaster with X264 or Nvidia for transcoding. This method allows many users to monitor the stream without encoding separately for each individual user, which saves CPU capacity. Since there is only one stream resolution, it is recommended to encode to a low resolution and low bitrate so that the stream will be viewable by all users monitoring the stream.

Initial State

Disabled

Select this checkbox if you would like to disable this Source upon initial configuration.

Muted

Select this checkbox if you would like to disable error/recovery notifications for this Source upon initial configuration.

Advanced

Billing Codes	If you would like to track usage for this Source, enter your Billing Code details, see BILLING CODES . (Supported for Broadcasters v14.8+)
Auto Pull MTU	Specify the maximum transmission unit (largest data packet that a network-connected device will accept) in bytes for the Auto Pull.
Frozen Video Minimal Duration	Specify the default minimal duration in seconds of frozen video after which the Broadcaster will trigger a Frozen video alert. Default: 10 seconds. This setting is supported for Broadcaster version 16.3 and higher. For existing sources, you may need to restart the source.
Blank Video Minimal Duration	Specify the default minimal duration in seconds of blank video after which the Broadcaster will trigger a Blank video alert. Default: 10 seconds. This setting is supported for Broadcaster version 16.3 and higher. For existing sources, you may need to restart the source.

Adding a Source – Zixi Broadcaster

You can add an input from a Zixi Broadcaster to a Broadcaster cluster to be managed as a Source in ZEN. This is done by selecting **Zixi** in the New Source menu. You can use either *Push* or *Pull* method to send the Source from the Broadcaster.

When configuring a Source using a Push stream from a Zixi Broadcaster you can apply *Network Bonding* to the stream. This divides the stream into several network Channels using multiple NICs and subsequently reunites them at the Ingest Cluster. When using Network Bonding, you need to specify which NICs will be used for this Source.

You can select several inputs from a single Broadcaster to simultaneously create a new Source in ZEN Master for each input.

The following procedure describes how to add a Zixi Broadcaster Source in ZEN Master. In addition, an explanation of each of the configuration parameters is given in the table below.

➔ To add a Broadcaster Source:

1. In the main navigation, click **Sources**.
2. Click **+ Add**.
The **Create New Source** selection window is displayed.

CREATE NEW SOURCE

ZEN MASTER

Zixi - Zixi push from a connected Feeder, Broadcaster, AWS MediaConnect, or other Zixi enabled device to ZEN Master.

Monitor Only - Monitor an existing input on a ZEN Master enabled Broadcaster. Limited functionality.

Failover - Combine existing Sources into a single Source that will switch between them to maintain quality.

Transcoded - Transcode an existing source into a new one.

PID Mapping - Create a Source with modified PIDs from an existing source

Inter-Cluster - Send a Source from one cluster to another

UDP/RTP - Receive UDP or RTP stream directly.>

File - Create a Source from a .ts file on a Broadcaster

SRT - Receive stream via SRT protocol

RIST - Receive stream via RIST protocol

NDI - Receive an NDI stream in the local network and encode it for transmission

RTMP - Receive stream via RTMP protocol

HLS - Receive stream via HLS protocol

Demux - Create a Demux Source on a Broadcaster

Multiviewer - Collection of selected sources in a grid

Multiplex - Create a Multiplex Source on a Broadcaster

AWS MEDIA

AWS MediaConnect - Create a Source to use with an AWS MediaConnect Flow.

AWS Elemental Link - Source from AWS Elemental Link device to AWS MediaLive

✕ Cancel

3. Click on Zixi.

The **Create Zixi Source** window opens.

CREATE NEW ZIXI SOURCE

INFO

Name *

Access Tags * ⓘ

Events Configuration Profile

Location ⓘ

INPUT

Mode
 Push Pull

Application
 ZEC ⓘ Feeder ⓘ Broadcaster ⓘ AWS MediaConnect ⓘ Other ⓘ

Broadcaster *

Create multiple Sources from multiple Inputs

Broadcaster Input *

No Inputs
 Bonding

Broadcaster Output NIC *

CONFIGURATION

Ingest Cluster *

Target Broadcaster/s *

Latency [ms] *

Enable Encryption

PID Mapping Profile

Alert on PID Changes

Log SCTE-35
Requires Cluster configuration and version 13.1.40262 or newer Broadcasters

Enable SCTE-35 alerts
Requires SCTE-35 Logging

Public Output
 Allow

Enable Content Analysis ⓘ

Monitor CEA-608/CEA-708 Closed Captions
Requires version 14.4 or newer Broadcaster

Disable Auto-Pull
Disabling Auto-Pull will lock Channels using this Source to the Source's Ingest Cluster and Targets to the Source's current active Broadcaster.

Auto-Pull Latency [ms] *

WebRTC Playback
 Disabled Pass-Through Auto 1080p 720p 480p 360p

Using WebRTC to monitor a stream requires transcoding (except in Pass-through mode). When playback begins, Zen Master starts transcoding on the Broadcaster, while respecting the Broadcaster's transcoding thresholds.
In Auto mode, the Source is transcoded separately for each active WebRTC client (which consumes additional resources).

INITIAL STATE

Disabled
 Muted

ADVANCED +

4. In the **Info** section, in the **Name** field, type a logical name for the Zixi Source.
5. In the **Tags** field, select one or more of the predefined Tags from the drop-down list. Tags are used for access control. By selecting a Tag, you are relating this Source to that Tag. Tags are associated with certain roles (through the Users & Roles screen), and roles, in turn, are associated with users and user groups. If you would like to create a new Tag, see [CREATING A TAG](#).
6. In the **Events Configuration Profile** field, select from the dropdown list the profile that you would like to apply to this Source. By default, the *Default* profile is applied.



Events Profiles consist of a series of rules that determine precisely how various types of Events are logged and what results they trigger.

7. The Source's location is used to represent it in the proper position in the Map display (see [MAPS](#)). By default, the location is determined automatically based on the Source's IP. If you would like to manually set the location of the Source (Optional), use the following procedure:
 - a. Click on the **Edit** icon next to the **Location** field.
A search box is shown below the **Location** field.
 - b. Enter identifying info for the location (e.g. street address, zip code, coordinates).
Search results are displayed below the search box as you type.
 - c. Click on the desired location.
The selected location populates the **Location** field.
8. In the **Input** section, under **Mode**, select the mode used for sending the Source. Options are: *Push* or *Pull*.
9. In the **Application** section, select the **Broadcaster** radio button.
The fields relevant for creating a Source from a Broadcaster are shown.
10. If you selected *Push* Method, then use the following procedure to configure the input:
 - a. In the **Broadcaster** field, select from the drop-down list one of the available Broadcasters.
 - b. If you would like to create a Source from a single input, then in the **Broadcaster Input** field, select the desired input from the drop-down list of available inputs.
 - c. If you would like to create Sources from multiple inputs, select the **Create Sources from Multiple Inputs** checkbox.



When you select this option, each input that is selected creates a separate Source in ZEN Master. Each Source is named independently in the **Broadcaster Inputs** section and the *Name* field in the **Info** section is disabled.



You can create up to 25 Sources at once.

A list of available Inputs on that Broadcaster is displayed. Take the following steps:

Create Sources from multiple Inputs

Broadcaster Inputs *

Input	Bitrate	Name	
Filter: <input type="text"/>			
<input checked="" type="checkbox"/> 720P_10Mbps (File: t...	10802 kbps	720P_10Mbps	
<input checked="" type="checkbox"/> FXFiberBonded_Hitle...	4715 kbps	FXFiberBonded_Hitless-se22jl	
<input checked="" type="checkbox"/> HITLEES_PRIMARY-s...	0 kbps	HITLEES_PRIMARY-s9q2vk	
<input checked="" type="checkbox"/> HITLESS_SECONDAR...	0 kbps	HITLESS_SECONDARY-sgq2ln	
<input type="checkbox"/> HITLESS_TARGET-sy...	0 kbps	HITLESS_TARGET-syq6kx	


- a. Select one or more Inputs by clicking the button for the desired input.

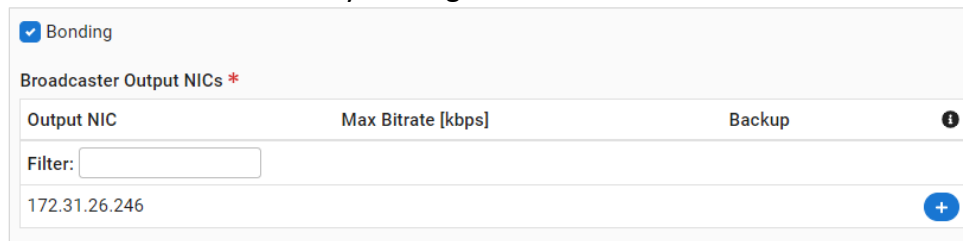
Create Sources from multiple Inputs


Broadcaster Inputs *


Input	Bitrate	Name	
Filter: <input type="text"/>			
<input checked="" type="checkbox"/> 720P_10Mbps (File: tearsofsteel_720P_10mb.ts)	11366 kbps	<input type="text" value="Name"/>	
<input checked="" type="checkbox"/> HITLEES_PRIMARY-s9q2vk (Pull: 34.239.158.231:2088)	0 kbps	<input type="text" value="Name"/>	
<input checked="" type="checkbox"/> FXFiberBonded_Hitless-se22jl (Pull: zixi-onpremise-bx...	2606 kbps	FXFiberBonded_Hitless-se22jl	
<input checked="" type="checkbox"/> HITLESS_SECONDARY-sgq2ln (Pull: 34.239.158.231:2...	0 kbps	HITLESS_SECONDARY-sgq2ln	
<input type="checkbox"/> HITLESS_TARGET-syq6kx (Failover: No Source)	0 kbps	HITLESS_TARGET-syq6kx	

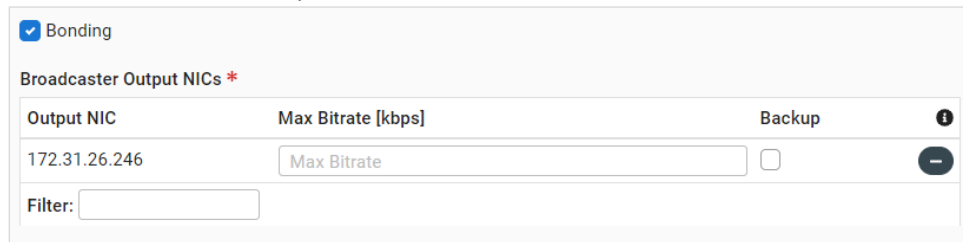
- b. Selected Inputs are shown above the **Filter** box. (You can remove an Input by clicking the button for that Input).
- c. For each input that is selected you can edit the name of the Source in the **Name** field. Default: the name of the input on the Broadcaster.
- d. If you would like the output configured in ZEN Master to replace any current outputs configured on the Broadcaster, select the **Replace existing manual outputs for selected inputs** checkbox.
- e. If you want the Source to be sent over a single NIC (i.e. no bonding) then do the following:
- d. Do not select the **Bonding** checkbox.
- e. In the **Broadcaster Output NICs** field, if you would like to specify which NIC is used, then select the IP of that NIC from the drop-down list. By default, *Any* is selected.
- f. If you would like to use Bonding, then do the following:
- a. Select the **Bonding** checkbox.


- b. Select two or more NICs by clicking the  button for each of the desired NICs.



Output NIC	Max Bitrate [kbps]	Backup
172.31.26.246		

- c. Selected NICs are shown above the Filter box. (You can remove a NIC by clicking the  button for that NIC).



Output NIC	Max Bitrate [kbps]	Backup
172.31.26.246	<input type="text" value="Max Bitrate"/>	<input type="checkbox"/> 

- d. For each NIC that is selected you can adjust the following parameters:
- In the **Max Bitrate** field, enter the maximum bitrate to be used on this NIC.
 - If you want to use this NIC only when there isn't sufficient bandwidth available on the other NICs, then select the **Backup** checkbox.



If the **Backup** checkbox is not selected then this NIC is used in parallel with the other selected NICs.

11. If you selected *Pull Method*, then use the following procedure to configure the input:
- a. In the **Host** field, enter the IP address of the Broadcaster from which the stream is being pulled.
 - b. In the **Port** field, enter the port through which the Broadcaster receives the stream from another Broadcaster server. Default: 2088



The default input port for Zixi Broadcaster is UDP port 2088. This port must be open on any firewalls between Zixi Broadcaster and other devices it is communicating with.

- c. In the **Stream ID** field, enter the precise Stream ID (case sensitive) assigned to this stream on the input broadcaster.
 - d. If you are using a password for this stream, in the **Password** field, enter the string for authentication. It must be identical to the string configured on the input broadcaster.
12. In the **Configuration** section, in the **Ingest Cluster** field, select from the drop-down list one of the available Ingest Clusters as the destination for the Source.
13. In the **Target Broadcaster/s** field, select your broadcaster preference. Either select a specific broadcaster to be used OR specify your preference for using primary vs. backup

broadcasters, options are: *Prefer Primary Broadcasters*, *Primary Broadcasters only*, *Backup Broadcasters only* or *Prefer Backup Broadcasters*.



For managed clusters, it is not recommended to select a specific broadcaster, as the broadcaster's availability may not remain stable.

14. In the **Latency [ms]** field, select the latency time for the stream (default 4000).
15. If you would like to enable the Zixi auto encryption feature for encrypting the Source stream, select the **Enable Encryption** checkbox.
16. If you would like to apply a PID Mapping profile to this Source, then in the **PID Mapping** field, select the desired profile from the dropdown list.



Using this method creates a single Source in ZEN Master with PID Mapping applied. If you would like to maintain a Source with the original PIDs and create an additional Source with PID Mapping (e.g. if you want to create several different PID Mapped variations), then use the method described in [ADDING A SOURCE – PID MAPPING](#).

To create a new PID Mapping Profile, see [ADDING PID MAPPING PROFILES](#).

17. If you would like to generate email notifications whenever a PID change is detected, select the **Alert on PID changes** checkbox.
18. For Push inputs, if you would like to set a password to authenticate the stream from the input broadcaster, in the **Password** field, enter a password or generate a random password by clicking on **Random**. You need to enter the identical password (case sensitive) on the input broadcaster.
19. Select the **Log SCTE-35** checkbox if you would like to log SCTE-35 markers for this stream.



To log SCTE-35 markers, SCTE-35 needs to be enabled both on the Ingest Cluster and in the Source configuration.



SCTE-35 logging is only available for v13.1.40262+ Broadcasters.

20. If **Log SCTE-35** was selected, you can choose to receive alerts for SCTE-35 markers by selecting the **Enable SCTE-35 alerts** checkbox.
21. In the **Public Output** field, if you would like to allow access to the stream directly through a supported player, select the **Allow** checkbox.
22. If you selected the **Allow** checkbox, then enter a password in the **Password** field to authenticate access to the stream.
23. If you would like to enable Content Analysis (CQA), verify that the **Content Analysis** checkbox is selected (default).



It is generally recommended to enable Content Analysis unless it is causing technical problems. If Content Analysis is disabled, the system won't detect errors in the video and audio content of the stream and won't generate warnings for such events. Even when Content Analysis is disabled the system will still detect TR101 errors in the stream..

24. If you would like to monitor CEA-608/CEA-708 closed captions, select the **Monitor CEA-608/CEA-708** checkbox.



Monitoring CEA-608/CEA-708 Closed Captions requires using a version 14.4 or newer Broadcaster.

25. If you would like to disable auto-pull, select the **Disable Auto-Pull** checkbox.



Disabling Auto-Pull will lock Channels using this Source to the Source's Ingest Cluster and Targets to the Source's current active Broadcaster. This setting only applies to Pass-Through Channels.

26. If Auto-Pull is *enabled*, in the **Auto-Pull Latency [ms]** field, specify the desired latency for auto-pull actions. (Default: 1000 ms)

27. If *Pull* was selected in *step 7* and the Source is using AES encryption, in the **Decryption Key** field, enter the static key that was used for encryption.

28. In the **WebRTC Playback** section, select the desired playback method.



WebRTC enables you to monitor the stream via web browsers and mobile applications with real-time communication (RTC). WebRTC needs to be activated independently for each Source in ZEN Master (by default it is disabled).

Select one of the following options:

- **Disabled** – users will not be able to view this Source using WebRTC (default)
- **Pass-Through** – passes the stream through to WebRTC without transcoding. This option *can only be used* if the input stream is already in a WebRTC compliant format (video - H.264 codec with *Baseline* or *Main* profile and no B frames, Audio – Opus codec).
- **Auto** - ZEN Master automatically transcodes the stream using the optimal profile for each specific user. In this option Zixi Broadcaster will decode the video, transforming it into RAW frames, which will be passed to the WebRTC library, where it will be re-encoded for each individual user.



Best quality. However, if monitored by multiple users this can consume extensive resources.

- **1080p/720p/480p/360p** – ZEN Master transcodes the stream to a *WebRTC compliant* profile with the specified resolution. The transcoding is done by Zixi Broadcaster's transcoder.



This method requires a Zixi Broadcaster with X264 or Nvidia for transcoding. This method allows many users to monitor the stream without encoding separately for each individual user, which saves CPU capacity. Since there is only one stream version, it is recommended to encode to a low resolution and low bitrate so that the stream will be viewable by all users monitoring the stream.

29. In the **Initial State** section, select the **Disabled** checkbox if you would like to disable this Source upon initial configuration.
30. Select the **Muted** checkbox if you would like to disable error/recovery notifications for this Source upon initial configuration.



You can Enable/Unmute the Source at any time.

31. If you would like to adjust the advanced settings, click **Advanced**. The **Advanced** settings window is displayed:

ADVANCED —

Billing Code
Billing Code

Billing Password
Billing Password

Validate billing code

Auto-Pull Billing Code
Auto-Pull Billing Code

Auto-Pull Billing Password
Auto-Pull Billing Password

Validate billing code

Auto Pull MTU
MTU

Frozen Video Minimal Duration
10
Broadcasters older than version 16.3 will ignore this setting



Blanc Video Minimal Duration
10
Broadcasters older than version 16.3 will ignore this setting

< Back X Cancel ✓ Save



32. If you would like to track usage for this Source, enter your **Billing Code** details. See [BILLING CODES](#).
33. In the **Auto Pull MTU** field, specify the maximum transmission unit (largest data packet that a network-connected device will accept) in bytes for the Auto Pull.
34. To set the detection of frozen video, in the **Frozen Video Minimal Duration** field, specify the default minimal duration in seconds of frozen video after which the Broadcaster will trigger a Frozen video alert. Default: 10 seconds. This setting is supported for Broadcaster version 16.3 and higher.
35. To set the detection of blank video, in the **Blank Video Minimal Duration** field, specify the default minimal duration in seconds of blank video after which the Broadcaster will trigger a Blank video alert. Default: 10 seconds. This setting is supported for Broadcaster version 16.3 and higher.
36. Click **Save**.

Zixi Broadcaster Source Configuration Parameters Table

Parameter	Description
Info	
Name	Specify the name of the Zixi Source in ZEN Master.
Tags	Select one or more of the predefined Tags from the drop-down list. Tags are used for access control. By selecting a Tag, you are relating this Source to that Tag. Tags are associated with certain roles (through the Users & Roles screen), and roles, in turn, are associated with users and user groups. If you would like to create a new Tag, see CREATING A TAG .
Events Configuration Profile	Select from the dropdown list the profile that you would like to apply to this Source. By default, the <i>Default</i> profile is applied. NOTE: <i>Events Profiles</i> consist of a series of rules that determine precisely how various types of Events are logged and what results they trigger.
Location (Optional)	The Source's location is used to represent it in the proper position in the Map display (see MAPS). By default, the location is determined automatically based on the Source's IP. Enter identifying info for the location (e.g. street address, zip code, coordinates) and select the desired location from the suggestions that are shown.
Input	

Mode	To create a Zixi Broadcaster Source, select the mode used for sending the Source. Options are: <i>Push</i> or <i>Pull</i> .
Application	To create a Zixi Broadcaster Source, select the Broadcaster radio button.
For Push Mode	
Broadcaster	Select from the drop-down list the desired Broadcaster.
Create multiple Sources from multiple Inputs	<p>If you would like to create Sources from multiple inputs, select this checkbox.</p> <p>When you select this option, each input that is selected creates a separate Source in ZEN Master. Each Source is named independently in the Feeder Inputs section and the Name field in the Info section is disabled.</p> <p>NOTE: You can create up to 25 Sources at once.</p>
Broadcaster Input	<p>Select from the list one or more of the Inputs that are available on the selected Broadcaster.</p> <p>For multiple Inputs, click on the  button for each of the desired Inputs.</p> <p>Selected Inputs are shown above the Filter box. (You can remove an Input by clicking the  button for that Input).</p> <p>For each input that is selected you can adjust the following parameters:</p> <ol style="list-style-type: none"> 37. In the Name field, edit the name of the Source. Default: the name of the input on the Broadcaster. 38. In the Max Bitrate field, select from the drop-down list the maximum bitrate for this Source. Make sure that the value is greater than the max bitrate of the input. The default is set automatically based on the current bitrate of the input.
Replace existing manual outputs	If you would like the Source configured in ZEN Master to replace (i.e. stop) any current Outputs configured on the Broadcaster, select this checkbox.
Bonding	Select the checkbox if you would like to use bonding.

If you would like to specify which NIC is used, then select the IP of that NIC from the drop-down list. By default, *Any* is selected.

If you selected the **Bonding checkbox**, then click the  button for each of the NICs that you would like to use. Selected NICs are shown above the **Filter** box. (You can remove a NIC by clicking the  button for that NIC).

Broadcaster Output NIC/s

For each selected NIC, you can adjust the following parameters:

- In the **Max Bitrate** field, enter the maximum bitrate to be used on this NIC.
- If you want to use this NIC only when there isn't sufficient bandwidth available on the other NICs, then select the **Backup** checkbox.

If the **Backup** checkbox is not selected then this NIC is used in parallel with the other selected NICs.

For Pull Mode

Host	Enter the IP address of the Broadcaster from which the stream is being pulled.
Port	Enter the port through which the Broadcaster receives the stream from another Broadcaster server. Default: 2088 The default input port for Zixi Broadcaster is UDP port 2088. This port must be open on any firewalls between Zixi Broadcaster and other devices it is communicating with.
Stream ID	Enter the precise stream ID (case sensitive) assigned to this stream on the input broadcaster.
Password	If you are using a password for this stream, enter the string for authentication. It must be identical to the string configured on the input broadcaster.

Configuration

Ingest Cluster	Select from the drop-down list one of the available Ingest Clusters as the destination for the Source.
----------------	--

Target Broadcaster/s	<p>Select your Broadcaster preferences. Either select a specific Broadcaster to be used OR specify your preference for using primary vs. backup Broadcasters. Options are: <i>Prefer Primary Broadcasters, Primary Broadcasters only, Backup Broadcasters only</i> or <i>Prefer Backup Broadcasters</i>.</p> <p>Note: For managed clusters, it is not recommended to select a specific Broadcaster, as the Broadcaster's availability may not remain stable.</p>
Latency [ms]	Select the latency time for the stream (default 4000).
Enable Encryption	If you would like to enable the Zixi auto encryption feature for encrypting the Source stream, select this checkbox.
Password (for Push inputs) (Optional)	If you would like to set a password to authenticate the stream from the input broadcaster, enter a password or generate a random password by clicking on Random . You need to enter the identical password (case sensitive) on the input broadcaster.
PID Mapping (Optional)	<p>If you would like to apply a PID Mapping profile to this Source, then select the desired profile from the dropdown list.</p> <p>To create a new PID Mapping Profile, see ADDING PID MAPPING PROFILES.</p> <p>Note: Using this method creates a single Source in ZEN Master with PID Mapping applied. If you would like to maintain a Source with the original PIDs and create an additional Source with PID Mapping (e.g. if you want to create several different PID Mapped variations), then use the method described in ADDING A SOURCE – PID MAPPING.</p>
Alert on PID changes	If you would like to generate email notifications whenever a PID change is detected, select this checkbox.
Log SCTE-35	<p>Select this checkbox if you would like to log SCTE-35 markers for this stream.</p> <p>NOTE: To log SCTE-35 markers, SCTE-35 needs to be enabled both on the Ingest Cluster and in the Source configuration.</p> <p>NOTE: SCTE-35 logging is only available for v13.1.40262+ Broadcasters</p>
Enable SCTE-35 alerts (for Log SCTE-35)	If you would like to receive alerts for SCTE-35 markers, select this checkbox.

Sources

Public Output	If you would like to allow access to the stream directly through a supported player, select the Allow checkbox.
Password (for Public Output)	If you selected Allow in the <i>Public Output</i> field, specify a password in this field to authenticate access to the stream.
Enable Content Analysis	<p>If you would like to enable Content Analysis (CQA), verify that this checkbox is selected (default).</p> <p>Note: It is generally recommended to enable Content Analysis unless it is causing technical problems. If Content Analysis is disabled, the system won't detect errors in the video and audio content of the stream and won't generate warnings for such events. Even when Content Analysis is disabled the system will still detect TR101 errors in the stream.</p>
Monitor CEA-608/CEA-708 Closed Captions	<p>If you would like to monitor CEA-608/CEA-708 closed captions, select this checkbox.</p> <p>NOTE: Monitoring CEA-608/CEA-708 Closed Captions requires using a version 14.4 or newer Broadcaster.</p>
Disable Auto-Pull	<p>If you would like to disable auto-pull, select this checkbox.</p> <p>NOTE: Disabling Auto-Pull will lock Channels using this Source to the Source's Ingest Cluster and Targets to the Source's current active Broadcaster. This setting only applies to Pass-Through Channels.</p>
Auto-Pull Latency [ms]	Specify the desired latency for auto-pull actions. (Default: 1,000 ms)
Decryption Key (for <i>Pull</i>)	If the Source is using AES encryption, enter the static key that was used for encryption.

Select the desired playback method.

NOTE: WebRTC enables you to monitor the stream via web browsers and mobile applications with real-time communication (RTC). WebRTC needs to be activated independently for each Source in ZEN Master (by default it is disabled).

Select one of the following options:

- **Disabled** – users will not be able to view this Source using WebRTC (default)
- **Pass-Through** – passes the stream through to WebRTC without transcoding. This option *can only be used* if the input stream is already in a WebRTC compliant format (video – H.264 codec with *Baseline* or *Main* profile and no B frames, Audio – Opus codec).
- **Auto** – ZEN Master automatically transcodes the stream using the optimal profile for each specific user. In this option Zixi Broadcaster will decode the video, transforming it into RAW frames, which will be passed to the WebRTC library, where it will be re-encoded for each individual user.

WebRTC Playback

NOTE: Best quality. However, if monitored by multiple users this can consume extensive resources.

- **1080p/720p/480p/360p** – ZEN Master transcodes the stream to a WebRTC compliant profile with the specified resolution. The transcoding is done by Zixi Broadcaster’s transcoder.

NOTE: This method requires a Zixi Broadcaster with X264 or Nvidia for transcoding. This method allows many users to monitor the stream without encoding separately for each individual user, which saves CPU capacity. Since there is only one stream resolution, it is recommended to encode to a low resolution and low bitrate so that the stream will be viewable by all users monitoring the stream.

Initial State

Disabled

Select this checkbox if you would like to disable this Source upon initial configuration.

Muted

Select this checkbox if you would like to disable error/recovery notifications for this Source upon initial configuration.

Advanced	
Billing Codes	If you would like to track usage for this Source, enter your Billing Code details, see BILLING CODES . (Supported for Broadcasters v14.8+)
Auto Pull MTU	Specify the maximum transmission unit (largest data packet that a network-connected device will accept) in bytes for the Auto Pull.
Frozen Video Minimal Duration	Specify the default minimal duration in seconds of frozen video after which the Broadcaster will trigger a Frozen video alert. Default: 10 seconds. This setting is supported for Broadcaster version 16.3 and higher. For existing sources, you may need to restart the source.
Blank Video Minimal Duration	Specify the default minimal duration in seconds of blank video after which the Broadcaster will trigger a Blank video alert. Default: 10 seconds. This setting is supported for Broadcaster version 16.3 and higher. For existing sources, you may need to restart the source.

Adding a Source – Other Zixi-Enabled Device

You can configure an input from a Zixi-enabled device (i.e., a Zixi-enabled encoder) to be used as a Source in ZEN Master. This is done by selecting **Zixi** in the New Source menu. After configuring the Source, you will need to connect the input resource to ZEN Master using the procedure described in section [CONNECTING A ZIXI-ENABLED DEVICE \(ENCODER UI\)](#).

The following procedure describes how to add a Zixi-Enabled Device Source in ZEN Master. In addition, an explanation of each of the configuration parameters is given in the table below.

➔ To add a Source from a Zixi-enabled device :

1. In the main navigation, click **Sources**.

2. Click **+ Add**.
The **Select Source Type** window is displayed.

CREATE NEW SOURCE

ZEN MASTER

Zixi - Zixi push from a connected Feeder, Broadcaster, AWS MediaConnect, or other Zixi enabled device to ZEN Master.

Monitor Only - Monitor an existing input on a ZEN Master enabled Broadcaster. Limited functionality.

Failover - Combine existing Sources into a single Source that will switch between them to maintain quality.

Transcoded - Transcode an existing source into a new one.

PID Mapping - Create a Source with modified PIDs from an existing source

Inter-Cluster - Send a Source from one cluster to another

UDP/RTP - Receive UDP or RTP stream directly.>

File - Create a Source from a .ts file on a Broadcaster

SRT - Receive stream via SRT protocol

RIST - Receive stream via RIST protocol

NDI - Receive an NDI stream in the local network and encode it for transmission

RTMP - Receive stream via RTMP protocol

HLS - Receive stream via HLS protocol

Demux - Create a Demux Source on a Broadcaster

Multiviewer - Collection of selected sources in a grid

Multiplex - Create a Multiplex Source on a Broadcaster

AWS MEDIA

AWS MediaConnect - Create a Source to use with an AWS MediaConnect Flow.

AWS Elemental Link - Source from AWS Elemental Link device to AWS MediaLive

✕ Cancel

- Click on **Zixi**.
The **Create Zixi Source** window opens.

CREATE ZIXI SOURCE

INFO

Name *

Name

Access Tags *

Select Access Tags

Events Configuration Profile

Default

Location

Location

INPUT

Mode

Push Pull

Application

ZEC Feeder Broadcaster AWS MediaConnect Other

CONFIGURATION

Ingest Cluster *

Select Cluster

Target Broadcaster/s *

Select Broadcaster/s

PID Mapping Profile

Select PID Mapping Profile

Alert on PID Changes

Enable Traceroute History

Log SCTE-35
Requires Cluster configuration and version 13.1.40262 or newer Broadcasters

Enable SCTE-35 alerts
Requires SCTE-35 Logging

Public Output

Allow Password

Enable Content Analysis

Monitor CEA-608/CEA-708 Closed Captions
Requires version 14.4 or newer Broadcaster

Disable Auto-Pull
Disabling Auto-Pull will lock Channels using this Source to the Source's Ingest Cluster and Targets to the Source's current active Broadcaster.

Auto-Pull Latency [ms] *

1000

WebRTC Playback

Disabled Pass-Through Auto 1080p 720p 480p 360p

Using WebRTC to monitor a stream requires transcoding (except in Pass-through mode). When playback begins, Zen Master starts transcoding on the Broadcaster, while respecting the Broadcaster's transcoding thresholds.
In Auto mode, the Source is transcoded separately for each active WebRTC client (which consumes additional resources).

Decryption Key

Decryption Key

INITIAL STATE

Disabled

Muted

ADVANCED +

4. In the **Info** section, in the **Name** field, type a logical name for the Source.
5. In the **Tags** field, select one or more of the predefined Tags from the drop-down list. Tags are used for access control. By selecting a Tag, you are relating this Source to that Tag. Tags are associated with certain roles (through the Users & Roles screen), and roles, in turn, are associated with users and user groups. If you would like to create a new Tag, see [CREATING A TAG](#).
6. In the **Events Configuration Profile** field, select from the dropdown list the profile that you would like to apply to this Source. By default, the *Default* profile is applied.



Events Profiles consist of a series of rules that determine precisely how various types of Events are logged and what results they trigger.

7. The Source's location is used to represent it in the proper position in the Map display (see [MAPS](#)). By default, the location is determined automatically based on the Source's IP. If you would like to manually set the location of the Source (Optional), use the following procedure:
 - a. Click on the **Edit** icon next to the **Location** field.
A search box is shown below the **Location** field.
 - b. Enter identifying info for the location (e.g. street address, zip code, coordinates).
Search results are displayed below the search box as you type.
 - c. Click on the desired location.
The selected location populates the **Location** field.
8. In the **Input** section, verify that under *Mode*, **Push** is selected (default), and in **Application**, select the **Other** radio button.
The fields relevant for creating a Source from a Zixi-enabled device are shown.
9. In the **Max Bitrate** field, select from the drop-down list the maximum bitrate for this Source.



Make sure that the value is greater than the max bitrate of the input. The default is set automatically based on the current bitrate of the input.

10. In the **Configuration** section, in the **Ingest Cluster** field, select from the drop-down list one of the available Ingest Clusters as the destination for the Source.
11. In the **Target Broadcaster/s** field, select your broadcaster preference. Either select a specific broadcaster to be used OR specify your preference for using primary vs. backup broadcasters, options are: *Prefer Primary Broadcasters*, *Primary Broadcasters only*, *Backup Broadcasters only* or *Prefer Backup Broadcasters*.



For managed clusters, it is not recommended to select a specific broadcaster, as the broadcaster's availability may not remain stable.

12. If you would like to apply a PID Mapping profile to this Source, then in the **PID Mapping** field, select the desired profile from the dropdown list.



Using this method creates a single Source in ZEN Master with PID Mapping applied. If you would like to maintain a Source with the original PIDs and create an additional Source with PID Mapping (e.g. if you want to create several different PID Mapped variations), then use the method described in [ADDING A SOURCE – PID MAPPING](#).

To create a new PID Mapping Profile, see [ADDING PID MAPPING PROFILES](#).

13. If you would like to generate email notifications whenever a PID change is detected, select the **Alert on PID Changes** checkbox.
14. Select the **Log SCTE-35** checkbox if you would like to log SCTE-35 markers for this stream.



To log SCTE-35 markers, SCTE-35 needs to be enabled both on the Ingest Cluster and in the Source configuration.



SCTE-35 logging is only available for v13.1.40262+ Broadcasters.

15. If **Log SCTE-35** was selected, you can choose to receive alerts for SCTE-35 markers by selecting the **Enable SCTE-35 alerts** checkbox.
16. In the **Public Output** field, if you would like to allow access to the stream directly through a supported player, select the **Allow** checkbox.
17. If you selected the **Allow** checkbox, then enter a password in the **Password** field to authenticate access to the stream.
18. If you would like enable Content Analysis (CQA), verify that the **Enable Content Analysis** checkbox is selected (default).



It is generally recommended to enable Content Analysis unless it is causing technical problems. If Content Analysis is disabled, the system won't detect errors in the video and audio content of the stream and won't generate warnings for such events. Even when Content Analysis is disabled the system will still detect TR101 errors in the stream.

19. If you would like to monitor CEA-608/CEA-708 closed captions, select the **Monitor CEA-608/CEA-708** checkbox.



Monitoring CEA-608/CEA-708 Closed Captions requires using a version 14.4 or newer Broadcaster.

20. If you would like to disable auto-pull, select the **Disable Auto-Pull** checkbox.



Disabling Auto-Pull will lock Channels using this Source to the Source's Ingest Cluster and Targets to the Source's current active Broadcaster. This setting only applies to Pass-Through Channels.

21. If Auto-Pull is *enabled*, in the **Auto-Pull Latency [ms]** field, specify the desired latency for auto-pull actions. (Default: 1000 ms)

22. If the Source is using AES encryption, in the **Decryption Key** field, enter the static key that was used for encryption.

23. In the **WebRTC Playback** section, select the desired playback method.



WebRTC enables you to monitor the stream via web browsers and mobile applications with real-time communication (RTC). WebRTC needs to be activated independently for each Source in ZEN Master (by default it is disabled).

Select one of the following options:

- **Disabled** – users will not be able to view this Source using WebRTC (default)
- **Pass-Through** – passes the stream through to WebRTC without transcoding. This option *can only be used* if the input stream is already in a WebRTC compliant format (video - H.264 codec with *Baseline* or *Main* profile and no B frames, Audio – Opus codec).
- **Auto** - ZEN Master automatically transcodes the stream using the optimal profile for each specific user. In this option Zixi Broadcaster will decode the video, transforming it into RAW frames, which will be passed to the WebRTC library, where it will be re-encoded for each individual user.



Best quality. However, if monitored by multiple users this can consume extensive resources.

- **1080p/720p/480p/360p** – ZEN Master transcodes the stream to a *WebRTC compliant* profile with the specified resolution. The transcoding is done by Zixi Broadcaster's transcoder.



This method requires a Zixi Broadcaster with X264 or Nvidia for transcoding. This method allows many users to monitor the stream without encoding separately for each individual user, which saves CPU capacity. Since there is only one stream version, it is recommended to encode to a low resolution and low bitrate so that the stream will be viewable by all users monitoring the stream.

24. In the **Initial State** section, select the **Disabled** checkbox if you would like to disable this Source upon initial configuration.

25. Select the **Muted** checkbox if you would like to disable error/recovery notifications for this Source upon initial configuration.



You can Enable/Unmute the Source at any time.

26. If you would like to adjust the advanced settings, click **Advanced**. The **Advanced** settings window is displayed:

ADVANCED —

Billing Code
Billing Code

Billing Password
Billing Password

Validate billing code

Auto-Pull Billing Code
Auto-Pull Billing Code

Auto-Pull Billing Password
Auto-Pull Billing Password

Validate billing code

Auto Pull MTU
MTU

Frozen Video Minimal Duration
10
Broadcasters older than version 16.3 will ignore this setting

Blanc Video Minimal Duration
10
Broadcasters older than version 16.3 will ignore this setting

< Back × Cancel ✓ Save

27. If you would like to track usage for this Source, enter your **Billing Code** details. See [BILLING CODES](#).
28. In the **Auto Pull MTU** field, specify the maximum transmission unit (largest data packet that a network-connected device will accept) in bytes for the Auto Pull.
29. To set the detection of frozen video, in the **Frozen Video Minimal Duration** field, specify the default minimal duration in seconds of frozen video after which the Broadcaster will trigger a Frozen video alert. Default: 10 seconds. This setting is supported for Broadcaster version 16.3 and higher.
30. To set the detection of blank video, in the **Blank Video Minimal Duration** field, specify the default minimal duration in seconds of blank video after which the Broadcaster will

trigger a Blank video alert. Default: 10 seconds. This setting is supported for Broadcaster version 16.3 and higher.

31. Click **Save**.

Zixi-Enabled Device - Source Configuration Parameters Table

Parameter	Description
Info	
Name	Specify a name for the Source in ZEN Master.
Tags	Select one or more of the predefined Tags from the drop-down list. Tags are used for access control. By selecting a Tag, you are relating this Source to that Tag. Tags are associated with certain roles (through the Users & Roles screen), and roles, in turn, are associated with users and user groups. If you would like to create a new Tag, see CREATING A TAG .
Events Configuration Profile	Select from the dropdown list the profile that you would like to apply to this Source. By default, the <i>Default</i> profile is applied. NOTE: <i>Events Profiles</i> consist of a series of rules that determine precisely how various types of Events are logged and what results they trigger.
Location (Optional)	The Source's location is used to represent it in the proper position in the Map display (see MAPS). By default, the location is determined automatically based on the Source's IP. Enter identifying info for the location (e.g. street address, zip code, coordinates) and select the desired location from the suggestions that are shown.
Input	
Mode	To create a Source from a Zixi-enabled device, verify that Push is selected (default).
Application	To create a Source from a Zixi-enabled device, select the Other radio button.
Max Bitrate	Select from the drop-down list the maximum bitrate for this Source. NOTE: Make sure that the value is greater than the max bitrate of the input. The default is set automatically based on the current bitrate of the input.

Configuration	
Ingest Cluster	Select from the drop-down list one of the available Ingest Clusters as the destination for the Source.
Target Broadcaster/s	<p>Select your Broadcaster preferences. Either select a specific Broadcaster to be used OR specify your preference for using primary vs. backup Broadcasters. Options are: <i>Prefer Primary Broadcasters, Primary Broadcasters only, Backup Broadcasters only or Prefer Backup Broadcasters.</i></p> <p>NOTE: For managed clusters, it is not recommended to select a specific Broadcaster, as the Broadcaster's availability may not remain stable.</p>
Source Password	If you would like to set a password to authenticate the stream from the Feeder, enter the password or generate a random password by clicking on Random . You need to enter the identical password on the Feeder.
PID Mapping (Optional)	<p>If you would like to apply a PID Mapping profile to this Source, then select the desired profile from the dropdown list.</p> <p>To create a new PID Mapping Profile, see ADDING PID MAPPING PROFILES.</p> <p>Note: Using this method creates a single Source in ZEN Master with PID Mapping applied. If you would like to maintain a Source with the original PIDs and create an additional Source with PID Mapping (e.g. if you want to create several different PID Mapped variations), then use the method described in ADDING A SOURCE – PID MAPPING.</p>
Alert on PID changes	If you would like to generate email notifications whenever a PID change is detected, select this checkbox.
Log SCTE-35	<p>Select this checkbox if you would like to log SCTE-35 markers for this stream.</p> <p>NOTE: To log SCTE-35 markers, SCTE-35 needs to be enabled both on the Ingest Cluster and in the Source configuration.</p> <p>NOTE: SCTE-35 logging is only available for v13.1.40262+ Broadcasters</p>
Enable SCTE-35 alerts (for Log SCTE-35)	If you would like to receive alerts for SCTE-35 markers, select this checkbox.
Public Output	If you would like to allow access to the stream directly through a supported player, select the Allow checkbox.

Sources

Password (for Public Output)	If you selected Allow in the <i>Public Output</i> field, specify a password in this field to authenticate access to the stream.
Enable Content Analysis	<p>If you would like to enable Content Analysis (CQA), verify that this checkbox is selected (default).</p> <p>NOTE: It is generally recommended to enable Content Analysis unless it is causing technical problems. If Content Analysis is disabled, the system won't detect errors in the video and audio content of the stream and won't generate warnings for such events. Even when Content Analysis is disabled the system will still detect TR101 errors in the stream.</p>
Monitor CEA-608/CEA-708 Closed Captions	<p>If you would like to monitor CEA-608/CEA-708 closed captions, select this checkbox.</p> <p>NOTE: Monitoring CEA-608/CEA-708 Closed Captions requires using a version 14.4 or newer Broadcaster.</p>
Disable Auto-Pull	<p>If you would like to disable auto-pull, select this checkbox.</p> <p>NOTE: Disabling Auto-Pull will lock Channels using this Source to the Source's Ingest Cluster and Targets to the Source's current active Broadcaster. This setting only applies to Pass-Through Channels.</p>
Auto-Pull Latency [ms]	Specify the desired latency for auto-pull actions. (Default: 1,000 ms)
Decryption Key	If the Source is using AES encryption, enter the static key that was used for encryption.

Select the desired playback method.

NOTE: WebRTC enables you to monitor the stream via web browsers and mobile applications with real-time communication (RTC). WebRTC needs to be activated independently for each Source in ZEN Master (by default it is disabled).

Select one of the following options:

- **Disabled** – users will not be able to view this Source using WebRTC (default)
- **Pass-Through** – passes the stream through to WebRTC without transcoding. This option *can only be used* if the input stream is already in a WebRTC compliant format (video – H.264 codec with *Baseline* or *Main* profile and no B frames, Audio – Opus codec).
- **Auto** – ZEN Master automatically transcodes the stream using the optimal profile for each specific user. In this option Zixi Broadcaster will decode the video, transforming it into RAW frames, which will be passed to the WebRTC library, where it will be re-encoded for each individual user.

WebRTC Playback

NOTE: Best quality. However, if monitored by multiple users this can consume extensive resources.

- **1080p/720p/480p/360p** – ZEN Master transcodes the stream to a WebRTC compliant profile with the specified resolution. The transcoding is done by Zixi Broadcaster’s transcoder.

NOTE: This method requires a Zixi Broadcaster with X264 or Nvidia for transcoding. This method allows many users to monitor the stream without encoding separately for each individual user, which saves CPU capacity. Since there is only one stream resolution, it is recommended to encode to a low resolution and low bitrate so that the stream will be viewable by all users monitoring the stream.

Initial State

Disabled

Select this checkbox if you would like to disable this Source upon initial configuration.

Muted

Select this checkbox if you would like to disable error/recovery notifications for this Source upon initial configuration.

Advanced

Billing Codes	If you would like to track usage for this Source, enter your Billing Code details, see BILLING CODES . (Supported for Broadcasters v14.8+)
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Connecting a Zixi-Enabled Device (Encoder UI)

If you have added a Source from a Zixi-enabled device, you will need to configure it on the encoder in order to connect it to ZEN Master. The UI structure varies for different Zixi-enabled encoders, however the following settings should be configured to connect to ZEN Master.

➔ To connect a Zixi-enabled encoder:

1. In **ZEN Master**, in the main navigation, click **Sources**.
2. Select the relevant Source from the list of Sources.
3. In the **Details** pane at the right of the screen, click the **Manual Configuration** tab.

This tab contains specific configuration settings for the selected Source. Use the values shown for the following parameters to configure the Zixi Enabled encoder:

Parameter	Description
Host	The IP address/URL of the ZEN Master host.
Port	The port that has been configured in ZEN Master.
Stream ID	The stream name.
Password	The access password that has been configured in ZEN Master.

Adding a Source – AWS Media

ZEN Master supports two different methods for integrating AWS Media Flows.

- **Method 1 – Connecting MediaConnect Flows to ZEN Master:** This method uses an independent MediaConnect Flow as a Source (as described in [ADDING AN AWS MEDIACONNECT SOURCE – CONNECTING AN EXISTING Flow](#)) or Target (as described in [ADDING AWS MEDIACONNECT TARGETS](#)) in ZEN Master. The resultant Source or Target functions as a standard ZEN Master entity.



This method is relevant only for MediaConnect; Media Live channels must be managed using Method 2.

- **Method 2 – Creating ZEN Master Managed Flows:** This method involves creating a MediaConnect Flow or MediaLive Channel that is fully managed within ZEN Master. This involves creating specialized AWS Media Sources as well as specialized AWS Media Flow Channels in ZEN Master. This method enables you to manage the Flow completely from within ZEN Master, including interchanging between Sources and Flow Channels. There are two ways of creating these Managed Flows:
 - **Create a new AWS Media Flow** – create a completely new AWS Media Flow from the ZEN Master console (i.e. without accessing the AWS MediaConnect console or using their APIs). This involves creating a specialized MediaConnect or MediaLive Source in ZEN Master (as described in [CREATING A NEW MEDIACONNECT FLOW CHANNEL](#)) and then creating a specialized Channel using a MediaConnect Flow (as described in [ADDING MEDIACONNECT FLOW CHANNELS](#)) or MediaLive Channel. This enables you to work exclusively within the ZEN Master UI.
 - **Import an Existing MediaConnect Flow to Manage in ZEN Master** - This method involves importing an existing Flow from MediaConnect into ZEN Master (as described in [IMPORTING A MEDIACONNECT FLOW CHANNEL](#)). The input from your MediaConnect Flow is automatically created as a specialized MediaConnect Source in ZEN Master and the outputs are created as Targets in ZEN Master. In addition, the Flow itself is created as a specialized MediaConnect Flow Channel. All elements can be monitored and managed in ZEN Master.



Once you have created or imported a ZEN Master Managed Flow (method 2), you should manage that Flow entirely through ZEN Master and **not** through the MediaConnect console.

Advantages and Limitations of ZEN Master Managed Flows

Notes that Apply to Method 2W

- You can interchange AWS Media Sources and AWS Media Flows (Channels) in ZEN Master.
- A MediaConnect or MediaLive type Source can only be assigned to an AWS Media type of Channel. It can't be assigned to a standard Channel.
- You only pay AWS for MediaConnect Flows or MediaLive Channels that are in Active state. When a MediaConnect Flow or MediaLive Channel is created in ZEN Master, it becomes Active once it has a Source assigned to it and the Flow (Channel) is Enabled in ZEN Master.
- AWS Media Sources and Flows (Channels) are associated in a one to one relationship. If a Source is assigned to a new Flow, it is automatically removed from the previous Flow. Also, if a new Flow is assigned to a Source, then the previous Source is removed from that Flow. Any Flows that lose their Source will become Inactive in AWS Media.
- AWS Media based encryption is not supported (contact your SE for a workaround).
- Thumbnails aren't shown for AWS Media Sources as this data is not available from AWS Media.
- Content Quality Analytics, Jitter and Analytics History graphs aren't available for MediaConnect or MediaLive Sources as this data is not available from AWS Media.
- History graphs aren't available for Targets that are assigned to AWS Media Flows as this data is not available from AWS Media.
- When importing existing Flows, some MediaConnect specific features, such as Entitlements and VPC interfaces, are not currently supported.

Combining Method 1 Integration with Method 2 Integration

If you have created a new ZEN Master Managed MediaConnect Flow, you can then use that Flow as a Source or Target using Method 1. A practical example of this is creating a new Zixi Source from a ZEN Master Managed Flow that has already been created in ZEN Master. This will enable you to see thumbnails of the video, Content Quality Analytics and ePSNR graphs. This new Zixi Source, however, does need to be hosted on a Zixi Broadcaster.

Adding an AWS MediaConnect Source – Connecting an Existing Flow

The following procedure describes how to integrate an existing AWS MediaConnect Flow as a Source in ZEN Master. In addition, an explanation of each of the configuration parameters is given in the table below.

➔ **To add an AWS MediaConnect Source:**

1. In the main navigation, click **Sources**.
2. Click **+ Add**.
The **Create New Source** window is displayed.

CREATE NEW SOURCE

ZEN MASTER

Zixi - Zixi push from a connected Feeder, Broadcaster, AWS MediaConnect, or other Zixi enabled device to ZEN Master.
Monitor Only - Monitor an existing input on a ZEN Master enabled Broadcaster. Limited functionality.
Failover - Combine existing Sources into a single Source that will switch between them to maintain quality.
Transcoded - Transcode an existing source into a new one.
PID Mapping - Create a Source with modified PIDs from an existing source
Inter-Cluster - Send a Source from one cluster to another
UDP/RTP - Receive UDP or RTP stream directly.>
File - Create a Source from a .ts file on a Broadcaster
SRT - Receive stream via SRT protocol
RIST - Receive stream via RIST protocol
NDI - Receive an NDI stream in the local network and encode it for transmission
RTMP - Receive stream via RTMP protocol
HLS - Receive stream via HLS protocol
Demux - Create a Demux Source on a Broadcaster
Multiviewer - Collection of selected sources in a grid
Multiplex - Create a Multiplex Source on a Broadcaster


AWS MEDIA


AWS MediaConnect - Create a Source to use with an AWS MediaConnect Flow.
AWS Elemental Link - Source from AWS Elemental Link device to AWS MediaLive

3. Click on **Zixi**.
The **Create Zixi Source** window opens.


CREATE ZIXI SOURCE


INFO

Name * 

Access Tags * 

Events Configuration Profile

Location 






 


INPUT

Mode

Push Pull

Application

ZEC  Feeder  Broadcaster  AWS MediaConnect  Other 

AWS Account * 

Region *

AWS MediaConnect Flow *

CONFIGURATION

Ingest Cluster *

Target Broadcaster/s *

Latency [ms] *

PID Mapping Profile

Alert on PID Changes


Enable Traceroute History

Log SCTE-35
Requires Cluster configuration and version 13.1.40262 or newer Broadcasters

Enable SCTE-35 alerts
Requires SCTE-35 Logging

Public Output

Allow

Enable Content Analysis 

Monitor CEA-608/CEA-708 Closed Captions
Requires version 14.4 or newer Broadcaster

Disable Auto-Pull
Disabling Auto-Pull will lock Channels using this Source to the Source's Ingest Cluster and Targets to the Source's current active Broadcaster.

Auto-Pull Latency [ms] *

WebRTC Playback

Disabled Pass-Through Auto 1080p 720p 480p 360p

Using WebRTC to monitor a stream requires transcoding (except in Pass-through mode). When playback begins, Zen Master starts transcoding on the Broadcaster, while respecting the Broadcaster's transcoding thresholds.
In Auto mode, the Source is transcoded separately for each active WebRTC client (which consumes additional resources).

INITIAL STATE

Disabled

Muted

ADVANCED +

4. In the **Info** section, in the **Name** field, type a logical name for the Source.

5. In the **Tags** field, select one or more of the predefined Tags from the drop-down list. Tags are used for access control. By selecting a Tag, you are relating this Source to that Tag. Tags are associated with certain roles (through the Users & Roles screen), and roles, in turn, are associated with users and user groups. If you would like to create a new Tag, see [CREATING A TAG](#).
6. In the **Events Configuration Profile** field, select from the dropdown list the profile that you would like to apply to this Source. By default, the *Default* profile is applied.



Events Profiles consist of a series of rules that determine precisely how various types of Events are logged and what results they trigger.

7. The Source's location is used to represent it in the proper position in the Map display (see [MAPS](#)). By default, the location is determined automatically based on the Source's IP. If you would like to manually set the location of the Source (Optional), use the following procedure:
 - a. Click on the **Edit** icon next to the **Location** field.
A search box is shown below the **Location** field.
 - b. Enter identifying info for the location (e.g., street address, zip code, coordinates). Search results are displayed below the search box as you type.
 - c. Click on the desired location.
The selected location populates the **Location** field.
8. In the **Input** section, under **Mode**, select the radio button for the mode used to send the stream. Options are: *Push* or *Pull*.
9. In the **Application** section, select the **AWS MediaConnect** radio button.
The fields relevant for creating a Source from an AWS MediaConnect Flow are shown.
10. In the **AWS Account** field, select from the drop-down list the AWS Account on which the flow is configured.
11. In the **Region** field, select from the drop-down list the AWS region in which the flow is configured.
12. In the **AWS MediaConnect Flow** field, select from the drop-down list the Flow that you would like to use as the Source.
13. In the **Configuration** section, in the **Ingest Cluster** field, select from the drop-down list one of the available Ingest Clusters as the destination for the Source.
14. In the **Target Broadcaster/s** field, select your broadcaster preference. Either select a specific broadcaster to be used OR specify your preference for using primary vs. backup broadcasters, options are: *Prefer Primary Broadcasters*, *Primary Broadcasters only*, *Backup Broadcasters only* or *Prefer Backup Broadcasters*.



For managed clusters, it is not recommended to select a specific broadcaster, as the broadcaster's availability may not remain stable.

15. In the **Latency [ms]** field, select the latency time for the stream.

16. If you would like to apply a PID Mapping profile to this Source, then in the **PID Mapping Profile** field, select the desired profile from the dropdown list.



Using this method creates a single Source in ZEN Master with PID Mapping applied. If you would like to maintain a Source with the original PIDs and create an additional Source with PID Mapping (e.g. if you want to create several different PID Mapped variations), then use the method described in [ADDING A SOURCE – PID MAPPING](#).

To create a new PID Mapping Profile, see [ADDING PID MAPPING PROFILES](#).

17. If you would like to generate email notifications whenever a PID change is detected, select the **Alert on PID changes** checkbox.
18. Select the **Log SCTE-35** checkbox if you would like to log SCTE-35 markers for this stream.



To log SCTE-35 markers, SCTE-35 needs to be enabled both on the Ingest Cluster and in the Source configuration.



SCTE-35 logging is only available for v13.1.40262+ Broadcasters.

19. If **Log SCTE-35** was selected, you can choose to receive alerts for SCTE-35 markers by selecting the **Enable SCTE-35 alerts** checkbox.
20. In the **Public Output** field, if you would like to allow access to the stream directly through a supported player, select the **Allow** checkbox.
21. If you selected the **Allow** checkbox, then enter a password in the **Password** field to authenticate access to the stream.
22. If you would like enable Content Analysis (CQA), verify that the **Enable Content Analysis** checkbox is selected (default).



It is generally recommended to enable Content Analysis unless it is causing technical problems. If Content Analysis is disabled, the system won't detect errors in the video and audio content of the stream and won't generate warnings for such events. Even when Content Analysis is disabled the system will still detect TR101 errors in the stream.

23. If you would like to monitor CEA-608/CEA-708 closed captions, select the **Monitor CEA-608/CEA-708** checkbox.



Monitoring CEA-608/CEA-708 Closed Captions requires using a version 14.4 or newer Broadcaster.

24. If you would like to disable auto-pull, select the **Disable Auto-Pull** checkbox.



Disabling Auto-Pull will lock Channels using this Source to the Source's Ingest Cluster and Targets to the Source's current active Broadcaster. This setting only applies to Pass-Through Channels.

25. If Auto-Pull is *enabled*, in the **Auto-Pull Latency [ms]** field, specify the desired latency for auto-pull actions. (Default: 1000 ms)

26. In the **WebRTC Playback** section, select the desired playback method.



WebRTC enables you to monitor the stream via web browsers and mobile applications with real-time communication (RTC). WebRTC needs to be activated independently for each Source in ZEN Master (by default it is disabled).

Select one of the following options:

- **Disabled** – users will not be able to view this Source using WebRTC (default)
- **Pass-Through** – passes the stream through to WebRTC without transcoding. This option *can only be used* if the input stream is already in a WebRTC compliant format (video - H.264 codec with *Baseline* or *Main* profile and no B frames, Audio – Opus codec).
- **Auto** - ZEN Master automatically transcodes the stream using the optimal profile for each specific user. In this option Zixi Broadcaster will decode the video, transforming it into RAW frames, which will be passed to the WebRTC library, where it will be re-encoded for each individual user.



Best quality. However, if monitored by multiple users this can consume extensive resources.

- **1080p/720p/480p/360p** – ZEN Master transcodes the stream to a *WebRTC compliant* profile with the specified resolution. The transcoding is done by Zixi Broadcaster's transcoder.



This method requires a Zixi Broadcaster with X264 or Nvidia for transcoding. This method allows many users to monitor the stream without encoding separately for each individual user, which saves CPU capacity. Since there is only one stream version, it is recommended to encode to a low resolution and low bitrate so that the stream will be viewable by all users monitoring the stream.

27. In the **Initial State** section, select the **Disabled** checkbox if you would like to disable this Source upon initial configuration.

28. Select the **Muted** checkbox if you would like to disable error/recovery notifications for this Source upon initial configuration.



You can Enable/Unmute the Source at any time.

29. If you would like to adjust the advanced settings, click **Advanced**.
The **Advanced** settings window is displayed:

ADVANCED –

Billing Code

Billing Password

Validate billing code

Auto-Pull Billing Code

Auto-Pull Billing Password

Validate billing code

Auto Pull MTU

Frozen Video Minimal Duration

Broadcasters older than version 16.3 will ignore this setting

Blanc Video Minimal Duration

Broadcasters older than version 16.3 will ignore this setting

30. If you would like to track usage for this Source, enter your **Billing Code** details. See [BILLING CODES](#).
31. In the **Auto Pull MTU** field, specify the maximum transmission unit (largest data packet that a network-connected device will accept) in bytes for the Auto Pull.
32. To set the detection of frozen video, in the **Frozen Video Minimal Duration** field, specify the default minimal duration in seconds of frozen video after which the Broadcaster will trigger a Frozen video alert. Default: 10 seconds. This setting is supported for Broadcaster version 16.3 and higher.
33. To set the detection of blank video, in the **Blank Video Minimal Duration** field, specify the default minimal duration in seconds of blank video after which the Broadcaster will

trigger a Blank video alert. Default: 10 seconds. This setting is supported for Broadcaster version 16.3 and higher.

34. Click **Save**.

The AWS MediaConnect Source is created.



You can verify that the new Source was created by viewing the Outputs tab in the MediaConnect UI.



This Source is managed in ZEN Master in the same way as other Zixi Sources (i.e. it can be assigned to any type of Channel).

AWS MediaConnect Source – Configuration Parameters Table

Parameter	Description
Info	
Name	Specify a name for the Zixi Source in ZEN Master.
Tags	Select one or more of the predefined Tags from the drop-down list. Tags are used for access control. By selecting a Tag, you are relating this Source to that Tag. Tags are associated with certain roles (through the Users & Roles screen), and roles, in turn, are associated with users and user groups. If you would like to create a new Tag, see CREATING A TAG .
Events Configuration Profile	Select from the dropdown list the profile that you would like to apply to this Source. By default, the <i>Default</i> profile is applied. NOTE: <i>Events Profiles</i> consist of a series of rules that determine precisely how various types of Events are logged and what results they trigger.
Location (Optional)	The Source's location is used to represent it in the proper position in the Map display (see MAPS). By default, the location is determined automatically based on the Source's IP. Enter identifying info for the location (e.g. street address, zip code, coordinates) and select the desired location from the suggestions that are shown.
Input	
Mode	Select the mode used for sending the Source. Options are: <i>Push</i> or <i>Pull</i> .

Sources

Application	To create a MediaConnect Source, verify that the AWS MediaConnect radio button is selected.
AWS Account	Select from the drop-down list the AWS Account on which the flow is configured.
Region	Select from the drop-down list the AWS region in which the flow is configured.
AWS MediaConnect Flow	Select from the drop-down list the Flow that you would like to use as the Source.
Configuration	
Ingest Cluster	Select from the drop-down list one of the available Ingest Clusters as the destination for the Source.
Target Broadcaster/s	Select your Broadcaster preferences. Either select a specific Broadcaster to be used OR specify your preference for using primary vs. backup Broadcasters. Options are: <i>Prefer Primary Broadcasters, Primary Broadcasters only, Backup Broadcasters only or Prefer Backup Broadcasters.</i> NOTE: For managed clusters, it is not recommended to select a specific Broadcaster, as the Broadcaster's availability may not remain stable.
Latency [ms]	Select the latency time for the stream (default 4000).
PID Mapping (Optional)	If you would like to apply a PID Mapping profile to this Source, then select the desired profile from the dropdown list. To create a new PID Mapping Profile, see ADDING PID MAPPING PROFILES . NOTE: Using this method creates a single Source in ZEN Master with PID Mapping applied. If you would like to maintain a Source with the original PIDs and create an additional Source with PID Mapping (e.g. if you want to create several different PID Mapped variations), then use the method described in ADDING A SOURCE – PID MAPPING .
Alert on PID changes	If you would like to generate email notifications whenever a PID change is detected, select this checkbox.

Sources

Log SCTE-35	<p>Select this checkbox if you would like to log SCTE-35 markers for this stream.</p> <p>NOTE: To log SCTE-35 markers, SCTE-35 needs to be enabled both on the Ingest Cluster and in the Source configuration.</p> <p>NOTE: SCTE-35 logging is only available for v13.1.40262+ Broadcasters</p>
Enable SCTE-35 alerts (for Log SCTE-35)	<p>If you would like to receive alerts for SCTE-35 markers, select this checkbox.</p>
Public Output	<p>If you would like to allow access to the stream directly through a supported player, select the Allow checkbox.</p>
Password (for Public Output)	<p>If you selected Allow in the <i>Public Output</i> field, specify a password in this field to authenticate access to the stream.</p>
Enable Content Analysis	<p>If you would like to enable Content Analysis (CQA), verify that this checkbox is selected (default).</p> <p>NOTE: It is generally recommended to enable Content Analysis unless it is causing technical problems. If Content Analysis is disabled, the system won't detect errors in the video and audio content of the stream and won't generate warnings for such events. Even when Content Analysis is disabled the system will still detect TR101 errors in the stream.</p>
Monitor CEA-608/CEA-708 Closed Captions	<p>If you would like to monitor CEA-608/CEA-708 closed captions, select this checkbox.</p> <p>NOTE: Monitoring CEA-608/CEA-708 Closed Captions requires using a version 14.4 or newer Broadcaster.</p>
Disable Auto-Pull	<p>If you would like to disable auto-pull, select this checkbox.</p> <p>NOTE: Disabling Auto-Pull will lock Channels using this Source to the Source's Ingest Cluster and Targets to the Source's current active Broadcaster. This setting only applies to Pass-Through Channels.</p>
Auto-Pull Latency [ms]	<p>Specify the desired latency for auto-pull actions. (Default: 1,000 ms)</p>

Select the desired playback method.

NOTE: WebRTC enables you to monitor the stream via web browsers and mobile applications with real-time communication (RTC). WebRTC needs to be activated independently for each Source in ZEN Master (by default it is disabled).

Select one of the following options:

- **Disabled** – users will not be able to view this Source using WebRTC (default)
- **Pass-Through** – passes the stream through to WebRTC without transcoding. This option *can only be used* if the input stream is already in a WebRTC compliant format (video – H.264 codec with *Baseline* or *Main* profile and no B frames, Audio – Opus codec).
- **Auto** – ZEN Master automatically transcodes the stream using the optimal profile for each specific user. In this option Zixi Broadcaster will decode the video, transforming it into RAW frames, which will be passed to the WebRTC library, where it will be re-encoded for each individual user.

WebRTC Playback

NOTE: Best quality. However, if monitored by multiple users this can consume extensive resources.

- **1080p/720p/480p/360p** – ZEN Master transcodes the stream to a WebRTC compliant profile with the specified resolution. The transcoding is done by Zixi Broadcaster’s transcoder.

NOTE: This method requires a Zixi Broadcaster with X264 or Nvidia for transcoding. This method allows many users to monitor the stream without encoding separately for each individual user, which saves CPU capacity. Since there is only one stream resolution, it is recommended to encode to a low resolution and low bitrate so that the stream will be viewable by all users monitoring the stream.

Initial State

Disabled

Select this checkbox if you would like to disable this Source upon initial configuration.

Muted

Select this checkbox if you would like to disable error/recovery notifications for this Source upon initial configuration.

Advanced

Billing Codes	If you would like to track usage for this Source, enter your Billing Code details, see BILLING CODES . (Supported for Broadcasters v14.8+)
Auto Pull MTU	Specify the maximum transmission unit (largest data packet that a network-connected device will accept) in bytes for the Auto Pull.
Frozen Video Minimal Duration	Specify the default minimal duration in seconds of frozen video after which the Broadcaster will trigger a Frozen video alert. Default: 10 seconds. This setting is supported for Broadcaster version 16.3 and higher. For existing sources, you may need to restart the source.
Blank Video Minimal Duration	Specify the default minimal duration in seconds of blank video after which the Broadcaster will trigger a Blank video alert. Default: 10 seconds. This setting is supported for Broadcaster version 16.3 and higher. For existing sources, you may need to restart the source.

Adding an AWS Media Source – Creating a ZEN Master Managed Flow

To integrate with AWS Media using the ZEN Master Managed Flow method, you first create a new specialized AWS Media Source in ZEN Master. Then you will assign this Source to a specialized AWS MediaConnect Flow or MediaLive Channel that you will create in ZEN Master.

The input parameters differ for Zixi and non-Zixi inputs. The following sections describe each of the configuration procedures. In addition, an explanation of each of the configuration parameters is given in the tables below.



Once you have created a ZEN Master Managed Flow, you should manage that Flow entirely through ZEN Master and **not** through the MediaConnect console.

AWS Media – Zixi Input

➔ **To create an AWS Media Source for a Zixi input:**

1. In the main navigation, click **Sources**.
2. Click **+ Add**.
The **Create New Source** window is displayed.

CREATE NEW SOURCE

ZEN MASTER

Zixi - Zixi push from a connected Feeder, Broadcaster, AWS MediaConnect, or other Zixi enabled device to ZEN Master.
Monitor Only - Monitor an existing input on a ZEN Master enabled Broadcaster. Limited functionality.
Failover - Combine existing Sources into a single Source that will switch between them to maintain quality.
Transcoded - Transcode an existing source into a new one.
PID Mapping - Create a Source with modified PIDs from an existing source
Inter-Cluster - Send a Source from one cluster to another
UDP/RTP - Receive UDP or RTP stream directly.>
File - Create a Source from a .ts file on a Broadcaster
SRT - Receive stream via SRT protocol
RIST - Receive stream via RIST protocol
NDI - Receive an NDI stream in the local network and encode it for transmission
RTMP - Receive stream via RTMP protocol
HLS - Receive stream via HLS protocol
Demux - Create a Demux Source on a Broadcaster
Multiviewer - Collection of selected sources in a grid
Multiplex - Create a Multiplex Source on a Broadcaster

AWS MEDIA

AWS MediaConnect - Create a Source to use with an AWS MediaConnect Flow.
AWS Elemental Link - Source from AWS Elemental Link device to AWS MediaLive

3. Click on **AWS Media**.
The **Create New AWS Media** window opens.

CREATE NEW AWS MEDIA

INFO

Name *

Access Tags * ⓘ

Events Configuration Profile

Location ⓘ

INPUT

Protocol ⓘ

Zixi RTP-FEC RTP RIST SRT CDI ST 2110 JPEG XS

Application ⓘ

Feeder ⓘ Broadcaster ⓘ AWS Elemental Link Other ⓘ

AWS Account *

Region *

AWS Elemental Link *

SOURCE CONFIGURATION

Channel Type

AWS MediaConnect Flow AWS MediaLive Channel

AWS MediaConnect Flow

Transcoding Profile

INITIAL STATE

Muted

ADVANCED +

< Back x Cancel ✓ Save

4. In the **Info** section, in the **Name** field, type a logical name for the Zixi Source.
5. In the **Tags** field, select one or more of the predefined Tags from the drop-down list. Tags are used for access control. By selecting a Tag, you are relating this Source to that Tag. Tags are associated with certain roles (through the Users & Roles screen), and roles, in turn, are associated with users and user groups. If you would like to create a new Tag, see [CREATING A TAG](#).
6. In the **Events Configuration Profile** field, select from the dropdown list the profile that you would like to apply to this Source. By default, the *Default* profile is applied.



Events Profiles consist of a series of rules that determine precisely how various types of Events are logged and what results they trigger.

7. The Source's location is used to represent it in the proper position in the Map display (see [MAPS](#)). By default, the location is determined automatically based on the Source's IP. If you would like to manually set the location of the Source (Optional), use the following procedure:
 - a. Click on the **Edit** icon next to the **Location** field.
A search box is shown below the **Location** field.
 - b. Enter identifying info for the location (e.g. street address, zip code, coordinates).
Search results are displayed below the search box as you type.
 - c. Click on the desired location.
The selected location populates the **Location** field.
8. In the **Input** section, under **Protocol**, select the **Zixi** radio button.



If you would like to configure a non-Zixi input, use the procedure described in [AWS MEDIA- NON-ZIXI](#) Input.

9. In the **Application** section, select the radio button for the type of application that the input is coming from. Options are: *Feeder*, *Broadcaster*, *AWS Elemental Link*, or *Other*.



For a Zixi Feeder or Broadcaster that is managed by ZEN Master, ZEN Master automatically configures the Feeder/Broadcaster to push the stream to MediaConnect. For a Zixi-enabled device that is not managed by ZEN Master (i.e. Other) you need to manually configure the device to push the stream to MediaConnect.

10. If you selected *AWS Elemental Link*, proceed to step 14 If you selected *Other*, proceed to step 12. If you selected *Broadcaster*, proceed to step 11. If you selected *Feeder*, then use the following procedure to configure the Feeder input:
 - a. In the **Feeder** field, select the desired Feeder from the drop-down list of available Feeders.
 - b. In the **Feeder Input** field, select the desired input from the drop-down list of inputs on the selected Feeder.
 - c. In the **Bonding** section, select the radio button for the desired bonding mode.
Options are:
 - **None** (default) – no bonding
 - **Manual** – you specify which NICs are used for bonding
 - **Auto** – all available NICs are used for bonding
 - d. If you selected *None* for **Bonding**, then in the **Feeder Output NIC** field, if you would like to specify which NIC is used, then select the IP of that NIC from the drop-down list. By default, *Any* is selected.
 - e. If you selected *Manual* for **Bonding**, then in the **Feeder Output NIC** field, use the following procedure to specify which NICs are used.

- Select two or more NICs by clicking the **+** button for each of the desired NICs.

Bonding

None Manual Auto

Feeder Output NICs *

Output NIC	Max Bitrate [kbps]	Backup	
Filter: <input type="text"/>			
10.185.55.159			+
10.185.55.160			+
10.185.55.162			+
10.2.6.46			+

- Selected NICs are shown above the **Filter** box. (You can remove an NIC by clicking the **-** button for that NIC).

Bonding

None Manual Auto

Feeder Output NICs *


Output NIC	Max Bitrate [kbps]	Backup	
10.185.55.159	<input type="text" value="Max Bitrate"/>	<input type="checkbox"/>	-
10.185.55.160	<input type="text" value="Max Bitrate"/>	<input type="checkbox"/>	-
Filter: <input type="text"/>			
10.185.55.162			+
10.2.6.46			+

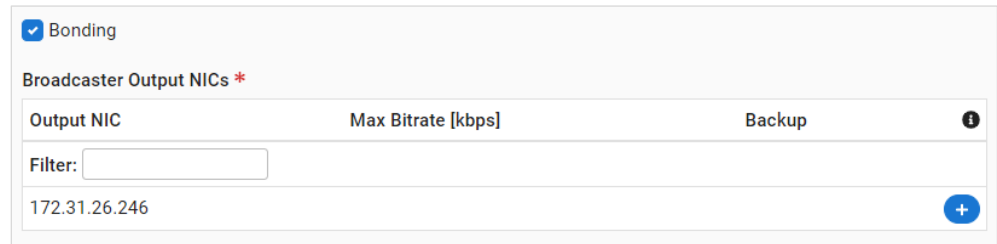
- For each selected NIC, you can adjust the following parameters:
 - In the **Max Bitrate** field, enter the maximum bitrate to be used on this NIC.
 - If you want to use this NIC only when there isn't sufficient bandwidth available on the other NICs, then select the **Backup** checkbox.



If the **Backup** checkbox is not selected then this NIC is used in parallel with the other selected NICs.


11. If you selected *Broadcaster*, then use the following procedure to configure the Broadcaster input:
 - a. In the **Broadcaster** field, select the desired Broadcaster from the drop-down list of available Feeders.
 - b. In the **Broadcaster Input** field, select the desired input from the drop-down list of inputs on the selected Broadcaster.
 - c. If you want the Source to be sent over a single NIC (i.e. no bonding) then do the following:
 - i. Do not select the Bonding checkbox.

- II. In the Broadcaster Output NICs field, if you would like to specify which NIC is used, then select the IP of that NIC from the drop-down list. By default, Any is selected.
- d. If you would like to use Bonding, then do the following:
 - I. Select the **Bonding** checkbox.
 - II. Select two or more NICs by clicking the  button for each of the desired NICs.

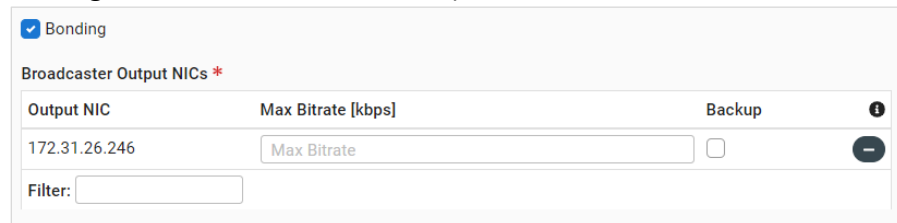


Bonding

Broadcaster Output NICs *


Output NIC	Max Bitrate [kbps]	Backup	
Filter: <input type="text"/>			
172.31.26.246			

Selected NICs are shown above the Filter box. (You can remove an NIC by clicking the  button for that NIC).



Bonding

Broadcaster Output NICs *

Output NIC	Max Bitrate [kbps]	Backup	
172.31.26.246	<input type="text" value="Max Bitrate"/>	<input type="checkbox"/>	
Filter: <input type="text"/>			

- III. For each NIC that is selected you can adjust the following parameters:
 - In the **Max Bitrate** field, enter the maximum bitrate to be used on this NIC.
 - If you want to use this NIC only when there isn't sufficient bandwidth available on the other NICs, then select the **Backup** checkbox.



If the **Backup** checkbox is not selected then this NIC is used in parallel with the other selected NICs.

12. In the **Max Bitrate** field (not shown for Zixi Broadcaster inputs), select from the drop-down list the maximum bitrate for this Source.



Make sure that the value is greater than the max bitrate for the input. The default is set automatically based on the current bitrate of the input.



You are required by MediaConnect to enter a valid Whitelist CIDR block.

13. In the **Latency [ms]** field, select the latency time for the stream (default 4000).

14. If you selected *AWS Elemental Link*, then use the following procedure to configure the AWS Elemental Link input:
 - a. In the **AWS Account** field, select the desired AWS Account from the drop-down list of available accounts.

- b. In the **Region** field, select the desired Region from the drop-down list of available regions.
 - c. In the **AWS Elemental Link** field, select the desired AWS Elemental Link device from the drop-down list of available devices.
15. In the **Source Configuration** section, in the **Channel Type** field, select *AWS MediaConnect Flow*, or *AWS MediaLive Channel*.



Specifying an **AWS MediaConnect Flow** or **MediaLive Channel** is optional. You can create a Source without specifying a Flow that will be activated later upon assigning a MediaConnect Flow or assigning a MediaLive Channel created in Zen Master. You can also switch an AWS Media Source to a different Flow at a later time.

16. If you selected *AWS MediaLive Channel*, proceed to step 17. If you selected *AWS MediaConnect Flow*, then use the following procedure to configure the Source:
 - a. In the **AWS MediaConnect Flow** field, select the Flow to which you would like to assign this Source from the drop-down list of AWS MediaConnect Flows.
 - b. In the **Whitelist CIDR block field** (not shown for AWS Elemental Link Applications), enter the CIDR for the range of IPs that you would like to allow to contribute content to this Source.
 - c. For AWS Elemental Link Applications, in the **Transcoding Profile** field, select the desired Transcoding Profile from the drop-down list of available profiles.
17. If you selected *AWS MediaLive Channel*, then use the following procedure to configure the Source:
 - a. In the **AWS MediaLive Channel** field, select the AWS MediaLive Channel to which you would like to assign this Source from the drop-down list of available AWS MediaLive Channels.
 - b. In the **Whitelist CIDR block field** (not shown for AWS Elemental Link Applications), enter the CIDR for the range of IPs that you would like to allow to contribute content to this Source.
18. In the **Initial State** section, select the **Muted** checkbox if you would like to disable error/recovery notifications for this Source upon initial configuration.



You can Unmute the Source at any time.

19. If you would like to adjust the advanced settings, click **Advanced**.
The **Advanced** settings fields are displayed:



ADVANCED —

Auto Pull MTU

MTU

Frozen Video Minimal Duration

10

Broadcasters older than version 16.3 will ignore this setting

Blanc Video Minimal Duration

10

Broadcasters older than version 16.3 will ignore this setting

< Back X Cancel ✓ Save



20. In the **Auto Pull MTU** field, specify the maximum transmission unit (largest data packet that a network-connected device will accept) in bytes for the Auto Pull.
21. To set the detection of frozen video, in the **Frozen Video Minimal Duration** field, specify the default minimal duration in seconds of frozen video after which the Broadcaster will trigger a Frozen video alert. Default: 10 seconds. This setting is supported for Broadcaster version 16.3 and higher.
22. To set the detection of blank video, in the **Blank Video Minimal Duration** field, specify the default minimal duration in seconds of blank video after which the Broadcaster will trigger a Blank video alert. Default: 10 seconds. This setting is supported for Broadcaster version 16.3 and higher.
23. Click **Save**.
The new AWS Media Source is created.





An AWS Media Source is a specialized type of Source in ZEN Master. It can't be assigned to a regular ZEN Master Channel, rather it must be assigned to a MediaConnect Flow Channel. See [ADDING FAILOVER CHANNELS](#).

AWS Media Zixi Input Source Configuration Parameters Table

Parameter	Description
Info	
Name	Specify a name for the AWS Media Source in ZEN Master.
Tags	Select one or more of the predefined Tags from the drop-down list. Tags are used for access control. By selecting a Tag, you are relating this Source to that Tag. Tags are associated with certain roles (through the Users & Roles screen), and roles, in turn, are associated with users and user groups. If you would like to create a new Tag, see CREATING A TAG .
Events Configuration Profile	Select from the dropdown list the profile that you would like to apply to this Source. By default, the <i>Default</i> profile is applied. NOTE: <i>Events Profiles</i> consist of a series of rules that determine precisely how various types of Events are logged and what results they trigger.
Location (Optional)	The Source's location is used to represent it in the proper position in the Map display (see MAPS). By default, the location is determined automatically based on the Source's IP. Enter identifying info for the location (e.g. street address, zip code, coordinates) and select the desired location from the suggestions that are shown.
Input	
Protocol	To create a Zixi Input AWS Media Source, verify that Zixi is selected (default).
Application	To create a Zixi Feeder Source, select the radio button for the type of application that the input is coming from. Options are: <i>Feeder</i> , <i>Broadcaster</i> or <i>Other</i> . NOTE: For a Zixi Feeder or Broadcaster that is managed by ZEN Master, ZEN Master automatically configures the Feeder/Broadcaster to push the stream to MediaConnect. For a Zixi-enabled device that is not managed by ZEN Master (i.e. <i>Other</i>) you need to manually configure the device to push the stream to MediaConnect.
For Feeder	
Feeder	Select from the drop-down list the desired Feeder.

Feeder Input	Select from the drop-down list one of the Inputs that are available on the selected Feeder.
Replace existing manual outputs	If you would like the Source configured in ZEN Master to replace (i.e. stop) any current Outputs configured on the Feeder, select this checkbox.
Bonding	<p>Select the desired bonding mode. Options are:</p> <ul style="list-style-type: none"> • None (default) – no bonding • Manual – you specify which NICs are used for bonding • Auto – all available NICs are used for bonding <p>If you would like to specify which NIC is used, then select the IP of that NIC from the drop-down list. By default, <i>Any</i> is selected.</p> <p>If you selected <i>Manual</i> for Bonding, then click the  button for each of the NICs that you would like to use. Selected NICs are shown above the Filter box. (You can remove a NIC by clicking the  button for that NIC). For each selected NIC, you can adjust the following parameters:</p> <ul style="list-style-type: none"> • In the Max Bitrate field, enter the maximum bitrate to be used on this NIC. • If you want to use this NIC only when there isn't sufficient bandwidth available on the other NICs, then select the Backup checkbox. If the Backup checkbox is not selected then this NIC is used in parallel with the other selected NICs.
For Broadcaster	
Broadcaster	Select from the drop-down list the desired Broadcaster cluster.
Broadcaster Input	Select from the drop-down list one of the inputs that are available on the selected Broadcaster.
Bonding	Select the checkbox if you would like to use bonding.

If you selected the **Bonding checkbox**, then click the  button for each of the NICs that you would like to use. Selected NICs are shown above the **Filter** box. (You can remove a NIC by clicking the  button for that NIC). For each selected NIC, you can adjust the following parameters:

- Broadcaster Output NICs
- In the **Max Bitrate** field, enter the maximum bitrate to be used on this NIC.
 - If you want to use this NIC only when there isn't sufficient bandwidth available on the other NICs, then select the **Backup** checkbox. If the **Backup** checkbox is not selected then this NIC is used in parallel with the other selected NICs.

For Feeder, Broadcaster and Other

Max Bitrate (not for Broadcaster)	Select from the drop-down list the maximum bitrate for this Source. Make sure that the value is greater than the max bitrate for the input. The default is set automatically based on the current bitrate of the input.
-----------------------------------	--

Whitelist CIDR Block	Specify the CIDR for the range of IPs that you would like to allow to contribute content to this Source. You are required by AWS Media to enter a valid Whitelist CIDR block.
----------------------	--

Latency [ms]	Specify the latency time for the stream (default 4000).
--------------	---

AWS Elemental Link

AWS Account	Select the desired AWS Account from the drop-down list of available accounts.
-------------	---

Region	Select the desired Region from the drop-down list of available regions.
--------	---

AWS Elemental Link	Select the desired AWS Elemental Link device from the drop-down list of available devices.
--------------------	--

Source Configuration

Channel Type	Select AWS MediaConnect Flow or AWS MediaLive Channel.
--------------	--

AWS MediaConnect Flow (For AWS MediaConnect Channel Type)	Select from the dropdown list the Flow to which you would like to assign this Source. Specifying an AWS MediaConnect Flow or MediaLive Channel is optional. You can create a Source without specifying a Flow that will be activated later upon assigning a MediaConnect Flow or assigning a MediaLive Channel created in Zen Master. You can also switch an AWS Media Source to a different Flow at a later time.
AWS MediaLive Channel (For AWS MediaLive Channel Type)	Select the AWS MediaLive Channel to which you would like to assign this Source from the drop-down list of available AWS MediaLive Channels.
Whitelist CIDR Black (For Feeder, Broadcaster or Other)	Enter the CIDR for the range of IPs that you would like to allow to contribute content to this Source.
Transcoding Profile (for AWS Elemental Link/AWS MediaConnect Flow)	Select the desired Transcoding Profile from the drop-down list of available profiles.
<i>Initial State</i>	
Muted	Select this checkbox if you would like to disable error/recovery notifications for this Source upon initial configuration.
<i>Advanced</i>	
Auto Pull MTU	Specify the maximum transmission unit (largest data packet that a network-connected device will accept) in bytes for the Auto Pull.
Frozen Video Minimal Duration	Specify the default minimal duration in seconds of frozen video after which the Broadcaster will trigger a Frozen video alert. Default: 10 seconds. This setting is supported for Broadcaster version 16.3 and higher. For existing sources, you may need to restart the source.
Blank Video Minimal Duration	Specify the default minimal duration in seconds of blank video after which the Broadcaster will trigger a Blank video alert. Default: 10 seconds. This setting is supported for Broadcaster version 16.3 and higher. For existing sources, you may need to restart the source.

AWS Media– Non-Zixi Input

The instructions below refer to the parameters in some of the Non-Zixi Input protocols, for a full list of parameters, see [AWS MEDIA – NON-ZIXI INPUT SOURCE CONFIGURATION PARAMETERS](#) Table.

➔ **To create a MediaConnect Source with a non-Zixi input:**

1. In the main navigation, click **Sources**.
2. Click **+ Add**.

The **Create New Source** window is displayed.

CREATE NEW SOURCE

Select Source Type

Zixi - Zixi push from a connected Feeder, Broadcaster, AWS MediaConnect, or other Zixi enabled device to ZEN Master.
AWS Media - Create a Source to use with an AWS MediaConnect Flow or an AWS MediaLive Channel.
Monitor Only - Monitor an existing input on a ZEN Master enabled Broadcaster. Limited functionality.
Failover - Combine existing Sources into a single Source that will switch between them to maintain quality.
Transcoded - Transcode an existing source into a new one.
PID Mapping - Create a Source with modified PIDs from an existing source
Inter-Cluster - Send a Source from one cluster to another
UDP/RTP - Receive UDP or RTP stream directly.
File - Create a Source from a .ts file on a Broadcaster
SRT - Receive stream via SRT protocol
RIST - Receive stream via RIST protocol
NDI - Receive an NDI stream in the local network and encode it for transmission
RTMP - Receive stream via RTMP protocol
HLS - Receive stream via HLS protocol

3. Click on **MediaConnect**.
The **Create MediaConnect Source** window opens.

CREATE NEW AWS MEDIA

INFO

Name *

Name

Access Tags * ⓘ

Select Access Tags

Events Configuration Profile

Default

Location ⓘ

Location

INPUT

Protocol ⓘ

Zixi
 RTP-FEC
 RTP
 RIST
 SRT
 CDI
 ST 2110 JPEG XS

Ingest Port *

Ingest Port 1024 to 65536

Max Bitrate *

Select Max Bitrate

Latency [ms] *

4000

SOURCE CONFIGURATION

Channel Type

AWS MediaConnect Flow
 AWS MediaLive Channel

AWS MediaConnect Flow

Select AWS MediaConnect Flow

Whitelist CIDR Block * ⓘ

e.g. 0.0.0.0/0

INITIAL STATE

Muted

ADVANCED +

< Back x Cancel ✓ Save

4. In the **Info** section, in the **Name** field, type a logical name for the Zixi Source.
5. In the **Tags** field, select one or more of the predefined Tags from the drop-down list. Tags are used for access control. By selecting a Tag, you are relating this Source to that Tag. Tags are associated with certain roles (through the Users & Roles screen), and roles, in turn, are associated with users and user groups. If you would like to create a new Tag, see [CREATING A TAG](#).
6. In the **Events Configuration Profile** field, select from the dropdown list the profile that you would like to apply to this Source. By default, the *Default* profile is applied.



Events Profiles consist of a series of rules that determine precisely how various types of Events are logged and what results they trigger.

7. In the **Input** section, under **Protocol**, select the radio button for the desired non-Zixi Protocol. Options are: *RTC-FEC*, *RTP*, *RIST*, *SRT*, *CDI* (for *MediaConnect* only), *ST2110 JPEG XS* (for *MediaConnect* only).



If you would like to configure a Zixi input, use the procedure described in [AWS MEDIA – ZIXI INPUT](#).

8. In the **Ingest Port** field (not shown for ST 2110 JEPF XS inputs), enter the port that the Flow will listen on for incoming content.
9. In the **Max Bitrate** field (not shown for CDI or ST 2110 JEPF XS inputs), select from the drop-down list the maximum bitrate for this Source.



Make sure that the value is greater than the max bitrate of the input. The default is set automatically based on the current bitrate of the input.

10. In the **Latency [ms]** field (for RIST and SRT inputs), select the latency time for the stream (default 4000).
11. In the **Max sync buffer [ms]** field (for CDI and ST 2110 JPEG XS inputs), use the arrow buttons to specify the size of the buffer (in ms) to use to sync incoming source data.
12. In the **Source Configuration** section, in the **Channel Type** field (not shown for CDI and ST 2110 JPEG XS inputs), select *AWS MediaConnect Flow* or *AWS MediaLive Channel*. If you selected *AWS MediaLive Channel*, proceed to step 15.



Specifying an **AWS MediaConnect Flow** or **MediaLive Channel** is optional. You can create a Source without specifying a Flow that will be activated later upon assigning a MediaConnect Flow or assigning a MediaLive Channel created in Zen Master. You can also switch an AWS Media Source to a different Flow at a later time.

13. In the **AWS MediaConnect Flow** field, select the Flow to which you would like to assign this Source from the drop-down list of AWS MediaConnect Flows.
14. If you selected *AWS MediaLive Channel*, select the AWS MediaLive Channel to which you would like to assign this Source from the drop-down list of available AWS MediaLive Channels.
15. In the **Whitelist CIDR block field** (not shown for CDI and ST 2110 JPEG XS inputs), enter the CIDR for the range of IPs that you would like to allow to contribute content to this Source.



You are required by MediaConnect to enter a valid Whitelist CIDR block.

16. In the **Initial State** section, select the **Muted** checkbox if you would like to disable error/recovery notifications for this Source upon initial configuration.



You can Unmute the Source at any time.

17. If you would like to adjust the advanced settings, click **Advanced**.
The **Advanced** settings fields are displayed:



ADVANCED —

Auto Pull MTU

MTU

Frozen Video Minimal Duration

10

Broadcasters older than version 16.3 will ignore this setting

Blanc Video Minimal Duration

10

Broadcasters older than version 16.3 will ignore this setting

< Back X Cancel ✓ Save

18. In the **Auto Pull MTU** field, specify the maximum transmission unit (largest data packet that a network-connected device will accept) in bytes for the Auto Pull.
19. To set the detection of frozen video, in the **Frozen Video Minimal Duration** field, specify the default minimal duration in seconds of frozen video after which the Broadcaster will trigger a Frozen video alert. Default: 10 seconds. This setting is supported for Broadcaster version 16.3 and higher.
20. To set the detection of blank video, in the **Blank Video Minimal Duration** field, specify the default minimal duration in seconds of blank video after which the Broadcaster will trigger a Blank video alert. Default: 10 seconds. This setting is supported for Broadcaster version 16.3 and higher.
21. Click **Save**.
The new MediaConnect Source is created.



An AWS Media Source is a specialized type of Source in ZEN Master. It can't be assigned to a regular ZEN Master Channel, rather it must be assigned to a MediaConnect Flow Channel. See [ADDING A SOURCE – PID MAPPING](#).

AWS Media – Non-Zixi Input Source Configuration Parameters Table

Parameter	Description
Info	
Name	Specify the name of the MediaConnect Source in ZEN Master.
Tags	Select one or more of the predefined Tags from the drop-down list. Tags are used for access control. By selecting a Tag, you are relating this Source to that Tag. Tags are associated with certain roles (through the Users & Roles screen), and roles, in turn, are associated with users and user groups. If you would like to create a new Tag, see CREATING A TAG .
Events Configuration Profile	Select from the dropdown list the profile that you would like to apply to this Source. By default, the <i>Default</i> profile is applied. NOTE: <i>Events Profiles</i> consist of a series of rules that determine precisely how various types of Events are logged and what results they trigger.
Input	
Protocol	To create a Non-Zixi Input MediaConnect Source, select the radio button for the desired non-Zixi Protocol. Options are: <i>RTC-FEC, RTP, RIST, SRT, CDI, ST2110 JPEG XS</i> .
Ingest Port	Enter the port that the Flow will listen on for incoming content.
Max Bitrate	Select from the drop-down list the maximum bitrate for this Source. Make sure that the value is greater than the max bitrate for the input. The default is set automatically based on the current bitrate of the input.
Whitelist CIDR Block	Specify the CIDR for the range of IPs that you would like to allow to contribute content to this Source. You are required by MediaConnect to enter a valid Whitelist CIDR block.
Latency [ms] (for RIST and SRT)	Specify the latency time for the stream (default 4000).
Ingest Port (for CDI)	Specify a port number ranging from 1024 to 65536 that will be used for ingesting the CDI source.
Max sync buffer [ms] (for CDI and ST 2110 JPEG XS)	Specify the size of the buffer (in ms) to use to sync incoming source data.

Source Configuration	
Channel Type (for RTP-FEC, RTP, RIST and SRT inputs)	Select AWS MediaConnect Flow or AWS MediaLive Channel.
AWS MediaConnect Flow	Select from the dropdown list the Flow to which you would like to assign this Source. Specifying an AWS MediaConnect Flow or MediaLive Channel is optional. You can create a Source without specifying a Flow that will be activated later upon assigning a MediaConnect Flow or assigning a MediaLive Channel created in Zen Master. You can also switch an AWS Media Source to a different Flow at a later time.
Whitelist CIDR Block (for RTP-FEC, RTP, RIST and SRT inputs)	Specify the CIDR for the range of IPs that you would like to allow to contribute content to this Source. You are required by MediaConnect to enter a valid Whitelist CIDR block.
Initial State	
Muted	Select this checkbox if you would like to disable error/recovery notifications for this Source upon initial configuration.
Advanced	
Auto Pull MTU	Specify the maximum transmission unit (largest data packet that a network-connected device will accept) in bytes for the Auto Pull.
Frozen Video Minimal Duration	Specify the default minimal duration in seconds of frozen video after which the Broadcaster will trigger a Frozen video alert. Default: 10 seconds. This setting is supported for Broadcaster version 16.3 and higher. For existing sources, you may need to restart the source.
Blank Video Minimal Duration	Specify the default minimal duration in seconds of blank video after which the Broadcaster will trigger a Blank video alert. Default: 10 seconds. This setting is supported for Broadcaster version 16.3 and higher. For existing sources, you may need to restart the source.

Adding a Source – Monitor Only

You can designate an input that already exists in a Broadcaster cluster to be managed as a Source in ZEN Master. This is done by selecting **Monitor Only** in the New Source menu.

You can select several inputs from a single Broadcaster to simultaneously create a new Source in ZEN Master for each input.

The following procedure describes how to add a Monitor Only Source in ZEN Master. In addition, an explanation of each of the configuration parameters is given in the table below.

➔ To add a Monitor Only Source:

1. In the main navigation, click **Sources**.
2. Click **+ Add**.

The **Create New Source** selection window is displayed.

CREATE NEW SOURCE

ZEN MASTER

Zixi - Zixi push from a connected Feeder, Broadcaster, AWS MediaConnect, or other Zixi enabled device to ZEN Master.

Monitor Only - Monitor an existing input on a ZEN Master enabled Broadcaster. Limited functionality.

Failover - Combine existing Sources into a single Source that will switch between them to maintain quality.

Transcoded - Transcode an existing source into a new one.

PID Mapping - Create a Source with modified PIDs from an existing source

Inter-Cluster - Send a Source from one cluster to another

UDP/RTP - Receive UDP or RTP stream directly.>

File - Create a Source from a .ts file on a Broadcaster

SRT - Receive stream via SRT protocol

RIST - Receive stream via RIST protocol

NDI - Receive an NDI stream in the local network and encode it for transmission

RTMP - Receive stream via RTMP protocol

HLS - Receive stream via HLS protocol

Demux - Create a Demux Source on a Broadcaster

Multiviewer - Collection of selected sources in a grid

Multiplex - Create a Multiplex Source on a Broadcaster

AWS MEDIA

AWS MediaConnect - Create a Source to use with an AWS MediaConnect Flow.

AWS Elemental Link - Source from AWS Elemental Link device to AWS MediaLive

✕ Cancel

- Click on **Monitor Only**.
The **Create New Monitor Only** window opens.

CREATE NEW MONITOR ONLY

INFO

Name *

Access Tags *

Events Configuration Profile

Location

INPUT

Broadcaster *

Broadcaster Inputs *

Input	Bitrate	Name
Select Broadcaster		

CONFIGURATION

Alert on PID Changes

Log SCTE-35
Requires Cluster configuration and version 13.1.40262 or newer Broadcasters

Enable SCTE-35 alerts
Requires SCTE-35 Logging

Public Output

Enable Content Analysis

Monitor CEA-608/CEA-708 Closed Captions
Requires version 14.4 or newer Broadcaster

Disable Auto-Pull
Disabling Auto-Pull will lock Channels using this Source to the Source's Ingest Cluster and Targets to the Source's current active Broadcaster.

Auto-Pull Latency [ms] *

WebRTC Playback Disabled Pass-Through Auto 1080p 720p 480p 360p

Using WebRTC to monitor a stream requires transcoding (except in Pass-through mode). When playback begins, Zen Master starts transcoding on the Broadcaster, while respecting the Broadcaster's transcoding thresholds. In Auto mode, the Source is transcoded separately for each active WebRTC client (which consumes additional resources).

INITIAL STATE

Disabled

Muted

ADVANCED +

4. In the **Info** section, in the **Name** field, enter a unique name to identify this Source in the system.
5. In the **Tags** field, select one or more of the predefined Tags from the drop-down list. Tags are used for access control. By selecting a Tag, you are relating this Source to that Tag. Tags are associated with certain roles (through the Users & Roles screen), and roles, in turn, are associated with users and user groups. If you would like to create a new Tag, see [CREATING A TAG](#).
6. In the **Events Configuration Profile** field, select from the dropdown list the profile that you would like to apply to this Source. By default, the *Default* profile is applied.



Events Profiles consist of a series of rules that determine precisely how various types of Events are logged and what results they trigger.

7. The Source's location is used to represent it in the proper position in the Map display (see [MAPS](#)). By default, the location is determined automatically based on the Source's IP. If you would like to manually set the location of the Source (Optional), use the following procedure:
 - c. Click on the **Edit** icon next to the **Location** field.
A search box is shown below the **Location** field.
 - Enter identifying info for the location (e.g. street address, zip code, coordinates). Search results are displayed below the search box as you type.
 - Click on the desired location.
The selected location populates the **Location** field.
8. In the **Input** section, in the **Broadcaster** field, select from the drop-down list the desired Broadcaster cluster.
A list of available Inputs on that Broadcaster is displayed.

INPUT

Broadcaster *


Broadcaster Inputs * ?

Input	Bitrate	Name	?
Filter: <input type="text"/>			
<input checked="" type="checkbox"/> bbb (File: bbb_60fps_1920x1080p_5mbps.t...	4779 kbps	bbb	<input type="button" value="+"/>
<input checked="" type="checkbox"/> bbb-s6vyr (Push: 18.217.88.222)	6303 kbps	bbb-s6vyr	<input type="button" value="+"/>
<input checked="" type="checkbox"/> chubs (File: iphone_H264_AAC.ts)	976 kbps	chubs	<input type="button" value="+"/>

9. Select one or more Inputs by clicking the button for the desired Input.




Each input that is selected creates a **separate** Source in ZEN Master.





Selected Inputs are shown above the **Filter** box. (You can remove an Input by clicking the  button for that Input).

INPUT

Broadcaster *

✓ i-07a96c54f2c7f6f6a @ QA-Gil-Bx4x1-Setup-Feeder

Broadcaster Inputs * 

Input	Bitrate	Name	
✓ bbb (File: bbb_60fps_1920x1080p_5mbps.ts)	4779 kbps	bbb	
Filter: <input style="width: 100%;" type="text"/>			
✓ bbb-s6vyr (Push: 18.217.88.222)	6303 kbps	bbb-s6vyr	
✓ chubs (File: iphone_H264_AAC.ts)	976 kbps	chubs	

10. In the **Configuration** section, select the **Alert on PID changes** checkbox if you would like to generate email notifications whenever a PID change is detected.
11. Select the **Log SCTE-35** checkbox if you would like to log SCTE-35 markers for this stream.



To log SCTE-35 markers, SCTE-35 needs to be enabled both on the Ingest Cluster and in the Source configuration.



SCTE-35 logging is only available for v13.1.40262+ Broadcasters.

12. If **Log SCTE-35** was selected, you can choose to receive alerts for SCTE-35 markers by selecting the **Enable SCTE-35 alerts** checkbox.
13. In the **Public Output** field, if you would like to allow access to the stream directly through a supported player, select the **Allow** checkbox.
14. If you selected the **Allow** checkbox, then enter a password in the **Password** field to authenticate access to the stream.
15. If you would like enable Content Analysis (CQA), verify that the **Enable Content Analysis** checkbox is selected (default).



It is generally recommended to enable Content Analysis unless it is causing technical problems. If Content Analysis is disabled, the system won't detect errors in the video and audio content of the stream and won't generate warnings for such events. Even when Content Analysis is disabled the system will still detect TR101 errors in the stream.

16. If you would like to monitor CEA-608/CEA-708 closed captions, select the **Monitor CEA-608/CEA-708** checkbox.



Monitoring CEA-608/CEA-708 Closed Captions requires using a version 14.4 or newer Broadcaster.

17. If you would like to disable auto-pull, select the **Disable Auto-Pull** checkbox.



Disabling Auto-Pull will lock Channels using this Source to the Source's Ingest Cluster and Targets to the Source's current active Broadcaster. This setting only applies to Pass-Through Channels.

18. If Auto-Pull is *enabled*, in the **Auto-Pull Latency [ms]** field, specify the desired latency for auto-pull actions. (Default: 1000 ms)

19. In the **WebRTC Playback** section, select the desired playback method.



WebRTC enables you to monitor the stream via web browsers and mobile applications with real-time communication (RTC). WebRTC needs to be activated independently for each Source in ZEN Master (by default it is disabled).

Select one of the following options:

- **Disabled** – users will not be able to view this Source using WebRTC (default)
- **Pass-Through** – passes the stream through to WebRTC without transcoding. This option *can only be used* if the input stream is already in a WebRTC compliant format (video - H.264 codec with *Baseline* or *Main* profile and no B frames, Audio – Opus codec).
- **Auto** - ZEN Master automatically transcodes the stream using the optimal profile for each specific user. In this option Zixi Broadcaster will decode the video, transforming it into RAW frames, which will be passed to the WebRTC library, where it will be re-encoded for each individual user.



Best quality. However, if monitored by multiple users this can consume extensive resources.

- **1080p/720p/480p/360p** – ZEN Master transcodes the stream to a *WebRTC compliant* profile with the specified resolution. The transcoding is done by Zixi Broadcaster's transcoder.



This method requires a Zixi Broadcaster with X264 or Nvidia for transcoding. This method allows many users to monitor the stream without encoding separately for each individual user, which saves CPU capacity. Since there is only one stream version, it is recommended to encode to a low resolution and low bitrate so that the stream will be viewable by all users monitoring the stream.

20. In the **Initial State** section, select the **Disabled** checkbox if you would like to disable this Source upon initial configuration.

21. Select the **Muted** checkbox if you would like to disable error/recovery notifications for this Source upon initial configuration.



You can Enable/Unmute the Source at any time.

22. If you would like to adjust the advanced settings, click **Advanced**.
The **Advanced** settings window is displayed:

ADVANCED —

Auto-Pull Billing Code

Auto-Pull Billing Code

Auto-Pull Billing Password

Auto-Pull Billing Password

Validate billing code

Auto Pull MTU

MTU

Frozen Video Minimal Duration

10

Broadcasters older than version 16.3 will ignore this setting

Blanc Video Minimal Duration

10

Broadcasters older than version 16.3 will ignore this setting

< Back



x Cancel

✓ Save

23. If you would like to track usage for this Source, enter your **Billing Code** details. See **BILLING CODES**.
24. In the **Auto Pull MTU** field, specify the maximum transmission unit (largest data packet that a network-connected device will accept) in bytes for the Auto Pull.
25. To set the detection of frozen video, in the **Frozen Video Minimal Duration** field, specify the default minimal duration in seconds of frozen video after which the Broadcaster will trigger a Frozen video alert. Default: 10 seconds. This setting is supported for Broadcaster version 16.3 and higher.
26. To set the detection of blank video, in the **Blank Video Minimal Duration** field, specify the default minimal duration in seconds of blank video after which the Broadcaster will trigger a Blank video alert. Default: 10 seconds. This setting is supported for Broadcaster version 16.3 and higher.
27. Click **Save**.

Monitor Only Source Configuration Parameters Table

Parameter	Description
Info	
Name	Enter a unique name to identify this Source in the system.

Tags	<p>Select one or more of the predefined Tags from the drop-down list.</p> <p>Tags are used for access control. By selecting a Tag, you are relating this Source to that Tag. Tags are associated with certain roles (through the Users & Roles screen), and roles, in turn, are associated with users and user groups. If you would like to create a new Tag, see CREATING A TAG.</p>
Events Configuration Profile	<p>Select from the dropdown list the profile that you would like to apply to this Source. By default, the <i>Default</i> profile is applied.</p> <p>NOTE: <i>Events Profiles</i> consist of a series of rules that determine precisely how various types of Events are logged and what results they trigger.</p>
Location (Optional)	<p>The Source's location is used to represent it in the proper position in the Map display (see MAPS). By default, the location is determined automatically based on the Source's IP. Enter identifying info for the location (e.g. street address, zip code, coordinates) and select the desired location from the suggestions that are shown.</p>
Input	
Broadcaster	<p>Select from the drop-down list the desired Broadcaster.</p>
Broadcaster Inputs	<p>Select from the list one or more of the Inputs that are available on the selected Broadcaster.</p> <p>For multiple Inputs, click on the  button for each of the desired Inputs.</p> <p>Selected Inputs are shown above the Filter box. (You can remove an Input by clicking the  button for that Input).</p> <p>For each input that is selected you can adjust the following parameters:</p> <ol style="list-style-type: none"> 28. In the Name field, edit the name of the Source. Default: the name of the input on the Feeder. 29. In the Max Bitrate field, select from the drop-down list the maximum bitrate for this Source. Make sure that the value is greater than the max bitrate of the input. The default is set automatically based on the current bitrate of the input. <p>Each input that is selected creates a separate Source in ZEN Master.</p>

Configuration	
Alert on PID changes	If you would like to generate email notifications whenever a PID change is detected, select this checkbox.
Log SCTE-35	Select this checkbox if you would like to log SCTE-35 markers for this stream. NOTE: To log SCTE-35 markers, SCTE-35 needs to be enabled both on the Ingest Cluster and in the Source configuration. NOTE: SCTE-35 logging is only available for v13.1.40262+ Broadcasters
Enable SCTE-35 alerts (for Log SCTE-35)	If you would like to receive alerts for SCTE-35 markers, select this checkbox.
Public Output	If you would like to allow access to the stream directly through a supported player, select the Allow checkbox.
Password (for Public Output)	If you selected Allow in the <i>Public Output</i> field, specify a password in this field to authenticate access to the stream.
Enable Content Analysis	If you would like to enable Content Analysis (CQA), verify that this checkbox is selected (default). NOTE: It is generally recommended to enable Content Analysis unless it is causing technical problems. If Content Analysis is disabled, the system won't detect errors in the video and audio content of the stream and won't generate warnings for such events. Even when Content Analysis is disabled the system will still detect TR101 errors in the stream.
Monitor CEA-608/CEA-708 Closed Captions	If you would like to monitor CEA-608/CEA-708 closed captions, select this checkbox. NOTE: Monitoring CEA-608/CEA-708 Closed Captions requires using a version 14.4 or newer Broadcaster.
Disable Auto-Pull	If you would like to disable auto-pull, select this checkbox. NOTE: Disabling Auto-Pull will lock Channels using this Source to the Source's Ingest Cluster and Targets to the Source's current active Broadcaster. This setting only applies to Pass-Through Channels.
Auto-Pull Latency [ms]	Specify the desired latency for auto-pull actions. (Default: 1,000 ms)

Select the desired playback method.

NOTE: WebRTC enables you to monitor the stream via web browsers and mobile applications with real-time communication (RTC). WebRTC needs to be activated independently for each Source in ZEN Master (by default it is disabled).

Select one of the following options:

- **Disabled** – users will not be able to view this Source using WebRTC (default)
- **Pass-Through** – passes the stream through to WebRTC without transcoding. This option *can only be used* if the input stream is already in a WebRTC compliant format (video – H.264 codec with *Baseline* or *Main* profile and no B frames, Audio – Opus codec).
- **Auto** – ZEN Master automatically transcodes the stream using the optimal profile for each specific user. In this option Zixi Broadcaster will decode the video, transforming it into RAW frames, which will be passed to the WebRTC library, where it will be re-encoded for each individual user.

WebRTC Playback

NOTE: Best quality. However, if monitored by multiple users this can consume extensive resources.

- **1080p/720p/480p/360p** – ZEN Master transcodes the stream to a WebRTC compliant profile with the specified resolution. The transcoding is done by Zixi Broadcaster's transcoder.

NOTE: This method requires a Zixi Broadcaster with X264 or Nvidia for transcoding. This method allows many users to monitor the stream without encoding separately for each individual user, which saves CPU capacity. Since there is only one stream resolution, it is recommended to encode to a low resolution and low bitrate so that the stream will be viewable by all users monitoring the stream.

Initial State

Disabled

Select this checkbox if you would like to disable this Source upon initial configuration.

Muted

Select this checkbox if you would like to disable error/recovery notifications for this Source upon initial configuration.

Advanced	
Billing Codes	If you would like to track usage for this Source, enter your Billing Code details, see BILLING CODES . (Supported for Broadcasters v14.8+)
Auto Pull MTU	Specify the maximum transmission unit (largest data packet that a network-connected device will accept) in bytes for the Auto Pull.
Frozen Video Minimal Duration	Specify the default minimal duration in seconds of frozen video after which the Broadcaster will trigger a Frozen video alert. Default: 10 seconds. This setting is supported for Broadcaster version 16.3 and higher. For existing sources, you may need to restart the source.
Blank Video Minimal Duration	Specify the default minimal duration in seconds of blank video after which the Broadcaster will trigger a Blank video alert. Default: 10 seconds. This setting is supported for Broadcaster version 16.3 and higher. For existing sources, you may need to restart the source.

Adding a Source – Failover

You can combine two or more Sources to create a unified *Failover* Source. Whenever one of the Sources is disrupted (or interrupted completely), ZEN Master will seamlessly merge the streams, retrieving the missing packets from the alternate Source.

The streams can be merged using one of the following methods:

- **Content Hitless** – if the Sources do not have RTP headers, Zixi will merge the streams using the MPEG-TS payload content itself. This method uses Zixi’s patented DNA like sequencing algorithm to fill in the missing packets.
- **SMPTE 2022-7 Hitless** – if the Sources use RTP, and the RTP headers were maintained, Zixi can use the SMPTE 2022-7 to compare and merge the two streams. This option uses the sequence and the timestamp in the packets to compare which packets are missing, providing optimal results.
- **Non-Hitless** – ZEN Master treats the streams as different and does not try to merge them. If packets are missing from one stream, ZEN Master will switch to the alternate stream.



If the streams are not identical, the failover process will not be seamless and may take up to a second.



You can manually select one of the streams to be active by clicking on the *Lock* button in the *Sources* tab of the *Source Details* page. The Source designated as *Locked* will be used whenever it is available until you click *Unlock*.

Zero Bitrate and Offline events always trigger failover. For v15+ Broadcasters, you can configure additional rules to failover for other content quality errors (e.g. P1 Transport Events, Frozen Video etc.) that occur beyond a specified threshold.

The following procedure describes how to add a Failover Source in ZEN Master. In addition, an explanation of each of the configuration parameters is given in the table below.

➔ **To add a Failover Source:**

1. In the main navigation, click **Sources**.

2. Click **+ Add**.
The **Create New Source** window is displayed.

CREATE NEW SOURCE

ZEN MASTER

Zixi - Zixi push from a connected Feeder, Broadcaster, AWS MediaConnect, or other Zixi enabled device to ZEN Master.

Monitor Only - Monitor an existing input on a ZEN Master enabled Broadcaster. Limited functionality.

Failover - Combine existing Sources into a single Source that will switch between them to maintain quality.

Transcoded - Transcode an existing source into a new one.

PID Mapping - Create a Source with modified PIDs from an existing source

Inter-Cluster - Send a Source from one cluster to another

UDP/RTP - Receive UDP or RTP stream directly.>

File - Create a Source from a .ts file on a Broadcaster

SRT - Receive stream via SRT protocol

RIST - Receive stream via RIST protocol

NDI - Receive an NDI stream in the local network and encode it for transmission

RTMP - Receive stream via RTMP protocol

HLS - Receive stream via HLS protocol

Demux - Create a Demux Source on a Broadcaster

Multiviewer - Collection of selected sources in a grid

Multiplex - Create a Multiplex Source on a Broadcaster

AWS MEDIA

AWS MediaConnect - Create a Source to use with an AWS MediaConnect Flow.

AWS Elemental Link - Source from AWS Elemental Link device to AWS MediaLive

✕ Cancel

- Click on **Failover**.
The **Create New Failover** window opens.

CREATE NEW FAILOVER

INFO

Name *

Name

Access Tags * ⓘ

Select Access Tags

Events Configuration Profile

Default

Location ⓘ

Location

INPUT

Sources *

Source Priority ⓘ

Filter:

- File INPUT @ Chris Test Cluster
- OBS_stream @ LM_cluster_aws

Merge Mode

Content Hitless **SMPTE 2022-7 Hitless** Non-Hitless

SMPTE 2022-7 Hitless mode compares RTP headers (requires Sources with identical RTP headers).
Content Hitless mode uses the MPEG-TS payload content to compare packets.
If the payload is not binary identical it will fall back to Non-Hitless
Broadcasters older than version 14.1 always use Content Hitless (independent of this setting).

Merge Search Window [ms] *

1000

Failover Rules

Zero Bitrate/Offline

1 1 1

P1 Transport Errors

Frozen Video

Blank Picture

Silent Audio

When the payload is binary identical Failover Rules are ignored in favor of Hitless merge of the sources.
Broadcasters older than version 15 only support Zero Bitrate/Offline failover.

CONFIGURATION

Ingest Cluster *

Select Cluster

Target Broadcaster/s *

Select Broadcaster/s

Alert on PID Changes

Log SCTE-35
Requires Cluster configuration and version 13.1.40262 or newer Broadcasters

Enable SCTE-35 alerts
Requires SCTE-35 Logging

Public Output

Allow Password

Enable Content Analysis ⓘ

Monitor CEA-608/CEA-708 Closed Captions
Requires version 14.4 or newer Broadcaster

Disable Auto-Pull
Disabling Auto-Pull will lock Channels using this Source to the Source's Ingest Cluster and Targets to the Source's current active Broadcaster.

Auto-Pull Latency [ms] *

1000

WebRTC Playback

Disabled **Pass-Through** Auto 1080p 720p 480p 360p

Using WebRTC to monitor a stream requires transcoding (except in Pass-through mode). When playback begins, Zen Master starts transcoding on the Broadcaster, while respecting the Broadcaster's transcoding thresholds.
In Auto mode, the Source is transcoded separately for each active WebRTC client (which consumes additional resources).

INITIAL STATE

Disabled

Muted


ADVANCED +

Back Cancel Save

4. In the **Info** section, in the **Name** field, enter a unique name to identify this Source in the system.
5. In the **Tags** field, select one or more of the predefined Tags from the drop-down list. Tags are used for access control. By selecting a Tag, you are relating this Source to that Tag. Tags are associated with certain roles (through the Users & Roles screen), and roles, in turn, are associated with users and user groups. If you would like to create a new Tag, see [CREATING A TAG](#).
6. In the **Events Configuration Profile** field, select from the dropdown list the profile that you would like to apply to this Source. By default, the *Default* profile is applied.



Events Profiles consist of a series of rules that determine precisely how various types of Events are logged and what results they trigger.


7. The Source's location is used to represent it in the proper position in the Map display (see [MAPS](#)). By default, the location is determined automatically based on the Source's IP. If you would like to manually set the location of the Source (Optional), use the following procedure:
 - a. Click on the **Edit** icon next to the **Location** field.
A search box is shown below the **Location** field.
 - b. Enter identifying info for the location (e.g. street address, zip code, coordinates).
Search results are displayed below the search box as you type.
 - c. Click on the desired location.
The selected location populates the **Location** field.
8. In the **Input** section, click the  button next to two or more binary identical Sources that you would like to include in the failover group.



If the selected Sources are not binary identical then there will be a one second delay in the failover to the backup Source.

9. If you would like to designate a Source as a preferred Source, select the **Preferred** checkbox.
10. If you would like to designate a Source as part of the Slate, select the **Slate** checkbox.



If you would like to remove a selected Source, click on the  button next to the Source.

11. For **Merge Mode**, select the desired mode for merging the streams. Options are:
 - **Content Hitless** – if the Sources do not have RTP headers, Zixi will merge the streams using the MPEG-TS payload content itself. This method uses Zixi's patented DNA like sequencing algorithm to fill in the missing packets.
 - **SMPTE 2022-7 Hitless** – if the Sources use RTP, and the RTP headers were maintained, Zixi can use the SMPTE 2022-7 to compare and merge the two streams. This option uses the sequence and the timestamp in the packets to compare which packets are missing, providing optimal results.

- **Non-Hitless** – ZEN Master treats the streams as different and does not try to merge them. If packets are missing from one stream, ZEN Master will switch to the alternate stream. If the payload is not binary identical it will fall back to Non-Hitless.

12. In the **Merge Search Window [ms]** field, enter the time frame for which the system will search for the relevant packets in a matching stream. (Default: 1000)



If there is a latency difference between the streams, the *Search Window* value should be higher than the latency difference between the streams.



If *Merge Mode* is *Non-Hitless*, the time period specified in the *Search Window* field defines how long the stream will wait for packets before attempting to switch between streams.

13. **Failover Rules** allow you to set rules for what type of errors at what frequency trigger failover to the alternate stream. By default Zero Bitrate and Offline events trigger failover. If you would like to add additional rules, use the following procedure (supported for Broadcasters v15+):

- a. Select the checkbox next to the error that you would like to trigger failover. Options are: *P1 Transport Errors*, *Frozen Video*, *Blank Picture* and *Silent Audio*. (*Zero Bitrate/Offline* is set as selected on a fixed basis.)
- b. Set the parameters for:
 - **Sample Duration** – the duration (in seconds) of the window of each sample.
 - **Samples** – the number of samples that you check in each sampling.
 - **Samples Threshold** – the number of error results (within a sampling) that trigger the failover.



For example, if you set Sample Duration=10, Samples=6, Samples Threshold=2: then if during a 60 second time period an error occurs during 2 out of the 6 ten-second windows, failover will be triggered.

14. In the **Configuration** section, in the **Ingest Cluster** field, select from the drop-down list the Ingest Cluster on which the Sources that you would like to group together are located.

15. In the **Target Broadcaster/s** field, select your broadcaster preference. Either select a specific broadcaster to be used OR specify your preference for using primary vs. backup broadcasters, options are: *Prefer Primary Broadcasters*, *Primary Broadcasters only*, *Backup Broadcasters only* or *Prefer Backup Broadcasters*.



For managed clusters, it is not recommended to select a specific broadcaster, as the broadcaster's availability may not remain stable.

16. If you would like to generate email notifications whenever a PID change is detected, select the **Alert on PID changes** checkbox.
17. Select the **Log SCTE-35** checkbox if you would like to log SCTE-35 markers for this stream.



To log SCTE-35 markers, SCTE-35 needs to be enabled both on the Ingest Cluster and in the Source configuration.



SCTE-35 logging is only available for v13.1.40262+ Broadcasters.

18. If **Log SCTE-35** was selected, you can choose to receive alerts for SCTE-35 markers by selecting the **Enable SCTE-35 alerts** checkbox.
19. In the **Public Output** field, if you would like to allow access to the stream directly through a supported player, select the **Allow** checkbox.
20. If you selected the **Allow** checkbox, then enter a password in the **Password** field to authenticate access to the stream.
21. If you would like to enable Content Analysis (CQA), verify that the **Enable Content Analysis** checkbox is selected (default).



It is generally recommended to enable Content Analysis unless it is causing technical problems. If Content Analysis is disabled, the system won't detect errors in the video and audio content of the stream and won't generate warnings for such events. Even when Content Analysis is disabled the system will still detect TR101 errors in the stream.

22. If you would like to monitor CEA-608/CEA-708 closed captions, select the **Monitor CEA-608/CEA-708** checkbox.



Monitoring CEA-608/CEA-708 Closed Captions requires using a version 14.4 or newer Broadcaster.

23. If you would like to disable auto-pull, select the **Disable Auto-Pull** checkbox.



Disabling Auto-Pull will lock Channels using this Source to the Source's Ingest Cluster and Targets to the Source's current active Broadcaster. This setting only applies to Pass-Through Channels.

24. If Auto-Pull is *enabled*, in the **Auto-Pull Latency [ms]** field, specify the desired latency for auto-pull actions. (Default: 1000 ms)
25. In the **WebRTC Playback** section, select the desired playback method.



WebRTC enables you to monitor the stream via web browsers and mobile applications with real-time communication (RTC). WebRTC needs to be activated independently for each Source in ZEN Master (by default it is disabled).

Select one of the following options:

- **Disabled** – users will not be able to view this Source using WebRTC (default)
- **Pass-Through** – passes the stream through to WebRTC without transcoding. This option *can only be used* if the input stream is already in a WebRTC compliant format (video - H.264 codec with *Baseline* or *Main* profile and no B frames, Audio – Opus codec).
- **Auto** - ZEN Master automatically transcodes the stream using the optimal profile for each specific user. In this option Zixi Broadcaster will decode the video, transforming it into RAW frames, which will be passed to the WebRTC library, where it will be re-encoded for each individual user.



Best quality. However, if monitored by multiple users this can consume extensive resources.

- **1080p/720p/480p/360p** – ZEN Master transcodes the stream to a *WebRTC compliant* profile with the specified resolution. The transcoding is done by Zixi Broadcaster's transcoder.



This method requires a Zixi Broadcaster with X264 or Nvidia for transcoding. This method allows many users to monitor the stream without encoding separately for each individual user, which saves CPU capacity. Since there is only one stream version, it is recommended to encode to a low resolution and low bitrate so that the stream will be viewable by all users monitoring the stream.

26. In the **Initial State** section, select the **Disabled** checkbox if you would like to disable this Source upon initial configuration.
27. Select the **Muted** checkbox if you would like to disable error/recovery notifications for this Source upon initial configuration.



You can Enable/Unmute the Source at any time.

28. If you would like to adjust the advanced settings, click **Advanced**. The **Advanced** settings window is displayed:

ADVANCED —

Billing Code

Billing Code

Billing Password

Billing Password

Validate billing code

Auto-Pull Billing Code

Auto-Pull Billing Code

Auto-Pull Billing Password

Auto-Pull Billing Password

Validate billing code

Auto Pull MTU

MTU

Frozen Video Minimal Duration

10

Broadcasters older than version 16.3 will ignore this setting

Blanc Video Minimal Duration


10

Broadcasters older than version 16.3 will ignore this setting

< Back X Cancel ✓ Save

29. If you would like to track usage for this Source, enter your **Billing Code** details. See [BILLING CODES](#).
30. In the **Auto Pull MTU** field, specify the maximum transmission unit (largest data packet that a network-connected device will accept) in bytes for the Auto Pull.
31. To set the detection of frozen video, in the **Frozen Video Minimal Duration** field, specify the default minimal duration in seconds of frozen video after which the Broadcaster will trigger a Frozen video alert. Default: 10 seconds. This setting is supported for Broadcaster version 16.3 and higher.
32. To set the detection of blank video, in the **Blank Video Minimal Duration** field, specify the default minimal duration in seconds of blank video after which the Broadcaster will trigger a Blank video alert. Default: 10 seconds. This setting is supported for Broadcaster version 16.3 and higher.
33. Click **Save**.

Failover Source Configuration Parameters Table

Parameter	Description
Info	
Name	Specify a name for the Failover Source in ZEN Master.
Tags	<p>Select one or more of the predefined Tags from the drop-down list.</p> <p>Tags are used for access control. By selecting a Tag, you are relating this Source to that Tag. Tags are associated with certain roles (through the Users & Roles screen), and roles, in turn, are associated with users and user groups. If you would like to create a new Tag, see CREATING A TAG.</p>
Events Configuration Profile	<p>Select from the dropdown list the profile that you would like to apply to this Source. By default, the <i>Default</i> profile is applied.</p> <p>NOTE: <i>Events Profiles</i> consist of a series of rules that determine precisely how various types of Events are logged and what results they trigger.</p>
Location (Optional)	The Source's location is used to represent it in the proper position in the Map display (see MAPS). By default, the location is determined automatically based on the Source's IP. Enter identifying info for the location (e.g. street address, zip code, coordinates) and select the desired location from the suggestions that are shown.
Input	
Sources	<p>Select from the drop-down list two or more binary identical Sources that you would like to include in the failover group.</p> <p>If the selected Sources are not binary identical then there will be a one second delay in the failover to the backup Source.</p> <p>If you would like to designate a Source as a preferred Source, select the Preferred checkbox.</p> <p>If you would like to designate a Source as part of the Slate, select the Slate checkbox.</p> <p>NOTE: If you would like to remove a selected Source, click on the  button next to the Source.</p>

Select the desired mode for merging the streams. Options are:

Merge Mode

- **Content Hitless** – if the sources do not have RTP headers, Zixi will merge the streams using the MPEG-TS payload content itself. This method uses Zixi’s patented DNA like sequencing algorithm to fill in the missing packets.
- **SMPTE 2022-7 Hitless** – if the Sources use RTP, and the RTP headers were maintained, Zixi can use the SMPTE 2022-7 to compare and merge the two streams. This option uses the sequence and the timestamp in the packets to compare which packets are missing, providing optimal results.
- **Non-Hitless** – ZEN Master treats the streams as different and does not try to merge them. If packets are missing from one stream, ZEN Master will switch to the alternate stream. If the payload is not binary identical it will fall back to Non-Hitless.

Specify the time frame for which the system will search for the relevant packets in a matching stream. (Default: 1000)

Merge Search Window [ms]

NOTE: If there is a latency difference between the streams, the Search Window value should be higher than the latency difference between the streams.

NOTE: If *Merge Mode* is *Disabled*, the time period specified in the Search Window field defines how long the stream will wait for packets before attempting to switch between streams.

Failover Rules	<p>Failover Rules allow you to set rules for what type of error and how often they occur to change to the failover stream. If you would like to change the rules, use the following procedure (supported for Broadcasters v15+):</p> <ol style="list-style-type: none"> 1. Select the checkbox next to the error for which you would like to change the error rules. Options are: <i>P1 Transport Errors, Frozen Video, Blank Picture</i> and <i>Silent Audio</i>. (<i>Zero Bitrate/Offline</i> is set as selected on a fixed basis.) 2. Set the parameters for: <ul style="list-style-type: none"> ○ Sample Duration – the duration (in seconds) of the window of each sample. ○ Samples – the number of samples that you check in each sampling. ○ Samples Threshold – the number of error results (within a sampling) that trigger the failover. <p>NOTE: For example, if you set Sample Duration=10, Samples=6, Samples Threshold=2: then if during a 60 second time period an error occurs during 2 out of the 6 ten-second windows, failover will be triggered.</p>
Configuration	
Ingest Cluster	Select from the drop-down list one of the available Ingest Clusters as the destination for the Source.
Target Broadcaster/s	<p>Select your Broadcaster preferences. Either select a specific Broadcaster to be used OR specify your preference for using primary vs. backup Broadcasters. Options are: <i>Prefer Primary Broadcasters, Primary Broadcasters only, Backup Broadcasters only</i> or <i>Prefer Backup Broadcasters</i>.</p> <p>NOTE: For managed clusters, it is not recommended to select a specific Broadcaster, as the Broadcaster’s availability may not remain stable.</p>
Alert on PID changes	If you would like to generate email notifications whenever a PID change is detected, select this checkbox.

Sources

	If you would like to log SCTE-35 markers for this stream, select this checkbox.
Log SCTE-35	<p>NOTE: To log SCTE-35 markers, SCTE-35 needs to be enabled both on the Ingest Cluster and in the Source configuration.</p> <p>NOTE: SCTE-35 logging is only available for v13.1.40262+ Broadcasters.</p>
Enable SCTE-35 alerts (for Log SCTE-35)	If you would like to receive alerts for SCTE-35 markers, select this checkbox
Public Output	If you would like to allow access to the stream directly through a supported player, select the Allow checkbox.
Password (for Public Output)	If you selected Allow in the <i>Public Output</i> field, specify a password in this field to authenticate access to the stream.
	If you would like to enable Content Analysis (CQA), verify that this checkbox is selected (default).
Enable Content Analysis	<p>NOTE: It is generally recommended to enable Content Analysis unless it is causing technical problems. If Content Analysis is disabled, the system won't detect errors in the video and audio content of the stream and won't generate warnings for such events. Even when Content Analysis is disabled the system will still detect TR101 errors in the stream.</p>
Monitor CEA-608/CEA-708 Closed Captions	<p>If you would like to monitor CEA-608/CEA-708 closed captions, select this checkbox.</p> <p>NOTE: Monitoring CEA-608/CEA-708 Closed Captions requires using a version 14.4 or newer Broadcaster.</p>
Disable Auto-Pull	<p>If you would like to disable auto-pull, select this checkbox.</p> <p>NOTE: Disabling Auto-Pull will lock Channels using this Source to the Source's Ingest Cluster and Targets to the Source's current active Broadcaster. This setting only applies to Pass-Through Channels.</p>
Auto-Pull Latency [ms]	Specify the desired latency for auto-pull actions. (Default: 1,000 ms)

Select the desired playback method.

NOTE: WebRTC enables you to monitor the stream via web browsers and mobile applications with real-time communication (RTC). WebRTC needs to be activated independently for each Source in ZEN Master (by default it is disabled).

Select one of the following options:

- **Disabled** – users will not be able to view this Source using WebRTC (default)
- **Pass-Through** – passes the stream through to WebRTC without transcoding. This option *can only be used* if the input stream is already in a WebRTC compliant format (video – H.264 codec with *Baseline* or *Main* profile and no B frames, Audio – Opus codec).
- **Auto** – ZEN Master automatically transcodes the stream using the optimal profile for each specific user. In this option Zixi Broadcaster will decode the video, transforming it into RAW frames, which will be passed to the WebRTC library, where it will be re-encoded for each individual user.

WebRTC Playback

NOTE: Best quality. However, if monitored by multiple users this can consume extensive resources.

- **1080p/720p/480p/360p** – ZEN Master transcodes the stream to a WebRTC compliant profile with the specified resolution. The transcoding is done by Zixi Broadcaster’s transcoder.

NOTE: This method requires a Zixi Broadcaster with X264 or Nvidia for transcoding. This method allows many users to monitor the stream without encoding separately for each individual user, which saves CPU capacity. Since there is only one stream resolution, it is recommended to encode to a low resolution and low bitrate so that the stream will be viewable by all users monitoring the stream.

Initial State

Disabled

Select this checkbox if you would like to disable this Source upon initial configuration.

Muted

Select this checkbox if you would like to disable error/recovery notifications for this Source upon initial configuration.

Advanced	
Billing Codes	If you would like to track usage for this Source, enter your Billing Code details, see BILLING CODES . (Supported for Broadcasters v14.8+)
Auto Pull MTU	Specify the maximum transmission unit (largest data packet that a network-connected device will accept) in bytes for the Auto Pull.
Frozen Video Minimal Duration	Specify the default minimal duration in seconds of frozen video after which the Broadcaster will trigger a Frozen video alert. Default: 10 seconds. This setting is supported for Broadcaster version 16.3 and higher. For existing sources, you may need to restart the source.
Blank Video Minimal Duration	Specify the default minimal duration in seconds of blank video after which the Broadcaster will trigger a Blank video alert. Default: 10 seconds. This setting is supported for Broadcaster version 16.3 and higher. For existing sources, you may need to restart the source.

Adding a Source – Transcoded

You can create a transcoded Source based on an existing Source. The transcoding parameters are set by selecting one of the pre-configured transcoding profiles. The transcoded Source can then be added to a Pass-Through Channel making it available to various types of Targets such as YouTube Live or Facebook Live using RTMP protocol.

The following procedure describes how to add a Transcoded Source in ZEN Master. In addition, an explanation of each of the configuration parameters is given in the table below.

➔ To add a Transcoded Source:

1. In the main navigation, click **Sources**.
2. Click **+ Add**.

The **Create New Source** window is displayed.

CREATE NEW SOURCE

ZEN MASTER

Zixi - Zixi push from a connected Feeder, Broadcaster, AWS MediaConnect, or other Zixi enabled device to ZEN Master.

Monitor Only - Monitor an existing input on a ZEN Master enabled Broadcaster. Limited functionality.

Failover - Combine existing Sources into a single Source that will switch between them to maintain quality.

Transcoded - Transcode an existing source into a new one.

PID Mapping - Create a Source with modified PIDs from an existing source

Inter-Cluster - Send a Source from one cluster to another

UDP/RTP - Receive UDP or RTP stream directly.>

File - Create a Source from a .ts file on a Broadcaster

SRT - Receive stream via SRT protocol

RIST - Receive stream via RIST protocol

NDI - Receive an NDI stream in the local network and encode it for transmission

RTMP - Receive stream via RTMP protocol

HLS - Receive stream via HLS protocol

Demux - Create a Demux Source on a Broadcaster

Multiviewer - Collection of selected sources in a grid

Multiplex - Create a Multiplex Source on a Broadcaster

AWS MEDIA

AWS MediaConnect - Create a Source to use with an AWS MediaConnect Flow.

AWS Elemental Link - Source from AWS Elemental Link device to AWS MediaLive

✕ Cancel

3. Click on **Transcoded**.

The **Create New Transcoded** window opens.


CREATE NEW TRANSCODED

INFO

Name *

Access Tags * ⓘ

Events Configuration Profile

Location ⓘ
 

INPUT

Source *

CONFIGURATION

Ingest Cluster *

Target Broadcaster/s *

Transcoding Profile *

Preserve closed captions

Crop

Assign to GPU

Pad to CBR [kbps]

Leave blank for VBR

Alert on PID Changes

Log SCTE-35
 Requires Cluster configuration and version 13.1.40262 or newer Broadcasters

Enable SCTE-35 alerts
 Requires SCTE-35 Logging

Public Output
 Allow

Enable Content Analysis ⓘ

Monitor CEA-608/CEA-708 Closed Captions
 Requires version 14.4 or newer Broadcaster

Disable Auto-Pull
 Disabling Auto-Pull will lock Channels using this Source to the Source's Ingest Cluster and Targets to the Source's current active Broadcaster.

Auto-Pull Latency [ms] *

WebRTC Playback
 Disabled Pass-Through Auto 1080p 720p 480p 360p

Using WebRTC to monitor a stream requires transcoding (except in Pass-through mode). When playback begins, Zen Master starts transcoding on the Broadcaster, while respecting the Broadcaster's transcoding thresholds.
 In Auto mode, the Source is transcoded separately for each active WebRTC client (which consumes additional resources).

Ignore Transcode Thresholds

INITIAL STATE

Disabled

Muted

ADVANCED +

4. In the **Info** section, in the **Name** field, enter a unique name to identify this Source in the system.
5. In the **Tags** field, select one or more of the predefined Tags from the drop-down list. Tags are used for access control. By selecting a Tag, you are relating this Source to that Tag. Tags are associated with certain roles (through the Users & Roles screen), and roles,

in turn, are associated with users and user groups. If you would like to create a new Tag, see [CREATING A TAG](#).

6. In the **Events Configuration Profile** field, select from the dropdown list the profile that you would like to apply to this Source. By default, the *Default* profile is applied.



Events Profiles consist of a series of rules that determine precisely how various types of Events are logged and what results they trigger.

7. The Source's location is used to represent it in the proper position in the Map display (see [MAPS](#)). By default, the location is determined automatically based on the Source's IP. If you would like to manually set the location of the Source (Optional), use the following procedure:
 - a. Click on the **Edit** icon next to the **Location** field.
A search box is shown below the **Location** field.
 - b. Enter identifying info for the location (e.g. street address, zip code, coordinates).
Search results are displayed below the search box as you type.
 - c. Click on the desired location.
The selected location populates the **Location** field.
8. In the **Input** section, in the **Source** field, select from the drop-down list the Source that the transcoded Source is based on.
9. In the **Configuration** section, in the **Ingest Cluster** field, select from the drop-down list the Ingest Cluster on which the Sources that you would like to group together are located.
10. In the **Target Broadcaster/s** field, select your broadcaster preference. Either select a specific broadcaster to be used OR specify your preference for using primary vs. backup broadcasters, options are: *Prefer Primary Broadcasters*, *Primary Broadcasters only*, *Backup Broadcasters only* or *Prefer Backup Broadcasters*.



For managed clusters, it is not recommended to select a specific broadcaster, as the broadcaster's availability may not remain stable.

11. In the **Transcoding Profile** field, select one of the pre-configured transcoding profiles to apply to this Source. If you would like to create a new transcoding profile, see [ADDING TRANSCODING PROFILES](#).
12. If you would like to preserve closed captions for this Source, verify that the **Preserve closed captions** checkbox is selected (default).
13. If you would like to crop the input stream, select the **Crop** checkbox and set the cropping parameters as follows:

Crop

Crop Settings

Units **Pixels** Percentages

Left px Top px

Width px Height px

- a. In the **Units** section, select the type of units used to define the crop. Options are: *Pixels* or *Percentages*.
 - b. Enter the crop position for each of the parameters *Left*, *Top*, *Width* and *Height* in the appropriate fields.
14. If you would like to assign the transcoding process to a multi GPU Broadcaster, select the **Assign to GPU** checkbox, and then select from the drop-down list the desired GPU instance. Options are: 0 (default), 1, 2 and 3.



This feature is useful if you are running several heavy transcoding activities, as it enables you to distribute the load among several different GPUs.

15. In the **Pad to CBR** field, enter the amount of CBR padding to be added (in kbps).
16. In the **Configuration** section, select the **Alert on PID changes** checkbox if you would like to generate email notifications whenever a PID change is detected.
17. Select the **Log SCTE-35** checkbox if you would like to log SCTE-35 markers for this stream.



To log SCTE-35 markers, SCTE-35 needs to be enabled both on the Ingest Cluster and in the Source configuration.



SCTE-35 logging is only available for v13.1.40262+ Broadcasters.

18. If **Log SCTE-35** was selected, you can choose to receive alerts for SCTE-35 markers by selecting the **Enable SCTE-35 alerts** checkbox.
19. In the **Public Output** field, if you would like to allow access to the stream directly through a supported player, select the **Allow** checkbox.
20. If you selected the **Allow** checkbox, then enter a password in the **Password** field to authenticate access to the stream.
21. If you would like enable Content Analysis (CQA), verify that the **Enable Content Analysis** checkbox is selected (default).



It is generally recommended to enable Content Analysis unless it is causing technical problems. If Content Analysis is disabled, the system won't detect errors in the video and audio content of the stream and won't generate warnings for such events. Even when Content Analysis is disabled the system will still detect TR101 errors in the stream.

22. If you would like to monitor CEA-608/CEA-708 closed captions, select the **Monitor CEA-608/CEA-708** checkbox.



Monitoring CEA-608/CEA-708 Closed Captions requires using a version 14.4 or newer Broadcaster.

23. If you would like to disable auto-pull, select the **Disable Auto-Pull** checkbox.



Disabling Auto-Pull will lock Channels using this Source to the Source's Ingest Cluster and Targets to the Source's current active Broadcaster. This setting only applies to Pass-Through Channels.

24. If Auto-Pull is *enabled*, in the **Auto-Pull Latency [ms]** field, specify the desired latency for auto-pull actions. (Default: 1000 ms)
25. Select the **Ignore Transcode Thresholds** checkbox if you would like to override the Transcode thresholds on your Ingest Cluster (i.e. to allow use of full CPU/GPU and memory capacity).
26. In the **Initial State** section, select the **Disabled** checkbox if you would like to disable this Source upon initial configuration.
27. Select the **Muted** checkbox if you would like to disable error/recovery notifications for this Source upon initial configuration.



You can Enable/Unmute the Source at any time.

28. If you would like to adjust the advanced settings, click **Advanced**. The **Advanced** settings window is displayed:

ADVANCED —

Auto-Pull Billing Code

Auto-Pull Billing Code

Auto-Pull Billing Password

Auto-Pull Billing Password

Validate billing code

Auto Pull MTU

MTU

Frozen Video Minimal Duration

10

Broadcasters older than version 16.3 will ignore this setting

Blank Video Minimal Duration

10

Broadcasters older than version 16.3 will ignore this setting

< Back X Cancel ✓ Save

29. If you would like to track usage for this Source, enter your **Billing Code** details. See [BILLING CODES](#).
30. In the **Auto Pull MTU** field, specify the maximum transmission unit (largest data packet that a network-connected device will accept) in bytes for the Auto Pull.
31. To set the detection of frozen video, in the **Frozen Video Minimal Duration** field, specify the default minimal duration in seconds of frozen video after which the Broadcaster will trigger a Frozen video alert. Default: 10 seconds. This setting is supported for Broadcaster version 16.3 and higher.
32. To set the detection of blank video, in the **Blank Video Minimal Duration** field, specify the default minimal duration in seconds of blank video after which the Broadcaster will

trigger a Blank video alert. Default: 10 seconds. This setting is supported for Broadcaster version 16.3 and higher.

33. Click **Save**.

Transcoded Source Configuration Parameters Table

Parameter	Description
Info	
Name	Specify a name for the Transcoded Source in ZEN Master.
Tags	Select one or more of the predefined Tags from the drop-down list. Tags are used for access control. By selecting a Tag, you are relating this Source to that Tag. Tags are associated with certain roles (through the Users & Roles screen), and roles, in turn, are associated with users and user groups. If you would like to create a new Tag, see CREATING A TAG .
Events Configuration Profile	Select from the dropdown list the profile that you would like to apply to this Source. By default, the <i>Default</i> profile is applied. NOTE: <i>Events Profiles</i> consist of a series of rules that determine precisely how various types of Events are logged and what results they trigger.
Location (Optional)	The Source's location is used to represent it in the proper position in the Map display (see MAPS). By default, the location is determined automatically based on the Source's IP. Enter identifying info for the location (e.g. street address, zip code, coordinates) and select the desired location from the suggestions that are shown.
Input	
Source	Select from the drop-down list the Source that the transcoded Source is based on.
Configuration	
Ingest Cluster	Select from the drop-down list one of the available Ingest Clusters as the destination for the Source.

Sources

Target Broadcaster/s	<p>Select your Broadcaster preferences. Either select a specific Broadcaster to be used OR specify your preference for using primary vs. backup Broadcasters. Options are: <i>Prefer Primary Broadcasters</i>, <i>Primary Broadcasters only</i>, <i>Backup Broadcasters only</i> or <i>Prefer Backup Broadcasters</i>.</p> <p>NOTE: For managed clusters, it is not recommended to select a specific Broadcaster, as the Broadcaster's availability may not remain stable.</p>
Transcoding Profile	<p>Select one of the pre-configured transcoding profiles to apply to this Source. If you would like to create a new transcoding profile, see ADDING TRANSCODING PROFILES.</p>
Preserve closed captions	<p>If you would like to preserve closed captions for this Source, select this checkbox (default).</p>
Crop	<p>If you would like to crop the input stream, select this checkbox and set the cropping parameters as follows:</p> <ul style="list-style-type: none">• In the Units section, select the type of units used to define the crop. Options are: Pixels or Percentages.• Enter the crop position for each of the parameters Left, Top, Width and Height in the appropriate fields.
Assign to GPU	<p>Select this checkbox if you would like to assign the transcoding process to a multi GPU Broadcaster, and then select from the drop-down list the desired GPU instance. Options are: 0 (default), 1, 2, and 3.</p> <p>NOTE: This feature is useful if you are running several heavy transcoding activities, as it enables you to distribute the load among several different GPUs.</p>

	Specify the amount of CBR padding to be added (in kbps). This parameter is optional. If you do not specify a TS Bitrate, the transport stream will be variable bitrate (VBR) with no additional null packets added. If you specify a bitrate, the transport stream will be constant bitrate (CBR) where null packets are added as necessary to achieve the specified bitrate.
Pad to CBR [kbps]	CBR transport streams are typically required when sending a stream to a satellite head-end or to a professional integrated receiver-decoder (IRD). The overhead of MPEG TS is about 7%. To determine the bitrate setting, sum the max video bitrate and audio bitrate from the encoding profile and then add the other PIDs (if choosing to pass all PIDs) and add 7%. If the bitrate needed for the transport stream exceeds the value specified, the Broadcaster will give a “bitrate too low” error message. VBR transport streams are typically used for HLS, DASH, RTMP, and other similar live streaming workflows.
Alert on PID changes	If you would like to generate email notifications whenever a PID change is detected, select this checkbox.
Log SCTE-35	If you would like to log SCTE-35 markers for this stream, select this checkbox. NOTE: To log SCTE-35 markers, SCTE-35 needs to be enabled both on the Ingest Cluster and in the Source configuration. NOTE: SCTE-35 logging is only available for v13.1.40262+ Broadcasters.
Enable SCTE-35 alerts (for Log SCTE-35)	If you would like to receive alerts for SCTE-35 markers, select this checkbox
Public Output	If you would like to allow access to the stream directly through a supported player, select the Allow checkbox.
Password (for Public Output)	If you selected Allow in the <i>Public Output</i> field, specify a password in this field to authenticate access to the stream.

Sources

	If you would like to enable Content Analysis (CQA), verify that this checkbox is selected (default).
Enable Content Analysis	NOTE: It is generally recommended to enable Content Analysis unless it is causing technical problems. If Content Analysis is disabled, the system won't detect errors in the video and audio content of the stream and won't generate warnings for such events. Even when Content Analysis is disabled the system will still detect TR101 errors in the stream.
Monitor CEA-608/CEA-708 Closed Captions	If you would like to monitor CEA-608/CEA-708 closed captions, select this checkbox. NOTE: Monitoring CEA-608/CEA-708 Closed Captions requires using a version 14.4 or newer Broadcaster.
Disable Auto-Pull	If you would like to disable auto-pull, select this checkbox. NOTE: Disabling Auto-Pull will lock Channels using this Source to the Source's Ingest Cluster and Targets to the Source's current active Broadcaster. This setting only applies to Pass-Through Channels.
Auto-Pull Latency [ms]	Specify the desired latency for auto-pull actions. (Default: 1,000 ms)
Ignore Transcode Thresholds	Select this checkbox if you would like to override the Transcode thresholds for your Ingest Cluster (i.e. to allow use of full CPU/GPU and memory capacity).
Initial State	
Disabled	Select this checkbox if you would like to disable this Source upon initial configuration.
Muted	Select this checkbox if you would like to disable error/recovery notifications for this Source upon initial configuration.
Advanced	
Billing Codes	If you would like to track usage for this Source, enter your Billing Code details, see BILLING CODES . (Supported for Broadcasters v14.8+)
Auto Pull MTU	Specify the maximum transmission unit (largest data packet that a network-connected device will accept) in bytes for the Auto Pull.

Sources

Frozen Video Minimal Duration	Specify the default minimal duration in seconds of frozen video after which the Broadcaster will trigger a Frozen video alert. Default: 10 seconds. This setting is supported for Broadcaster version 16.3 and higher. For existing sources, you may need to restart the source.
Blank Video Minimal Duration	Specify the default minimal duration in seconds of blank video after which the Broadcaster will trigger a Blank video alert. Default: 10 seconds. This setting is supported for Broadcaster version 16.3 and higher. For existing sources, you may need to restart the source.

Adding a Source – PID Mapping

You can apply PID mapping to Sources in ZEN Master (for v14+ Broadcasters). This enables you to ensure that the PIDs will have the desired values when they arrive downstream at the Target. This is done by first creating a PID Mapping profile which specifies which PIDs will be processed and defining how they will be handled.

Once you have created a PID Mapping profile you can apply it to a Source in ZEN Master.

This section explains how to create a new PID Mapping Source *from an existing Source*. This enables you to maintain the original Source with the original PID values. You can then set up multiple Sources with different PID mappings so that you can send differently mapped streams to different Targets.

Alternatively, you can apply PID Mapping to a standard Source in ZEN Master (Zixi, UDP/RTP, SRT or RIST) by selecting the PID Mapping profile during the Source configuration. This causes the same mapped stream to be sent to all Targets that receive that Source.

The following procedure describes how to add a PID Mapping Source in ZEN Master. In addition, an explanation of each of the configuration parameters is given in the table below.

➔ To add a PID Mapping Source:

1. In the main navigation, click **Sources**.
2. Click **+ Add**.
The **Create New Source** window is displayed.

CREATE NEW SOURCE

ZEN MASTER

Zixi - Zixi push from a connected Feeder, Broadcaster, AWS MediaConnect, or other Zixi enabled device to ZEN Master.

Monitor Only - Monitor an existing input on a ZEN Master enabled Broadcaster. Limited functionality.

Failover - Combine existing Sources into a single Source that will switch between them to maintain quality.

Transcoded - Transcode an existing source into a new one.

PID Mapping - Create a Source with modified PIDs from an existing source

Inter-Cluster - Send a Source from one cluster to another

UDP/RTP - Receive UDP or RTP stream directly.>

File - Create a Source from a .ts file on a Broadcaster

SRT - Receive stream via SRT protocol

RIST - Receive stream via RIST protocol

NDI - Receive an NDI stream in the local network and encode it for transmission

RTMP - Receive stream via RTMP protocol

HLS - Receive stream via HLS protocol

Demux - Create a Demux Source on a Broadcaster

Multiviewer - Collection of selected sources in a grid

Multiplex - Create a Multiplex Source on a Broadcaster

AWS MEDIA

AWS MediaConnect - Create a Source to use with an AWS MediaConnect Flow.

AWS Elemental Link - Source from AWS Elemental Link device to AWS MediaLive

X Cancel

- Click on **PID Mapping**.
The **Create New PID Mapping** window opens.

CREATE NEW PID MAPPING

INFO

Name *

Access Tags * ⓘ

Events Configuration Profile

Location ⓘ

INPUT

Source *

CONFIGURATION

Ingest Cluster *

Target Broadcaster/s *

Input NIC

Select a Target Broadcaster to enable Input NIC selection.
Broadcasters older than version 15 ignore this setting.

PID Mapping Profile *

Alert on PID Changes

Log SCTE-35
Requires Cluster configuration and version 13.1.40262 or newer Broadcasters

Enable SCTE-35 alerts
Requires SCTE-35 Logging

Public Output

Allow Password

Enable Content Analysis ⓘ

Monitor CEA-608/CEA-708 Closed Captions
Requires version 14.4 or newer Broadcaster

Disable Auto-Pull
Disabling Auto-Pull will lock Channels using this Source to the Source's Ingest Cluster and Targets to the Source's current active Broadcaster.

Auto-Pull Latency [ms] *

WebRTC Playback

Disabled Pass-Through Auto 1080p 720p 480p 360p

Using WebRTC to monitor a stream requires transcoding (except in Pass-through mode). When playback begins, Zen Master starts transcoding on the Broadcaster, while respecting the Broadcaster's transcoding thresholds.
In Auto mode, the Source is transcoded separately for each active WebRTC client (which consumes additional resources).

INITIAL STATE

Disabled

Muted

ADVANCED +

< Back X Cancel ✓ Save

- In the **Info** section, in the **Name** field, enter a unique name to identify this Source in the system.

5. In the **Tags** field, select one or more of the predefined Tags from the drop-down list. Tags are used for access control. By selecting a Tag, you are relating this Source to that Tag. Tags are associated with certain roles (through the Users & Roles screen), and roles, in turn, are associated with users and user groups. If you would like to create a new Tag, see [CREATING A TAG](#).
6. In the **Events Configuration Profile** field, select from the dropdown list the profile that you would like to apply to this Source. By default, the *Default* profile is applied.



Events Profiles consist of a series of rules that determine precisely how various types of Events are logged and what results they trigger.

7. The Source's location is used to represent it in the proper position in the Map display (see [MAPS](#)). By default, the location is determined automatically based on the Source's IP. If you would like to manually set the location of the Source (Optional), use the following procedure:
 - a. Click on the **Edit** icon next to the **Location** field.
A search box is shown below the **Location** field.
 - b. Enter identifying info for the location (e.g. street address, zip code, coordinates).
Search results are displayed below the search box as you type.
 - c. Click on the desired location.
The selected location populates the **Location** field.
8. In the **Input** section, in the **Source** field, select from the drop-down list the existing Source from which you want to create the new PID Mapping Source.
9. In the **Configuration** section, in the **Ingest Cluster** field, select from the drop-down list one of the available Ingest Clusters as the destination for the Source.
10. In the **Target Broadcaster/s** field, select your broadcaster preference. Either select a specific broadcaster to be used OR specify your preference for using primary vs. backup broadcasters, options are: *Prefer Primary Broadcasters*, *Primary Broadcasters only*, *Backup Broadcasters only* or *Prefer Backup Broadcasters*.



For managed clusters, it is not recommended to select a specific broadcaster, as the broadcaster's availability may not remain stable.

11. In the **PID Mapping Profile** field, select from the drop-down list the PID Mapping profile you would like to use.
12. If you would like to generate email notifications whenever a PID change is detected In the **Configuration** section, select the **Alert on PID changes** checkbox.
13. Select the **Log SCTE-35** checkbox if you would like to log SCTE-35 markers for this stream.



To log SCTE-35 markers, SCTE-35 needs to be enabled both on the Ingest Cluster and in the Source configuration.



SCTE-35 logging is only available for v13.1.40262+ Broadcasters.

14. If **Log SCTE-35** was selected, you can choose to receive alerts for SCTE-35 markers by selecting the **Enable SCTE-35 alerts** checkbox.
15. In the **Public Output** field, if you would like to allow access to the stream directly through a supported player, select the **Allow** checkbox.
16. If you selected the **Allow** checkbox, then enter a password in the **Password** field to authenticate access to the stream.
17. If you would like to enable Content Analysis (CQA), verify that the **Enable Content Analysis** checkbox is selected (default).



It is generally recommended to enable Content Analysis unless it is causing technical problems. If Content Analysis is disabled, the system won't detect errors in the video and audio content of the stream and won't generate warnings for such events. Even when Content Analysis is disabled the system will still detect TR101 errors in the stream.

18. If you would like to monitor CEA-608/CEA-708 closed captions, select the **Monitor CEA-608/CEA-708** checkbox.



Monitoring CEA-608/CEA-708 Closed Captions requires using a version 14.4 or newer Broadcaster.

19. If you would like to disable auto-pull, select the **Disable Auto-Pull** checkbox.



Disabling Auto-Pull will lock Channels using this Source to the Source's Ingest Cluster and Targets to the Source's current active Broadcaster. This setting only applies to Pass-Through Channels.

20. If Auto-Pull is *enabled*, in the **Auto-Pull Latency [ms]** field, specify the desired latency for auto-pull actions. (Default: 1000 ms)
21. In the **WebRTC Playback** section, select the desired playback method.



WebRTC enables you to monitor the stream via web browsers and mobile applications with real-time communication (RTC). WebRTC needs to be activated independently for each Source in ZEN Master (by default it is disabled).

Select one of the following options:

- **Disabled** – users will not be able to view this Source using WebRTC (default)
- **Pass-Through** – passes the stream through to WebRTC without transcoding. This option *can only be used* if the input stream is already in a WebRTC compliant format (video - H.264 codec with *Baseline* or *Main* profile and no B frames, Audio – Opus codec).

- **Auto** - ZEN Master automatically transcodes the stream using the optimal profile for each specific user. In this option Zixi Broadcaster will decode the video, transforming it into RAW frames, which will be passed to the WebRTC library, where it will be re-encoded for each individual user.



Best quality. However, if monitored by multiple users this can consume extensive resources.

- **1080p/720p/480p/360p** – ZEN Master transcodes the stream to a *WebRTC compliant* profile with the specified resolution. The transcoding is done by Zixi Broadcaster's transcoder.



This method requires a Zixi Broadcaster with X264 or Nvidia for transcoding. This method allows many users to monitor the stream without encoding separately for each individual user, which saves CPU capacity. Since there is only one stream version, it is recommended to encode to a low resolution and low bitrate so that the stream will be viewable by all users monitoring the stream.

22. In the **Initial State** section, select the **Disabled** checkbox if you would like to disable this Source upon initial configuration.
23. Select the **Muted** checkbox if you would like to disable error/recovery notifications for this Source upon initial configuration.



You can Enable/Unmute the Source at any time.

24. If you would like to adjust the advanced settings, click **Advanced**.
The **Advanced** settings fields are displayed:

ADVANCED —

Billing Code

Billing Code

Billing Password

Billing Password

Validate billing code

Auto-Pull Billing Code

Auto-Pull Billing Code

Auto-Pull Billing Password

Auto-Pull Billing Password

Validate billing code

Auto Pull MTU

MTU

Apply Input NIC selection to network device

Frozen Video Minimal Duration

10

Broadcasters older than version 16.3 will ignore this setting

Blank Video Minimal Duration

10

Broadcasters older than version 16.3 will ignore this setting

< Back x Cancel **Save**

25. If you would like to track usage for this Source, enter your **Billing Code** details. See [BILLING CODES](#).
26. In the **Auto Pull MTU** field, specify the maximum transmission unit (largest data packet that a network-connected device will accept) in bytes for the Auto Pull.
27. To apply Input NIC selection to the network device, select the **Apply Input NIC selection to network device** checkbox.
28. To set the detection of frozen video, in the **Frozen Video Minimal Duration** field, specify the default minimal duration in seconds of frozen video after which the Broadcaster will trigger a Frozen video alert. Default: 10 seconds. This setting is supported for Broadcaster version 16.3 and higher.
29. To set the detection of blank video, in the **Blank Video Minimal Duration** field, specify the default minimal duration in seconds of blank video after which the Broadcaster will trigger a Blank video alert. Default: 10 seconds. This setting is supported for Broadcaster version 16.3 and higher.
30. Click **Save**.

PID Mapping Source Configuration Parameters Table

Parameter	Description
Info	
Name	Specify a name for the PID Mapping Source in ZEN Master.
Tags	<p>Select one or more of the predefined Tags from the drop-down list.</p> <p>Tags are used for access control. By selecting a Tag, you are relating this Source to that Tag. Tags are associated with certain roles (through the Users & Roles screen), and roles, in turn, are associated with users and user groups. If you would like to create a new Tag, see CREATING A TAG.</p>
Events Configuration Profile	<p>Select from the dropdown list the profile that you would like to apply to this Source. By default, the <i>Default</i> profile is applied.</p> <p>NOTE: <i>Events Profiles</i> consist of a series of rules that determine precisely how various types of Events are logged and what results they trigger.</p>
Location (Optional)	The Source's location is used to represent it in the proper position in the Map display (see MAPS). By default, the location is determined automatically based on the Source's IP. Enter identifying info for the location (e.g. street address, zip code, coordinates) and select the desired location from the suggestions that are shown.
Input	
Source	Select from the drop-down list the Source that the PID Mapping Source is based on.
Configuration	
Ingest Cluster	Select from the drop-down list one of the available Ingest Clusters as the destination for the Source.

Sources

Target Broadcaster/s	<p>Select your Broadcaster preferences. Either select a specific Broadcaster to be used OR specify your preference for using primary vs. backup Broadcasters. Options are: <i>Prefer Primary Broadcasters, Primary Broadcasters only, Backup Broadcasters only</i> or <i>Prefer Backup Broadcasters</i>.</p> <p>Note: For managed clusters, it is not recommended to select a specific Broadcaster, as the Broadcaster's availability may not remain stable.</p>
PID Mapping Profile	<p>Select the desired PID Mapping profile from the dropdown list.</p> <p>To create a new PID Mapping Profile, see ADDING PID MAPPING PROFILES.</p>
Alert on PID changes	<p>If you would like to generate email notifications whenever a PID change is detected, select this checkbox.</p>
Log SCTE-35	<p>If you would like to log SCTE-35 markers for this stream, select this checkbox.</p> <p>NOTE: To log SCTE-35 markers, SCTE-35 needs to be enabled both on the Ingest Cluster and in the Source configuration.</p> <p>NOTE: SCTE-35 logging is only available for v13.1.40262+ Broadcasters.</p>
Enable SCTE-35 alerts (for Log SCTE-35)	<p>If you would like to receive alerts for SCTE-35 markers, select this checkbox</p>
Public Output	<p>If you would like to allow access to the stream directly through a supported player, select the Allow checkbox.</p>
Password (for Public Output)	<p>If you selected Allow in the <i>Public Output</i> field, specify a password in this field to authenticate access to the stream.</p>
Enable Content Analysis	<p>If you would like to enable Content Analysis (CQA), verify that this checkbox is selected (default).</p> <p>NOTE: It is generally recommended to enable Content Analysis unless it is causing technical problems. If Content Analysis is disabled, the system won't detect errors in the video and audio content of the stream and won't generate warnings for such events. Even when Content Analysis is disabled the system will still detect TR101 errors in the stream.</p>

Sources

Monitor CEA-608/CEA-708 Closed Captions	If you would like to monitor CEA-608/CEA-708 closed captions, select this checkbox. NOTE: Monitoring CEA-608/CEA-708 Closed Captions requires using a version 14.4 or newer Broadcaster.
Disable Auto-Pull	If you would like to disable auto-pull, select this checkbox. NOTE: Disabling Auto-Pull will lock Channels using this Source to the Source's Ingest Cluster and Targets to the Source's current active Broadcaster. This setting only applies to Pass-Through Channels.
Auto-Pull Latency [ms]	Specify the desired latency for auto-pull actions. (Default: 1,000 ms)

Select the desired playback method.

NOTE: WebRTC enables you to monitor the stream via web browsers and mobile applications with real-time communication (RTC). WebRTC needs to be activated independently for each Source in ZEN Master (by default it is disabled).

Select one of the following options:

- **Disabled** – users will not be able to view this Source using WebRTC (default)
- **Pass-Through** – passes the stream through to WebRTC without transcoding. This option *can only be used* if the input stream is already in a WebRTC compliant format (video – H.264 codec with *Baseline* or *Main* profile and no B frames, Audio – Opus codec).
- **Auto** – ZEN Master automatically transcodes the stream using the optimal profile for each specific user. In this option Zixi Broadcaster will decode the video, transforming it into RAW frames, which will be passed to the WebRTC library, where it will be re-encoded for each individual user.

WebRTC Playback

NOTE: Best quality. However, if monitored by multiple users this can consume extensive resources.

- **1080p/720p/480p/360p** – ZEN Master transcodes the stream to a WebRTC compliant profile with the specified resolution. The transcoding is done by Zixi Broadcaster's transcoder.

NOTE: This method requires a Zixi Broadcaster with X264 or Nvidia for transcoding. This method allows many users to monitor the stream without encoding separately for each individual user, which saves CPU capacity. Since there is only one stream resolution, it is recommended to encode to a low resolution and low bitrate so that the stream will be viewable by all users monitoring the stream.

Initial State

Disabled

Select this checkbox if you would like to disable this Source upon initial configuration.

Muted

Select this checkbox if you would like to disable error/recovery notifications for this Source upon initial configuration.

Advanced

Sources

Billing Codes	If you would like to track usage for this Source, enter your Billing Code details, see BILLING CODES . (Supported for Broadcasters v14.8+)
Auto Pull MTU	Specify the maximum transmission unit (largest data packet that a network-connected device will accept) in bytes for the Auto Pull.
Apply Input NIC selection to network device	Select this checkbox to apply Input NIC selection to the network device.
Frozen Video Minimal Duration	Specify the default minimal duration in seconds of frozen video after which the Broadcaster will trigger a Frozen video alert. Default: 10 seconds. This setting is supported for Broadcaster version 16.3 and higher. For existing sources, you may need to restart the source.
Blank Video Minimal Duration	Specify the default minimal duration in seconds of blank video after which the Broadcaster will trigger a Blank video alert. Default: 10 seconds. This setting is supported for Broadcaster version 16.3 and higher. For existing sources, you may need to restart the source.

Adding a Source – Inter-Cluster

You can create an Inter-Cluster Source to pull a stream from an existing Source that is managed by ZEN Master into a new Cluster in ZEN Master. This enables you to specify the latency and private IP address used for pulling the stream. The new Source will be monitored fully by ZEN Master.

This can be helpful, for example, if your deployment utilizes separate Broadcaster clusters for ingesting Source streams and delivering streams to Receivers. Creating an Inter-Cluster Source enables you to explicitly pull the Source from the ingesting cluster to the delivery cluster using your customized specifications.

The following procedure describes how to add an Inter-Cluster Source in ZEN Master. In addition, an explanation of each of the configuration parameters is given in the table below.

➔ **To add a Source from an existing cluster:**

1. In the main navigation, click **Sources**.
2. Click **+ Add**.
The **Create New Source** window is displayed.

CREATE NEW SOURCE

ZEN MASTER

Zixi - Zixi push from a connected Feeder, Broadcaster, AWS MediaConnect, or other Zixi enabled device to ZEN Master.

Monitor Only - Monitor an existing input on a ZEN Master enabled Broadcaster. Limited functionality.

Failover - Combine existing Sources into a single Source that will switch between them to maintain quality.

Transcoded - Transcode an existing source into a new one.

PID Mapping - Create a Source with modified PIDs from an existing source

Inter-Cluster - Send a Source from one cluster to another

UDP/RTP - Receive UDP or RTP stream directly.>

File - Create a Source from a .ts file on a Broadcaster

SRT - Receive stream via SRT protocol

RIST - Receive stream via RIST protocol

NDI - Receive an NDI stream in the local network and encode it for transmission

RTMP - Receive stream via RTMP protocol

HLS - Receive stream via HLS protocol

Demux - Create a Demux Source on a Broadcaster

Multiviewer - Collection of selected sources in a grid

Multiplex - Create a Multiplex Source on a Broadcaster

AWS MEDIA

AWS MediaConnect - Create a Source to use with an AWS MediaConnect Flow.

AWS Elemental Link - Source from AWS Elemental Link device to AWS MediaLive

X Cancel

- Click on **Inter-Cluster**.
The **Create New Inter-Cluster** window opens.

CREATE NEW INTER-CLUSTER


INFO

Name *

Access Tags * ⓘ

Events Configuration Profile

Location ⓘ

INPUT

Source *

CONFIGURATION

Ingest Cluster *

Target Broadcaster/s *

Prefer Private Broadcaster IP

Input NIC

Select a Target Broadcaster to enable Input NIC selection.
Broadcasters older than version 15 ignore this setting.

Latency [ms] *

PID Mapping Profile

Alert on PID Changes

Log SCTE-35
Requires Cluster configuration and version 13.1.40262 or newer Broadcasters

Enable SCTE-35 alerts
Requires SCTE-35 Logging

Public Output

Allow

Enable Content Analysis ⓘ

Monitor CEA-608/CEA-708 Closed Captions
Requires version 14.4 or newer Broadcaster

Disable Auto-Pull
Disabling Auto-Pull will lock Channels using this Source to the Source's Ingest Cluster and Targets to the Source's current active Broadcaster.

Auto-Pull Latency [ms] *

WebRTC Playback

Disabled **Pass-Through** **Auto** **1080p** **720p** **480p** **360p**

Using WebRTC to monitor a stream requires transcoding (except in Pass-through mode). When playback begins, Zen Master starts transcoding on the Broadcaster, while respecting the Broadcaster's transcoding thresholds.
In Auto mode, the Source is transcoded separately for each active WebRTC client (which consumes additional resources).

INITIAL STATE

Disabled

Muted

ADVANCED +

4. In the **Info** section, in the **Name** field, type a logical name for the Source.
5. In the **Tags** field, select one or more of the predefined Tags from the drop-down list. Tags are used for access control. By selecting a Tag, you are relating this Source to that Tag. Tags are associated with certain roles (through the Users & Roles screen), and roles, in turn, are associated with users and user groups. If you would like to create a new Tag, see [CREATING A TAG](#).
6. In the **Events Configuration Profile** field, select from the dropdown list the profile that you would like to apply to this Source. By default, the *Default* profile is applied.



Events Profiles consist of a series of rules that determine precisely how various types of Events are logged and what results they trigger.

7. The Source's location is used to represent it in the proper position in the Map display (see [MAPS](#)). By default, the location is determined automatically based on the Source's IP. If you would like to manually set the location of the Source (Optional), use the following procedure:
 - a. Click on the **Edit** icon next to the **Location** field.
A search box is shown below the **Location** field.
 - b. Enter identifying info for the location (e.g. street address, zip code, coordinates).
Search results are displayed below the search box as you type.
 - c. Click on the desired location.
The selected location populates the **Location** field.
8. In the **Input** section, in the **Source** field, select from the drop-down list a Source that is managed on ZEN Master that will be sent to the new Ingest Cluster.
9. In the **Configuration** section, in the **Ingest Cluster** field, select from the drop-down list one of the available Ingest Clusters as the destination for the Source.
10. In the **Target Broadcaster/s** field, select your broadcaster preference. Either select a specific broadcaster to be used OR specify your preference for using primary vs. backup broadcasters, options are: *Prefer Primary Broadcasters*, *Primary Broadcasters only*, *Backup Broadcasters only* or *Prefer Backup Broadcasters*.



For managed clusters, it is not recommended to select a specific broadcaster, as the broadcaster's availability may not remain stable.

11. If you would like to use a private IP, select the **Prefer Private Broadcaster IP** checkbox.



Using this feature may be cost effective when using Manual clusters. To use this feature, you must first enter a Private IP in the Broadcaster's advanced configuration (go to **Broadcasters** screen > select the relevant Cluster > **Broadcasters** tab > **Edit** the relevant broadcaster), see [ADDING A BROADCASTER TO A MANUAL CLUSTER](#).

12. In the **Input NIC** field, if you would like to specify which NIC is used, then select the IP of that NIC from the drop-down list. By default, *Any* is selected.

13. In the **Latency [ms]** field, select the latency time for the stream. Default value: *4000*.



For Clusters that are in close geographical proximity lower latency can be used.

14. If you would like to apply a PID Mapping profile to this Source, then in the **PID Mapping Profile** field, select the desired profile from the dropdown list.



Using this method creates a single Source in ZEN Master with PID Mapping applied. If you would like to maintain a Source with the original PIDs and create an additional Source with PID Mapping (e.g. if you want to create several different PID Mapped variations), then use the method described in [ADDING A SOURCE – PID MAPPING](#).

To create a new PID Mapping Profile, see [ADDING PID MAPPING PROFILES](#).

15. If you would like to generate email notifications whenever a PID change is detected In the **Configuration** section, select the **Alert on PID changes** checkbox.

16. Select the **Log SCTE-35** checkbox if you would like to log SCTE-35 markers for this stream.



To log SCTE-35 markers, SCTE-35 needs to be enabled both on the Ingest Cluster and in the Source configuration.



SCTE-35 logging is only available for v13.1.40262+ Broadcasters.

17. If **Log SCTE-35** was selected, you can choose to receive alerts for SCTE-35 markers by selecting the **Enable SCTE-35 alerts** checkbox.

18. In the **Public Output** field, if you would like to allow access to the stream directly through a supported player, select the **Allow** checkbox.

19. If you selected the **Allow** checkbox, then enter a password in the **Password** field to authenticate access to the stream.

20. If you would like enable Content Analysis (CQA), verify that the **Enable Content Analysis** checkbox is selected (default).



It is generally recommended to enable Content Analysis unless it is causing technical problems. If Content Analysis is disabled, the system won't detect errors in the video and audio content of the stream and won't generate warnings for such events. Even when Content Analysis is disabled the system will still detect TR101 errors in the stream.

21. If you would like to monitor CEA-608/CEA-708 closed captions, select the **Monitor CEA-608/CEA-708** checkbox.



Monitoring CEA-608/CEA-708 Closed Captions requires using a version 14.4 or newer Broadcaster.

22. If you would like to disable auto-pull, select the **Disable Auto-Pull** checkbox.



Disabling Auto-Pull will lock Channels using this Source to the Source's Ingest Cluster and Targets to the Source's current active Broadcaster. This setting only applies to Pass-Through Channels.

23. If Auto-Pull is *enabled*, in the **Auto-Pull Latency [ms]** field, specify the desired latency for auto-pull actions. (Default: 1000 ms)

24. In the **WebRTC Playback** section, select the desired playback method.



WebRTC enables you to monitor the stream via web browsers and mobile applications with real-time communication (RTC). WebRTC needs to be activated independently for each Source in ZEN Master (by default it is disabled).

Select one of the following options:

- **Disabled** – users will not be able to view this Source using WebRTC (default)
- **Pass-Through** – passes the stream through to WebRTC without transcoding. This option *can only be used* if the input stream is already in a WebRTC compliant format (video - H.264 codec with *Baseline* or *Main* profile and no B frames, Audio – Opus codec).
- **Auto** - ZEN Master automatically transcodes the stream using the optimal profile for each specific user. In this option Zixi Broadcaster will decode the video, transforming it into RAW frames, which will be passed to the WebRTC library, where it will be re-encoded for each individual user.



Best quality. However, if monitored by multiple users this can consume extensive resources.

- **1080p/720p/480p/360p** – ZEN Master transcodes the stream to a *WebRTC compliant* profile with the specified resolution. The transcoding is done by Zixi Broadcaster's transcoder.



This method requires a Zixi Broadcaster with X264 or Nvidia for transcoding. This method allows many users to monitor the stream without encoding separately for each individual user, which saves CPU capacity. Since there is only one stream version, it is recommended to encode to a low resolution and low bitrate so that the stream will be viewable by all users monitoring the stream.

25. In the **Initial State** section, select the **Disabled** checkbox if you would like to disable this Source upon initial configuration.

26. Select the **Muted** checkbox if you would like to disable error/recovery notifications for this Source upon initial configuration.



You can Enable/Unmute the Source at any time.

27. If you would like to adjust the advanced settings, click **Advanced**. The **Advanced** settings fields are displayed:

ADVANCED —

Billing Code

Billing Code

Billing Password

Billing Password

Validate billing code

Auto-Pull Billing Code

Auto-Pull Billing Code

Auto-Pull Billing Password

Auto-Pull Billing Password

Validate billing code

Auto Pull MTU

MTU

Frozen Video Minimal Duration

10

Broadcasters older than version 16.3 will ignore this setting

Blanc Video Minimal Duration

10

Broadcasters older than version 16.3 will ignore this setting

< Back x Cancel v Save

28. If you would like to track usage for this Source, enter your **Billing Code** details. See **BILLING CODES**.
29. In the **Auto Pull MTU** field, specify the maximum transmission unit (largest data packet that a network-connected device will accept) in bytes for the Auto Pull.
30. To set the detection of frozen video, in the **Frozen Video Minimal Duration** field, specify the default minimal duration in seconds of frozen video after which the Broadcaster will trigger a Frozen video alert. Default: 10 seconds. This setting is supported for Broadcaster version 16.3 and higher.
31. To set the detection of blank video, in the **Blank Video Minimal Duration** field, specify the default minimal duration in seconds of blank video after which the Broadcaster will trigger a Blank video alert. Default: 10 seconds. This setting is supported for Broadcaster version 16.3 and higher.
32. Click **Save**.

Inter-Cluster Source Configuration Parameters Table

Parameter	Description
Info	
Name	Specify the name of the Inter-Cluster Source in ZEN Master.
Tags	<p>Select one or more of the predefined Tags from the drop-down list.</p> <p>Tags are used for access control. By selecting a Tag, you are relating this Source to that Tag. Tags are associated with certain roles (through the Users & Roles screen), and roles, in turn, are associated with users and user groups. If you would like to create a new Tag, see CREATING A TAG.</p>
Events Configuration Profile	<p>Select from the dropdown list the profile that you would like to apply to this Source. By default, the <i>Default</i> profile is applied.</p> <p>NOTE: <i>Events Profiles</i> consist of a series of rules that determine precisely how various types of Events are logged and what results they trigger.</p>
Location (Optional)	The Source's location is used to represent it in the proper position in the Map display (see MAPS). By default, the location is determined automatically based on the Source's IP. Enter identifying info for the location (e.g. street address, zip code, coordinates) and select the desired location from the suggestions that are shown.
Input	
Source	Select from the drop-down list the Source that the transcoded Source is based on.
Configuration	
Ingest Cluster	Select from the drop-down list one of the available Ingest Clusters as the destination for the Source.

Target Broadcaster/s	<p>Select your Broadcaster preferences. Either select a specific Broadcaster to be used OR specify your preference for using primary vs. backup Broadcasters. Options are: <i>Prefer Primary Broadcasters, Primary Broadcasters only, Backup Broadcasters only</i> or <i>Prefer Backup Broadcasters</i>.</p> <p>Note: For managed clusters, it is not recommended to select a specific Broadcaster, as the Broadcaster's availability may not remain stable.</p>
Prefer Private Broadcaster IP	<p>If you would like to use a private IP, select the Prefer Private Broadcaster IP checkbox.</p> <p>Using this feature may be cost effective when using manual clusters. To use this feature, you must first enter a Private IP in the Broadcaster's advanced configuration (go to Broadcasters screen > select the relevant Cluster > Broadcasters tab > Edit the relevant broadcaster), see ADDING A BROADCASTER TO A MANUAL CLUSTER.</p>
Input NIC	Select the IPv4 address of an Input NIC from the drop-down list.
Latency [ms]	Select the latency time for the stream (default 4000).
PID Mapping Profile (Optional)	<p>If you would like to apply a PID Mapping profile to this Source, then select the desired profile from the dropdown list.</p> <p>To create a new PID Mapping Profile, see ADDING PID MAPPING PROFILES.</p> <p>NOTE: Using this method creates a single Source in ZEN Master with PID Mapping applied. If you would like to maintain a Source with the original PIDs and create an additional Source with PID Mapping (e.g. if you want to create several different PID Mapped variations), then use the method described in ADDING A SOURCE – PID MAPPING.</p>
Alert on PID changes	If you would like to generate email notifications whenever a PID change is detected, select this checkbox.
Log SCTE-35	<p>Select this checkbox if you would like to log SCTE-35 markers for this stream.</p> <p>NOTE: To log SCTE-35 markers, SCTE-35 needs to be enabled both on the Ingest Cluster and in the Source configuration.</p> <p>NOTE: SCTE-35 logging is only available for v13.1.40262+ Broadcasters</p>

Sources

Enable SCTE-35 alerts (for Log SCTE-35)	If you would like to receive alerts for SCTE-35 markers, select this checkbox.
Public Output	If you would like to allow access to the stream directly through a supported player, select the Allow checkbox.
Password (for Public Output)	If you selected Allow in the <i>Public Output</i> field, specify a password in this field to authenticate access to the stream.
Enable Content Analysis	<p>If you would like to enable Content Analysis (CQA), verify that this checkbox is selected (default).</p> <p>NOTE: It is generally recommended to enable Content Analysis unless it is causing technical problems. If Content Analysis is disabled, the system won't detect errors in the video and audio content of the stream and won't generate warnings for such events. Even when Content Analysis is disabled the system will still detect TR101 errors in the stream.</p>
Monitor CEA-608/CEA-708 Closed Captions	<p>If you would like to monitor CEA-608/CEA-708 closed captions, select this checkbox.</p> <p>NOTE: Monitoring CEA-608/CEA-708 Closed Captions requires using a version 14.4 or newer Broadcaster.</p>
Enable Traceroute History	<p>If you would like to show traceroute info in the History tab for this Source (for v13 Feeders), select this checkbox.</p> <p>NOTE: This feature is most useful for debugging connections with relatively static routes, such as through fiber or other private networks. It should not be activated for Sources sent through cloud providers since those routes constantly fluctuate.</p>
Disable Auto-Pull	<p>If you would like to disable auto-pull, select this checkbox.</p> <p>NOTE: Disabling Auto-Pull will lock Channels using this Source to the Source's Ingest Cluster and Targets to the Source's current active Broadcaster. This setting only applies to Pass-Through Channels.</p>
Auto-Pull Latency [ms]	Specify the desired latency for auto-pull actions. (Default: 1,000 ms)

Select the desired playback method.

NOTE: WebRTC enables you to monitor the stream via web browsers and mobile applications with real-time communication (RTC). WebRTC needs to be activated independently for each Source in ZEN Master (by default it is disabled).

Select one of the following options:

- **Disabled** – users will not be able to view this Source using WebRTC (default)
- **Pass-Through** – passes the stream through to WebRTC without transcoding. This option *can only be used* if the input stream is already in a WebRTC compliant format (video – H.264 codec with *Baseline* or *Main* profile and no B frames, Audio – Opus codec).
- **Auto** – ZEN Master automatically transcodes the stream using the optimal profile for each specific user. In this option Zixi Broadcaster will decode the video, transforming it into RAW frames, which will be passed to the WebRTC library, where it will be re-encoded for each individual user.

WebRTC Playback

NOTE: Best quality. However, if monitored by multiple users this can consume extensive resources.

- **1080p/720p/480p/360p** – ZEN Master transcodes the stream to a WebRTC compliant profile with the specified resolution. The transcoding is done by Zixi Broadcaster’s transcoder.

NOTE: This method requires a Zixi Broadcaster with X264 or Nvidia for transcoding. This method allows many users to monitor the stream without encoding separately for each individual user, which saves CPU capacity. Since there is only one stream resolution, it is recommended to encode to a low resolution and low bitrate so that the stream will be viewable by all users monitoring the stream.

Initial State

Disabled

Select this checkbox if you would like to disable this Source upon initial configuration.

Muted

Select this checkbox if you would like to disable error/recovery notifications for this Source upon initial configuration.

Advanced	
Billing Codes	If you would like to track usage for this Source, enter your Billing Code details, see BILLING CODES . (Supported for Broadcasters v14.8+)
Auto Pull MTU	Specify the maximum transmission unit (largest data packet that a network-connected device will accept) in bytes for the Auto Pull.
Frozen Video Minimal Duration	Specify the default minimal duration in seconds of frozen video after which the Broadcaster will trigger a Frozen video alert. Default: 10 seconds. This setting is supported for Broadcaster version 16.3 and higher. For existing sources, you may need to restart the source.
Blank Video Minimal Duration	Specify the default minimal duration in seconds of blank video after which the Broadcaster will trigger a Blank video alert. Default: 10 seconds. This setting is supported for Broadcaster version 16.3 and higher. For existing sources, you may need to restart the source.

Adding a Source – UDP/RTP

ZEN Master can receive a Source directly from a UDP/RTP input.



When this method is used, the stream is not protected by the Zixi protocol.

The UDP streams can be one of the following types:

- **UDP** – plain UDP
- **RTP** (Real-Time Transport Protocol) - fixes packet reordering (when possible) and supports use of FEC (Forward Error Correction)

The following procedure describes how to add a UDP/RTP Source in ZEN Master. In addition, an explanation of each of the configuration parameters is given in the table below.

➔ To add a UDP/RTP Source:

1. In the main navigation, click **Sources**.
2. Click **+ Add**.
The **Create New Source** window is displayed.

CREATE NEW SOURCE

ZEN MASTER

Zixi - Zixi push from a connected Feeder, Broadcaster, AWS MediaConnect, or other Zixi enabled device to ZEN Master.

Monitor Only - Monitor an existing input on a ZEN Master enabled Broadcaster. Limited functionality.

Failover - Combine existing Sources into a single Source that will switch between them to maintain quality.

Transcoded - Transcode an existing source into a new one.

PID Mapping - Create a Source with modified PIDs from an existing source

Inter-Cluster - Send a Source from one cluster to another

UDP/RTP - Receive UDP or RTP stream directly.>

File - Create a Source from a .ts file on a Broadcaster

SRT - Receive stream via SRT protocol

RIST - Receive stream via RIST protocol

NDI - Receive an NDI stream in the local network and encode it for transmission

RTMP - Receive stream via RTMP protocol

HLS - Receive stream via HLS protocol

Demux - Create a Demux Source on a Broadcaster

Multiviewer - Collection of selected sources in a grid

Multiplex - Create a Multiplex Source on a Broadcaster

AWS MEDIA

AWS MediaConnect - Create a Source to use with an AWS MediaConnect Flow.

AWS Elemental Link - Source from AWS Elemental Link device to AWS MediaLive

× Cancel

3. Click on **UDP/RTP**.

The **Create New UDP/RTP** window opens.


CREATE NEW UDP/RTP

INFO

Name *

Access Tags * ⓘ

Events Configuration Profile

Location ⓘ
 

UDP/RTP CONFIGURATION

Use RTP protocol ⓘ

Multicast Address ⓘ

Port *

Max Bitrate *

SOURCE CONFIGURATION

Ingest Cluster *

Target Broadcaster/s *

Input NIC

PID Mapping Profile

Alert on PID Changes

Log SCTE-35
 Requires Cluster configuration and version 13.1.40262 or newer Broadcasters

Enable SCTE-35 alerts
 Requires SCTE-35 Logging

Public Output
 Allow

Enable Content Analysis ⓘ

Monitor CEA-608/CEA-708 Closed Captions
 Requires version 14.4 or newer Broadcaster

Disable Auto-Pull
 Disabling Auto-Pull will lock Channels using this Source to the Source's Ingest Cluster and Targets to the Source's current active Broadcaster.

Auto-Pull Latency [ms] *

WebRTC Playback
 Disabled Pass-Through Auto 1080p 720p 480p 360p

Using WebRTC to monitor a stream requires transcoding (except in Pass-through mode). When playback begins, Zen Master starts transcoding on the Broadcaster, while respecting the Broadcaster's transcoding thresholds.
 In Auto mode, the Source is transcoded separately for each active WebRTC client (which consumes additional resources).

INITIAL STATE

Disabled

Muted

ADVANCED +

4. In the **Info** section, in the **Name** field, type a logical name for the Source.

5. In the **Tags** field, select one or more of the predefined Tags from the drop-down list. Tags are used for access control. By selecting a Tag, you are relating this Source to that Tag. Tags are associated with certain roles (through the Users & Roles screen), and roles, in turn, are associated with users and user groups. If you would like to create a new Tag, see [CREATING A TAG](#).
6. In the **Events Configuration Profile** field, select from the dropdown list the profile that you would like to apply to this Source. By default, the *Default* profile is applied.



Events Profiles consist of a series of rules that determine precisely how various types of Events are logged and what results they trigger.

7. The Source's location is used to represent it in the proper position in the Map display (see [MAPS](#)). By default, the location is determined automatically based on the Source's IP. If you would like to manually set the location of the Source (Optional), use the following procedure:
 - a. Click on the **Edit** icon next to the **Location** field.
A search box is shown below the **Location** field.
 - b. Enter identifying info for the location (e.g. street address, zip code, coordinates).
Search results are displayed below the search box as you type.
 - c. Click on the desired location.
The selected location populates the **Location** field.
8. In the **UDP/RTP Configuration** section, if your input stream uses RTP protocol, then select the **Use RTP protocol** checkbox.



Using RTP protocol fixes packet reordering (when possible) and supports use of FEC (Forward Error Correction).

9. If you selected the **Use RTP protocol** checkbox, then if you would like to use FEC, then select the **Use Forward Error Correction** checkbox.



When FEC is used, repair packets are sent on additional ports, enabling packet recovery.

10. If you selected the **Use RTP protocol** checkbox, then if you would like to preserve the RTP headers (which include the timestamps and sequences) and propagate them the output, then select the **Preserve RTP Headers** checkbox.
11. If you would like to join a multicast group, in the **Multicast Address** field enter the multicast address.



The multicast address should be in the range of 224.0.0.0 ~ 239.225.255.255.

12. If you entered a multicast address, then, in the **Source Specific Multicast** field, you can specify a particular IP from which you will accept data.

13. In the **Port** field, specify the port to listen on for the incoming content.



This port must be open on all firewalls between the Ingest Cluster and the input device.

14. In the **Max Bitrate** field, select from the drop-down list the maximum bitrate for this Source.



Make sure that the value is greater than the max bitrate of the input. The default is set automatically based on the current bitrate of the input.

15. In the **Source Configuration** section, in the **Ingest Cluster** field, select from the drop-down list one of the available Ingest Clusters as the destination for the Source.

16. In the **Target Broadcaster/s** field, select your broadcaster preference. Either select a specific broadcaster to be used OR specify your preference for using primary vs. backup broadcasters, options are: *Prefer Primary Broadcasters*, *Primary Broadcasters only*, *Backup Broadcasters only* or *Prefer Backup Broadcasters*.



For managed clusters, it is not recommended to select a specific broadcaster, as the broadcaster's availability may not remain stable.

17. In the **Input NIC** field, if you would like to specify which NIC is used, then select the IP of that NIC from the drop-down list. By default, *Any* is selected.

18. If you would like to apply a PID Mapping profile to this Source, then in the **PID Mapping Profile** field, select the desired profile from the dropdown list.



Using this method creates a single Source in ZEN Master with PID Mapping applied. If you would like to maintain a Source with the original PIDs and create an additional Source with PID Mapping (e.g. if you want to create several different PID Mapped variations), then use the method described in [ADDING A SOURCE – PID MAPPING](#).

To create a new PID Mapping Profile, see [ADDING PID MAPPING PROFILES](#).

19. If you would like to generate email notifications whenever a PID change is detected In the **Configuration** section, select the **Alert on PID changes** checkbox.

20. Select the **Log SCTE-35** checkbox if you would like to log SCTE-35 markers for this stream.



To log SCTE-35 markers, SCTE-35 needs to be enabled both on the Ingest Cluster and in the Source configuration.



SCTE-35 logging is only available for v13.1.40262+ Broadcasters.

21. If **Log SCTE-35** was selected, you can choose to receive alerts for SCTE-35 markers by selecting the **Enable SCTE-35 alerts** checkbox.

22. In the **Public Output** field, if you would like to allow access to the stream directly through a supported player, select the **Allow** checkbox.
23. If you selected the **Allow** checkbox, then enter a password in the **Password** field to authenticate access to the stream.
24. If you would like enable Content Analysis (CQA), verify that the **Enable Content Analysis** checkbox is selected (default).



It is generally recommended to enable Content Analysis unless it is causing technical problems. If Content Analysis is disabled, the system won't detect errors in the video and audio content of the stream and won't generate warnings for such events. Even when Content Analysis is disabled the system will still detect TR101 errors in the stream.

25. If you would like to monitor CEA-608/CEA-708 closed captions, select the **Monitor CEA-608/CEA-708** checkbox.



Monitoring CEA-608/CEA-708 Closed Captions requires using a version 14.4 or newer Broadcaster.

26. If you would like to disable auto-pull, select the **Disable Auto-Pull** checkbox.



Disabling Auto-Pull will lock Channels using this Source to the Source's Ingest Cluster and Targets to the Source's current active Broadcaster. This setting only applies to Pass-Through Channels.

27. If Auto-Pull is *enabled*, in the **Auto-Pull Latency [ms]** field, specify the desired latency for auto-pull actions. (Default: 1000 ms)
28. In the **WebRTC Playback** section, select the desired playback method.



WebRTC enables you to monitor the stream via web browsers and mobile applications with real-time communication (RTC). WebRTC needs to be activated independently for each Source in ZEN Master (by default it is disabled).

Select one of the following options:

- **Disabled** – users will not be able to view this Source using WebRTC (default)
- **Pass-Through** – passes the stream through to WebRTC without transcoding. This option *can only be used* if the input stream is already in a WebRTC compliant format (video - H.264 codec with *Baseline* or *Main* profile and no B frames, Audio – Opus codec).
- **Auto** - ZEN Master automatically transcodes the stream using the optimal profile for each specific user. In this option Zixi Broadcaster will decode the video, transforming it into RAW frames, which will be passed to the WebRTC library, where it will be re-encoded for each individual user.



Best quality. However, if monitored by multiple users this can consume extensive resources.

- **1080p/720p/480p/360p** – ZEN Master transcodes the stream to a *WebRTC compliant* profile with the specified resolution. The transcoding is done by Zixi Broadcaster's transcoder.



This method requires a Zixi Broadcaster with X264 or Nvidia for transcoding. This method allows many users to monitor the stream without encoding separately for each individual user, which saves CPU capacity. Since there is only one stream version, it is recommended to encode to a low resolution and low bitrate so that the stream will be viewable by all users monitoring the stream.

29. In the **Initial State** section, select the **Disabled** checkbox if you would like to disable this Source upon initial configuration.
30. Select the **Muted** checkbox if you would like to disable error/recovery notifications for this Source upon initial configuration.



You can Enable/Unmute the Source at any time.

31. If you would like to adjust the advanced settings, click **Advanced**.
The **Advanced** settings fields are displayed:

ADVANCED

Billing Code

Billing Code

Billing Password

Billing Password

Validate billing code

Auto-Pull Billing Code

Auto-Pull Billing Code

Auto-Pull Billing Password

Auto-Pull Billing Password

Validate billing code

Auto Pull MTU

MTU

Apply Input NIC selection to network device

Frozen Video Minimal Duration

10

Broadcasters older than version 16.3 will ignore this setting

Blank Video Minimal Duration

10

Broadcasters older than version 16.3 will ignore this setting

< Back

x Cancel

v Save

32. If you would like to track usage for this Source, enter your **Billing Code** details. See [BILLING CODES](#).
33. In the **Auto Pull MTU** field, specify the maximum transmission unit (largest data packet that a network-connected device will accept) in bytes for the Auto Pull.
34. To apply Input NIC selection to the network device, select the **Apply Input NIC selection to network device** checkbox.
35. To set the detection of frozen video, in the **Frozen Video Minimal Duration** field, specify the default minimal duration in seconds of frozen video after which the Broadcaster will trigger a Frozen video alert. Default: 10 seconds. This setting is supported for Broadcaster version 16.3 and higher.
36. To set the detection of blank video, in the **Blank Video Minimal Duration** field, specify the default minimal duration in seconds of blank video after which the Broadcaster will trigger a Blank video alert. Default: 10 seconds. This setting is supported for Broadcaster version 16.3 and higher.
37. Click **Save**.

UDP/RTP Source Configuration Parameters Table

Parameter	Description
Info	
Name	Specify a name for the UDP/RTP Source in ZEN Master.
Tags	<p>Select one or more of the predefined Tags from the drop-down list.</p> <p>Tags are used for access control. By selecting a Tag, you are relating this Source to that Tag. Tags are associated with certain roles (through the Users & Roles screen), and roles, in turn, are associated with users and user groups. If you would like to create a new Tag, see CREATING A TAG.</p>
Events Configuration Profile	<p>Select from the dropdown list the profile that you would like to apply to this Source. By default, the <i>Default</i> profile is applied.</p> <p>NOTE: <i>Events Profiles</i> consist of a series of rules that determine precisely how various types of Events are logged and what results they trigger.</p>
Location (Optional)	The Source's location is used to represent it in the proper position in the Map display (see MAPS). By default, the location is determined automatically based on the Source's IP. Enter identifying info for the location (e.g. street address, zip code, coordinates) and select the desired location from the suggestions that are shown.
UDP/RTP Configuration	
Use RTP protocol	<p>If your input stream uses RTP protocol, then select this checkbox.</p> <p>Using RTP protocol fixes packet reordering (when possible) and supports use of FEC (Forward Error Correction).</p>
Use Forward Error Correction (FEC) (for Use RTP protocol)	<p>If you would like to use FEC, then select this checkbox.</p> <p>When FEC is used, repair packets are sent on additional ports, enabling packet recovery.</p>
Preserve RTP Headers	Select this checkbox to preserve the RTP headers (which include the timestamps and sequences) and propagate them the output.

Sources

Multicast Address	<p>If you would like to join a multicast group, enter the multicast address.</p> <p>The multicast address should be in the range of 224.0.0.0 ~ 239.225.255.255.</p>
Source Specific Multicast (for Multicast Address)	<p>Specify a particular IP from which you will accept data.</p>
Port	<p>Specify the port to listen on for the incoming content.</p> <p>This port must be open on all firewalls between the Ingest Cluster and the input device.</p>
Max Bitrate	<p>Select from the drop-down list the maximum bitrate for this Source.</p> <p>Make sure that the value is greater than the max bitrate of the input. The default is set automatically based on the current bitrate of the input.</p>
Source Configuration	
Ingest Cluster	<p>Select from the drop-down list one of the available Ingest Clusters as the destination for the Source.</p>
Target Broadcaster/s	<p>Select your Broadcaster preferences. Either select a specific Broadcaster to be used OR specify your preference for using primary vs. backup Broadcasters. Options are: <i>Prefer Primary Broadcasters</i>, <i>Primary Broadcasters only</i>, <i>Backup Broadcasters only</i> or <i>Prefer Backup Broadcasters</i>.</p> <p>NOTE: For managed clusters, it is not recommended to select a specific Broadcaster, as the Broadcaster's availability may not remain stable.</p>
Input NIC	<p>If you would like to specify which NIC is used, select the IP of that NIC from the drop-down list. By default, <i>Any</i> is selected.</p>
PID Mapping Profile (Optional)	<p>If you would like to apply a PID Mapping profile to this Source, then select the desired profile from the dropdown list.</p> <p>To create a new PID Mapping Profile, see ADDING PID MAPPING PROFILES.</p> <p>NOTE: Using this method creates a single Source in ZEN Master with PID Mapping applied. If you would like to maintain a Source with the original PIDs and create an additional Source with PID Mapping (e.g. if you want to create several different PID Mapped variations), then use the method described in ADDING A SOURCE – PID MAPPING.</p>

Sources

Alert on PID changes	If you would like to generate email notifications whenever a PID change is detected, select this checkbox.
Log SCTE-35	Select this checkbox if you would like to log SCTE-35 markers for this stream. NOTE: To log SCTE-35 markers, SCTE-35 needs to be enabled both on the Ingest Cluster and in the Source configuration. NOTE: SCTE-35 logging is only available for v13.1.40262+ Broadcasters
Enable SCTE-35 alerts (for Log SCTE-35)	If you would like to receive alerts for SCTE-35 markers, select this checkbox.
Public Output	If you would like to allow access to the stream directly through a supported player, select the Allow checkbox.
Password (for Public Output)	If you selected Allow in the <i>Public Output</i> field, specify a password in this field to authenticate access to the stream.
Enable Content Analysis	If you would like to enable Content Analysis (CQA), verify that this checkbox is selected (default). Note: It is generally recommended to enable Content Analysis unless it is causing technical problems. If Content Analysis is disabled, the system won't detect errors in the video and audio content of the stream and won't generate warnings for such events. Even when Content Analysis is disabled the system will still detect TR101 errors in the stream.
Monitor CEA-608/CEA-708 Closed Captions	If you would like to monitor CEA-608/CEA-708 closed captions, select this checkbox. NOTE: Monitoring CEA-608/CEA-708 Closed Captions requires using a version 14.4 or newer Broadcaster.
Disable Auto-Pull	If you would like to disable auto-pull, select this checkbox. NOTE: Disabling Auto-Pull will lock Channels using this Source to the Source's Ingest Cluster and Targets to the Source's current active Broadcaster. This setting only applies to Pass-Through Channels.
Auto-Pull Latency [ms]	Specify the desired latency for auto-pull actions. (Default: 1,000 ms)

Select the desired playback method.

NOTE: WebRTC enables you to monitor the stream via web browsers and mobile applications with real-time communication (RTC). WebRTC needs to be activated independently for each Source in ZEN Master (by default it is disabled).

Select one of the following options:

- **Disabled** – users will not be able to view this Source using WebRTC (default)
- **Pass-Through** – passes the stream through to WebRTC without transcoding. This option *can only be used* if the input stream is already in a WebRTC compliant format (video – H.264 codec with *Baseline* or *Main* profile and no B frames, Audio – Opus codec).
- **Auto** – ZEN Master automatically transcodes the stream using the optimal profile for each specific user. In this option Zixi Broadcaster will decode the video, transforming it into RAW frames, which will be passed to the WebRTC library, where it will be re-encoded for each individual user.

WebRTC Playback

NOTE: Best quality. However, if monitored by multiple users this can consume extensive resources.

- **1080p/720p/480p/360p** – ZEN Master transcodes the stream to a WebRTC compliant profile with the specified resolution. The transcoding is done by Zixi Broadcaster's transcoder.

NOTE: This method requires a Zixi Broadcaster with X264 or Nvidia for transcoding. This method allows many users to monitor the stream without encoding separately for each individual user, which saves CPU capacity. Since there is only one stream resolution, it is recommended to encode to a low resolution and low bitrate so that the stream will be viewable by all users monitoring the stream.

Initial State

Disabled

Select this checkbox if you would like to disable this Source upon initial configuration.

Muted

Select this checkbox if you would like to disable error/recovery notifications for this Source upon initial configuration.

Advanced	
Billing Codes	If you would like to track usage for this Source, enter your Billing Code details, see BILLING CODES . (Supported for Broadcasters v14.8+)
Auto Pull MTU	Specify the maximum transmission unit (largest data packet that a network-connected device will accept) in bytes for the Auto Pull.
Apply Input NIC selection to network device	Select this checkbox to apply Input NIC selection to the network device.
Frozen Video Minimal Duration	Specify the default minimal duration in seconds of frozen video after which the Broadcaster will trigger a Frozen video alert. Default: 10 seconds. This setting is supported for Broadcaster version 16.3 and higher. For existing sources, you may need to restart the source.
Blank Video Minimal Duration	Specify the default minimal duration in seconds of blank video after which the Broadcaster will trigger a Blank video alert. Default: 10 seconds. This setting is supported for Broadcaster version 16.3 and higher. For existing sources, you may need to restart the source.

Adding a Source – File

Create a Source from a .ts file. The file needs to already exist in the Root folder on the input Broadcaster (Local File option) or at the remote location (URL option).



The default Root folder for Broadcasters created by ZEN Master is currently /zixi/zixi_broadcaster-centos7-transcoder/files. Manually created Broadcasters may have a different Root folder.



ZEN Master does not provide a mechanism for uploading and managing files on the server hosting the Broadcaster. There are numerous web-based file managers that can be deployed for remote file management on the server hosting the Broadcaster.

➔ To add a File Source:

1. In the main navigation, click **Sources**.
2. Click **+ Add**.
The **Create New Source** selection window is displayed.

CREATE NEW SOURCE

ZEN MASTER

Zixi - Zixi push from a connected Feeder, Broadcaster, AWS MediaConnect, or other Zixi enabled device to ZEN Master.

Monitor Only - Monitor an existing input on a ZEN Master enabled Broadcaster. Limited functionality.

Failover - Combine existing Sources into a single Source that will switch between them to maintain quality.

Transcoded - Transcode an existing source into a new one.

PID Mapping - Create a Source with modified PIDs from an existing source

Inter-Cluster - Send a Source from one cluster to another

UDP/RTP - Receive UDP or RTP stream directly.>

File - Create a Source from a .ts file on a Broadcaster

SRT - Receive stream via SRT protocol

RIST - Receive stream via RIST protocol

NDI - Receive an NDI stream in the local network and encode it for transmission

RTMP - Receive stream via RTMP protocol

HLS - Receive stream via HLS protocol

Demux - Create a Demux Source on a Broadcaster

Multiviewer - Collection of selected sources in a grid

Multiplex - Create a Multiplex Source on a Broadcaster

AWS MEDIA

AWS MediaConnect - Create a Source to use with an AWS MediaConnect Flow.

AWS Elemental Link - Source from AWS Elemental Link device to AWS MediaLive

✕ Cancel

- Click on **File**.
The **Create New File** window opens.

CREATE NEW FILE


INFO

Name *

Access Tags * ⓘ

Events Configuration Profile

Location ⓘ

INPUT

Broadcaster *

Source

Local Drive URL

URL *

CONFIGURATION

Public Output

Allow

Enable Content Analysis ⓘ

Monitor CEA-608/CEA-708 Closed Captions
Requires version 14.4 or newer Broadcaster

Disable Auto-Pull
Disabling Auto-Pull will lock Channels using this Source to the Source's Ingest Cluster and Targets to the Source's current active Broadcaster.

Auto-Pull Latency [ms] *

WebRTC Playback

Disabled Pass-Through Auto 1080p 720p 480p 360p

Using WebRTC to monitor a stream requires transcoding (except in Pass-through mode). When playback begins, Zen Master starts transcoding on the Broadcaster, while respecting the Broadcaster's transcoding thresholds. In Auto mode, the Source is transcoded separately for each active WebRTC client (which consumes additional resources).

INITIAL STATE

Disabled

Muted

ADVANCED +

- In the **Info** section, in the **Name** field, type a logical name for the Xixi Source.

5. In the **Tags** field, select one or more of the predefined Tags from the drop-down list. Tags are used for access control. By selecting a Tag, you are relating this Source to that Tag. Tags are associated with certain roles (through the Users & Roles screen), and roles, in turn, are associated with users and user groups. If you would like to create a new Tag, see [CREATING A TAG](#).
6. In the **Events Configuration Profile** field, select from the dropdown list the profile that you would like to apply to this Source. By default, the *Default* profile is applied.



Events Profiles consist of a series of rules that determine precisely how various types of Events are logged and what results they trigger.

7. The Source's location is used to represent it in the proper position in the Map display (see [MAPS](#)). By default, the location is determined automatically based on the Source's IP. If you would like to manually set the location of the Source (Optional), use the following procedure:
 - a. Click on the **Edit** icon next to the **Location** field.
A search box is shown below the **Location** field.
 - b. Enter identifying info for the location (e.g. street address, zip code, coordinates). Search results are displayed below the search box as you type.
 - c. Click on the desired location.
The selected location populates the **Location** field.
8. In the **Input** section, in the **Broadcaster** field, select from the drop-down list the Broadcaster on which the File is located.
9. If you would like to stream a file from a local drive, skip to step 10. To stream a file using a URL, use the following procedure:
 - a. In the **Source** section, verify that **URL** is selected (default).
 - b. In the **URL** field, enter the URL for the .ts file you would like to stream (e.g. `https://example.com/source.ts`).
10. To upload a file from a local drive, use the following procedure:
 - a. In the **Source** section, select **Local Drive**.
 - b. In the **File** field, select from the list the desired .ts file you would like to stream. The selected file will be highlighted and displayed under the list.



You can sort the files in the list by clicking on the column headings.

11. In the **Configuration** section, in the **Public Output** field, if you would like to allow access to the stream directly through a supported player, select the **Allow** checkbox.
12. If you selected the **Allow** checkbox, then enter a password in the **Password** field to authenticate access to the stream.
13. If you would like to enable Content Analysis (CQA), verify that the **Enable Content Analysis** checkbox is selected (default).



It is generally recommended to enable Content Analysis unless it is causing technical problems. If Content Analysis is disabled, the system won't detect errors in the video and audio content of the stream and won't generate warnings for such events. Even when Content Analysis is disabled the system will still detect TR101 errors in the stream.

14. If you would like to monitor CEA-608/CEA-708 closed captions, select the **Monitor CEA-608/CEA-708** checkbox.
15. If you would like to disable auto-pull, select the **Disable Auto-Pull** checkbox.



Disabling Auto-Pull will lock Channels using this Source to the Source's Ingest Cluster and Targets to the Source's current active Broadcaster. This setting only applies to Pass-Through Channels.

16. If Auto-Pull is *enabled*, in the **Auto-Pull Latency [ms]** field, specify the desired latency for auto-pull actions. (Default: 1000 ms)
17. In the **WebRTC Playback** section, select the desired playback method.



WebRTC enables you to monitor the stream via web browsers and mobile applications with real-time communication (RTC). WebRTC needs to be activated independently for each Source in ZEN Master (by default it is disabled).

Select one of the following options:

- **Disabled** – users will not be able to view this Source using WebRTC (default)
- **Pass-Through** – passes the stream through to WebRTC without transcoding. This option *can only be used* if the input stream is already in a WebRTC compliant format (video - H.264 codec with *Baseline* or *Main* profile and no B frames, Audio – Opus codec).
- **Auto** - ZEN Master automatically transcodes the stream using the optimal profile for each specific user. In this option Zixi Broadcaster will decode the video, transforming it into RAW frames, which will be passed to the WebRTC library, where it will be re-encoded for each individual user.



Best quality. However, if monitored by multiple users this can consume extensive resources.

- **1080p/720p/480p/360p** – ZEN Master transcodes the stream to a *WebRTC compliant* profile with the specified resolution. The transcoding is done by Zixi Broadcaster's transcoder.



This method requires a Zixi Broadcaster with X264 or Nvidia for transcoding. This method allows many users to monitor the stream without encoding separately for each individual user, which saves CPU capacity. Since there is only one stream version, it is recommended to encode to a low resolution and low bitrate so that the stream will be viewable by all users monitoring the stream.

- In the **Initial State** section, select the **Disabled** checkbox if you would like to disable this Source upon initial configuration.
- Select the **Muted** checkbox if you would like to disable error/recovery notifications for this Source upon initial configuration.



You can Enable/Unmute the Source at any time.

- If you would like to adjust the advanced settings, click **Advanced**. The **Advanced** settings fields are displayed:

ADVANCED —

Billing Code

Billing Password

Auto-Pull Billing Code
Auto-Pull Billing Password

Auto Pull MTU
Frozen Video Minimal Duration
Broadcasters older than version 16.3 will ignore this setting
Blanc Video Minimal Duration
Broadcasters older than version 16.3 will ignore this setting

- If you would like to track usage for this Source, enter your **Billing Code** details. See [BILLING CODES](#).
- In the **Auto Pull MTU** field, specify the maximum transmission unit (largest data packet that a network-connected device will accept) in bytes for the Auto Pull.
- To set the detection of frozen video, in the **Frozen Video Minimal Duration** field, specify the default minimal duration in seconds of frozen video after which the Broadcaster will trigger a Frozen video alert. Default: 10 seconds. This setting is supported for Broadcaster version 16.3 and higher.

24. To set the detection of blank video, in the **Blank Video Minimal Duration** field, specify the default minimal duration in seconds of blank video after which the Broadcaster will trigger a Blank video alert. Default: 10 seconds. This setting is supported for Broadcaster version 16.3 and higher.
25. Click **Save**.

File Source Configuration Parameters Table

Parameter	Description
Info	
Name	Specify a name for the File Source in ZEN Master.
Tags	<p>Select one or more of the predefined Tags from the drop-down list.</p> <p>Tags are used for access control. By selecting a Tag, you are relating this Source to that Tag. Tags are associated with certain roles (through the Users & Roles screen), and roles, in turn, are associated with users and user groups. If you would like to create a new Tag, see CREATING A TAG.</p>
Events Configuration Profile	<p>Select from the dropdown list the profile that you would like to apply to this Source. By default, the <i>Default</i> profile is applied.</p> <p>NOTE: <i>Events Profiles</i> consist of a series of rules that determine precisely how various types of Events are logged and what results they trigger.</p>
Location (Optional)	The Source's location is used to represent it in the proper position in the Map display (see MAPS). By default, the location is determined automatically based on the Source's IP. Enter identifying info for the location (e.g. street address, zip code, coordinates) and select the desired location from the suggestions that are shown.
Input	
Broadcaster	Select from the drop-down list the Broadcaster on which the file is located.
Source	<p>Select the source of your .ts file.</p> <p>Select one of the following options:</p> <ul style="list-style-type: none"> • URL (default) – stream a .ts file from a URL • Local Drive – stream a .ts file from the Root folder on the Broadcaster

Sources

URL (for URL)	Enter the URL for the .ts file you would like to stream (e.g. https://example.com/source.ts).
File (for Local Drive)	Select from the list the desired .ts file you would like to stream. The selected file must exist in the Root folder on the input Broadcaster. NOTE: You can sort the files in the list by clicking on the column headings.
Configuration	
Public Output	If you would like to allow access to the stream directly through a supported player, select the Allow checkbox.
Password (for Public Output)	If you selected Allow in the <i>Public Output</i> field, specify a password in this field to authenticate access to the stream.
Enable Content Analysis	If you would like to enable Content Analysis (CQA), verify that this checkbox is selected (default). Note: It is generally recommended to enable Content Analysis unless it is causing technical problems. If Content Analysis is disabled, the system won't detect errors in the video and audio content of the stream and won't generate warnings for such events. Even when Content Analysis is disabled the system will still detect TR101 errors in the stream.
Monitor CEA-608/CEA-708 Closed Captions	If you would like to monitor CEA-608/CEA-708 closed captions, select this checkbox. NOTE: Monitoring CEA-608/CEA-708 Closed Captions requires using a version 14.4 or newer Broadcaster.
Disable Auto-Pull	If you would like to disable auto-pull, select this checkbox. NOTE: Disabling Auto-Pull will lock Channels using this Source to the Source's Ingest Cluster and Targets to the Source's current active Broadcaster. This setting only applies to Pass-Through Channels.
Auto-Pull Latency [ms]	Specify the desired latency for auto-pull actions. (Default: 1,000 ms)

Select the desired playback method.

NOTE: WebRTC enables you to monitor the stream via web browsers and mobile applications with real-time communication (RTC). WebRTC needs to be activated independently for each Source in ZEN Master (by default it is disabled).

Select one of the following options:

- **Disabled** – users will not be able to view this Source using WebRTC (default)
- **Pass-Through** – passes the stream through to WebRTC without transcoding. This option *can only be used* if the input stream is already in a WebRTC compliant format (video – H.264 codec with *Baseline* or *Main* profile and no B frames, Audio – Opus codec).
- **Auto** – ZEN Master automatically transcodes the stream using the optimal profile for each specific user. In this option Zixi Broadcaster will decode the video, transforming it into RAW frames, which will be passed to the WebRTC library, where it will be re-encoded for each individual user.

WebRTC Playback

NOTE: Best quality. However, if monitored by multiple users this can consume extensive resources.

- **1080p/720p/480p/360p** – ZEN Master transcodes the stream to a WebRTC compliant profile with the specified resolution. The transcoding is done by Zixi Broadcaster’s transcoder.

NOTE: This method requires a Zixi Broadcaster with X264 or Nvidia for transcoding. This method allows many users to monitor the stream without encoding separately for each individual user, which saves CPU capacity. Since there is only one stream resolution, it is recommended to encode to a low resolution and low bitrate so that the stream will be viewable by all users monitoring the stream.

Initial State

Disabled

Select this checkbox if you would like to disable this Source upon initial configuration.

Muted

Select this checkbox if you would like to disable error/recovery notifications for this Source upon initial configuration.

Advanced

Sources

Billing Codes	If you would like to track usage for this Source, enter your Billing Code details, see BILLING CODES . (Supported for Broadcasters v14.8+)
Auto Pull MTU	Specify the maximum transmission unit (largest data packet that a network-connected device will accept) in bytes for the Auto Pull.
Frozen Video Minimal Duration	Specify the default minimal duration in seconds of frozen video after which the Broadcaster will trigger a Frozen video alert. Default: 10 seconds. This setting is supported for Broadcaster version 16.3 and higher. For existing sources, you may need to restart the source.
Blank Video Minimal Duration	Specify the default minimal duration in seconds of blank video after which the Broadcaster will trigger a Blank video alert. Default: 10 seconds. This setting is supported for Broadcaster version 16.3 and higher. For existing sources, you may need to restart the source.

Adding a Source – SRT

ZEN Master can receive a Source directly from an SRT input.



When this method is used, the stream is not protected by the Zixi protocol.

ZEN Master can receive SRT streams that are sent using either *Push* or *Pull* method.

The following procedure describes how to add an SRT Source in ZEN Master. In addition, an explanation of each of the configuration parameters is given in the table below.

➔ To add an SRT Source:

1. In the main navigation, click **Sources**.

2. Click **+ Add**.
The **Create New Source** window is displayed.

CREATE NEW SOURCE

ZEN MASTER

Zixi - Zixi push from a connected Feeder, Broadcaster, AWS MediaConnect, or other Zixi enabled device to ZEN Master.

Monitor Only - Monitor an existing input on a ZEN Master enabled Broadcaster. Limited functionality.

Failover - Combine existing Sources into a single Source that will switch between them to maintain quality.

Transcoded - Transcode an existing source into a new one.

PID Mapping - Create a Source with modified PIDs from an existing source

Inter-Cluster - Send a Source from one cluster to another

UDP/RTP - Receive UDP or RTP stream directly.>

File - Create a Source from a .ts file on a Broadcaster

SRT - Receive stream via SRT protocol

RIST - Receive stream via RIST protocol

NDI - Receive an NDI stream in the local network and encode it for transmission

RTMP - Receive stream via RTMP protocol

HLS - Receive stream via HLS protocol

Demux - Create a Demux Source on a Broadcaster

Multiviewer - Collection of selected sources in a grid

Multiplex - Create a Multiplex Source on a Broadcaster

AWS MEDIA

AWS MediaConnect - Create a Source to use with an AWS MediaConnect Flow.

AWS Elemental Link - Source from AWS Elemental Link device to AWS MediaLive

✕ Cancel

3. Click on **SRT**.

The **Create New SRT** window opens.

CREATE NEW SRT

INFO

Name *

Access Tags *

Events Configuration Profile

Location

SRT CONFIGURATION

Mode

Push (Listener) Pull (Caller)

Port *

Max Bitrate *

Password

SOURCE CONFIGURATION

Ingest Cluster *

Target Broadcaster/s *

Input NIC

Select a Target Broadcaster to enable Input NIC selection.
Broadcasters older than version 15 ignore this setting.

Latency [ms] *

PID Mapping Profile

Alert on PID Changes

Log SCTE-35
Requires Cluster configuration and version 13.1.40262 or newer Broadcasters

Enable SCTE-35 alerts
Requires SCTE-35 Logging

Public Output

Allow Password

Enable Content Analysis

Monitor CEA-608/CEA-708 Closed Captions
Requires version 14.4 or newer Broadcaster

Disable Auto-Pull
Disabling Auto-Pull will lock Channels using this Source to the Source's Ingest Cluster and Targets to the Source's current active Broadcaster.

Auto-Pull Latency [ms] *

WebRTC Playback

Disabled Pass-Through Auto 1080p 720p 480p 360p

Using WebRTC to monitor a stream requires transcoding (except in Pass-through mode). When playback begins, Zen Master starts transcoding on the Broadcaster, while respecting the Broadcaster's transcoding thresholds.
In Auto mode, the Source is transcoded separately for each active WebRTC client (which consumes additional resources).

INITIAL STATE

Disabled

Muted

ADVANCED +

[Back](#) [Cancel](#) [Save](#)

4. In the **Info** section, in the **Name** field, type a logical name for the Source.

5. In the **Tags** field, select one or more of the predefined Tags from the drop-down list.

Tags are used for access control. By selecting a Tag, you are relating this Source to that Tag. Tags are associated with certain roles (through the Users & Roles screen), and roles,

in turn, are associated with users and user groups. If you would like to create a new Tag, see [CREATING A TAG](#).

6. In the **Events Configuration Profile** field, select from the dropdown list the profile that you would like to apply to this Source. By default, the *Default* profile is applied.



Events Profiles consist of a series of rules that determine precisely how various types of Events are logged and what results they trigger.

7. The Source's location is used to represent it in the proper position in the Map display (see [MAPS](#)). By default, the location is determined automatically based on the Source's IP. If you would like to manually set the location of the Source (Optional), use the following procedure:
 - a. Click on the **Edit** icon next to the **Location** field.
A search box is shown below the **Location** field.
 - Enter identifying info for the location (e.g. street address, zip code, coordinates). Search results are displayed below the search box as you type.
 - Click on the desired location.
The selected location populates the **Location** field.
8. In the **SRT Configuration** section, under **Mode**, select the mode used to send the stream. Options are: *Push (Listener)* or *Pull (Caller)*.
9. If you selected *Pull (Caller)* mode, then in the **Host** field, enter the hostname of the SRT server.
10. In the **Port** field, specify the port to listen on for the incoming content.



This port must be open on all firewalls between the Ingest Cluster and the input device.

11. In the **Max Bitrate** field, select from the drop-down list the maximum bitrate for this Source.



Make sure that the value is greater than the max bitrate of the input. The default is set automatically based on the current bitrate of the input.

12. If you are using a password to authenticate this SRT connection, then in the **Password** field, enter the password. The password must be identical (case sensitive) to the password configured on the SRT server.
13. In the **Source Configuration** section, in the **Ingest Cluster** field, select from the drop-down list one of the available Ingest Clusters as the destination for the Source.
14. In the **Target Broadcaster/s** field, select your broadcaster preference. Either select a specific broadcaster to be used OR specify your preference for using primary vs. backup broadcasters, options are: *Prefer Primary Broadcasters*, *Primary Broadcasters only*, *Backup Broadcasters only* or *Prefer Backup Broadcasters*.



For managed clusters, it is not recommended to select a specific broadcaster, as the broadcaster's availability may not remain stable.

15. In the **Input NIC** field, if you would like to specify which NIC is used, then select the IP of that NIC from the drop-down list. By default, *Any* is selected.
16. In the **Latency** field, enter the latency in milliseconds (default: *1000*)
17. If you would like to apply a PID Mapping profile to this Source, then in the **PID Mapping** field, select the desired profile from the dropdown list.



Using this method creates a single Source in ZEN Master with PID Mapping applied. If you would like to maintain a Source with the original PIDs and create an additional Source with PID Mapping (e.g. if you want to create several different PID Mapped variations), then use the method described in [ADDING A SOURCE – PID MAPPING](#).

To create a new PID Mapping Profile, see [ADDING PID MAPPING PROFILES](#).

18. If you would like to generate email notifications whenever a PID change is detected In the **Configuration** section, select the **Alert on PID changes** checkbox.
19. Select the **Log SCTE-35** checkbox if you would like to log SCTE-35 markers for this stream.



To log SCTE-35 markers, SCTE-35 needs to be enabled both on the Ingest Cluster and in the Source configuration.



SCTE-35 logging is only available for v13.1.40262+ Broadcasters.

20. If **Log SCTE-35** was selected, you can choose to receive alerts for SCTE-35 markers by selecting the **Enable SCTE-35 alerts** checkbox.
21. In the **Public Output** field, if you would like to allow access to the stream directly through a supported player, select the **Allow** checkbox.
22. If you selected the **Allow** checkbox, then enter a password in the **Password** field to authenticate access to the stream.
23. If you would like enable Content Analysis (CQA), verify that the **Enable Content Analysis** checkbox is selected (default).



It is generally recommended to enable Content Analysis unless it is causing technical problems. If Content Analysis is disabled, the system won't detect errors in the video and audio content of the stream and won't generate warnings for such events. Even when Content Analysis is disabled the system will still detect TR101 errors in the stream.

24. If you would like to monitor CEA-608/CEA-708 closed captions, select the **Monitor CEA-608/CEA-708** checkbox.



Monitoring CEA-608/CEA-708 Closed Captions requires using a version 14.4 or newer Broadcaster.

25. If you would like to disable auto-pull, select the **Disable Auto-Pull** checkbox.



Disabling Auto-Pull will lock Channels using this Source to the Source's Ingest Cluster and Targets to the Source's current active Broadcaster. This setting only applies to Pass-Through Channels.

26. If Auto-Pull is *enabled*, in the **Auto-Pull Latency [ms]** field, specify the desired latency for auto-pull actions. (Default: 1000 ms)

27. In the **WebRTC Playback** section, select the desired playback method.



WebRTC enables you to monitor the stream via web browsers and mobile applications with real-time communication (RTC). WebRTC needs to be activated independently for each Source in ZEN Master (by default it is disabled).

Select one of the following options:

- **Disabled** – users will not be able to view this Source using WebRTC (default)
- **Pass-Through** – passes the stream through to WebRTC without transcoding. This option *can only be used* if the input stream is already in a WebRTC compliant format (video - H.264 codec with *Baseline* or *Main* profile and no B frames, Audio – Opus codec).
- **Auto** - ZEN Master automatically transcodes the stream using the optimal profile for each specific user. In this option Zixi Broadcaster will decode the video, transforming it into RAW frames, which will be passed to the WebRTC library, where it will be re-encoded for each individual user.



Best quality. However, if monitored by multiple users this can consume extensive resources.

- **1080p/720p/480p/360p** – ZEN Master transcodes the stream to a *WebRTC compliant* profile with the specified resolution. The transcoding is done by Zixi Broadcaster's transcoder.



This method requires a Zixi Broadcaster with X264 or Nvidia for transcoding. This method allows many users to monitor the stream without encoding separately for each individual user, which saves CPU capacity. Since there is only one stream version, it is recommended to encode to a low resolution and low bitrate so that the stream will be viewable by all users monitoring the stream.

28. In the **Initial State** section, select the **Disabled** checkbox if you would like to disable this Source upon initial configuration.

29. Select the **Muted** checkbox if you would like to disable error/recovery notifications for this Source upon initial configuration.



You can Enable/Unmute the Source at any time.

30. If you would like to adjust the advanced settings, click **Advanced**. The **Advanced** settings fields are displayed:

ADVANCED —

Billing Code

Billing Password

Auto-Pull Billing Code
Auto-Pull Billing Password

Auto Pull MTU
 Apply Input NIC selection to network device
Frozen Video Minimal Duration
Broadcasters older than version 16.3 will ignore this setting
Blanc Video Minimal Duration
Broadcasters older than version 16.3 will ignore this setting

31. If you would like to track usage for this Source, enter your **Billing Code** details. See [BILLING CODES](#).
32. In the **Auto Pull MTU** field, specify the maximum transmission unit (largest data packet that a network-connected device will accept) in bytes for the Auto Pull.
33. To apply Input NIC selection to the network device, select the **Apply Input NIC selection to network device** checkbox.
34. To set the detection of frozen video, in the **Frozen Video Minimal Duration** field, specify the default minimal duration in seconds of frozen video after which the Broadcaster will trigger a Frozen video alert. Default: 10 seconds. This setting is supported for Broadcaster version 16.3 and higher.
35. To set the detection of blank video, in the **Blank Video Minimal Duration** field, specify the default minimal duration in seconds of blank video after which the Broadcaster will

trigger a Blank video alert. Default: 10 seconds. This setting is supported for Broadcaster version 16.3 and higher.

36. Click **Save**.

SRT Source Configuration Parameters Table

Parameter	Description
Info	
Name	Specify a name for the SRT Source in ZEN Master.
Tags	Select one or more of the predefined Tags from the drop-down list. Tags are used for access control. By selecting a Tag, you are relating this Source to that Tag. Tags are associated with certain roles (through the Users & Roles screen), and roles, in turn, are associated with users and user groups. If you would like to create a new Tag, see CREATING A TAG .
Events Configuration Profile	Select from the dropdown list the profile that you would like to apply to this Source. By default, the <i>Default</i> profile is applied. NOTE: <i>Events Profiles</i> consist of a series of rules that determine precisely how various types of Events are logged and what results they trigger.
Location (Optional)	The Source's location is used to represent it in the proper position in the Map display (see MAPS). By default, the location is determined automatically based on the Source's IP. Enter identifying info for the location (e.g. street address, zip code, coordinates) and select the desired location from the suggestions that are shown.
SRT Configuration	
Mode	To create an SRT Source, select the mode used for sending the stream. Options are: <i>Push (Listener)</i> or <i>Pull (Caller)</i> .
Host (for <i>Pull (Caller)</i>)	Enter the hostname for the SRT server.
Port	Specify the port to listen on for the incoming content. This port must be open on all firewalls between the Ingest Cluster and the input device.

Sources

Max Bitrate	<p>Select from the drop-down list the maximum bitrate for this Source.</p> <p>Make sure that the value is greater than the max bitrate of the input. The default is set automatically based on the current bitrate of the input.</p>
Password	<p>If you are using a password to authenticate this SRT connection, then enter the password in this field. The password must be identical (case sensitive) to the password configured on the SRT server.</p>
Source Configuration	
Ingest Cluster	<p>Select from the drop-down list one of the available Ingest Clusters as the destination for the Source.</p>
Target Broadcaster/s	<p>Select your Broadcaster preferences. Either select a specific Broadcaster to be used OR specify your preference for using primary vs. backup Broadcasters. Options are: <i>Prefer Primary Broadcasters</i>, <i>Primary Broadcasters only</i>, <i>Backup Broadcasters only</i> or <i>Prefer Backup Broadcasters</i>.</p> <p>NOTE: For managed clusters, it is not recommended to select a specific Broadcaster, as the Broadcaster's availability may not remain stable.</p>
Input NIC	<p>If you would like to specify which NIC is used, select the IP of that NIC from the drop-down list. By default, <i>Any</i> is selected.</p>
Latency [ms]	<p>Select the latency time for the stream (default 1000).</p>
PID Mapping (Optional)	<p>If you would like to apply a PID Mapping profile to this Source, then select the desired profile from the dropdown list.</p> <p>To create a new PID Mapping Profile, see ADDING PID MAPPING PROFILES.</p> <p>NOTE: Using this method creates a single Source in ZEN Master with PID Mapping applied. If you would like to maintain a Source with the original PIDs and create an additional Source with PID Mapping (e.g. if you want to create several different PID Mapped variations), then use the method described in ADDING A SOURCE – PID MAPPING.</p>
Alert on PID changes	<p>If you would like to generate email notifications whenever a PID change is detected, select this checkbox.</p>

Sources

Log SCTE-35	<p>Select this checkbox if you would like to log SCTE-35 markers for this stream.</p> <p>NOTE: To log SCTE-35 markers, SCTE-35 needs to be enabled both on the Ingest Cluster and in the Source configuration.</p> <p>NOTE: SCTE-35 logging is only available for v13.1.40262+ Broadcasters</p>
Enable SCTE-35 alerts (for Log SCTE-35)	<p>If you would like to receive alerts for SCTE-35 markers, select this checkbox.</p>
Public Output	<p>If you would like to allow access to the stream directly through a supported player, select the Allow checkbox.</p>
Password (for Public Output)	<p>If you selected Allow in the <i>Public Output</i> field, specify a password in this field to authenticate access to the stream.</p>
Enable Content Analysis	<p>If you would like to enable Content Analysis (CQA), verify that this checkbox is selected (default).</p> <p>NOTE: It is generally recommended to enable Content Analysis unless it is causing technical problems. If Content Analysis is disabled, the system won't detect errors in the video and audio content of the stream and won't generate warnings for such events. Even when Content Analysis is disabled the system will still detect TR101 errors in the stream.</p>
Monitor CEA-608/CEA-708 Closed Captions	<p>If you would like to monitor CEA-608/CEA-708 closed captions, select this checkbox.</p> <p>NOTE: Monitoring CEA-608/CEA-708 Closed Captions requires using a version 14.4 or newer Broadcaster.</p>
Disable Auto-Pull	<p>If you would like to disable auto-pull, select this checkbox.</p> <p>NOTE: Disabling Auto-Pull will lock Channels using this Source to the Source's Ingest Cluster and Targets to the Source's current active Broadcaster. This setting only applies to Pass-Through Channels.</p>
Auto-Pull Latency [ms]	<p>Specify the desired latency for auto-pull actions. (Default: 1,000 ms)</p>

Select the desired playback method.

NOTE: WebRTC enables you to monitor the stream via web browsers and mobile applications with real-time communication (RTC). WebRTC needs to be activated independently for each Source in ZEN Master (by default it is disabled).

Select one of the following options:

- **Disabled** – users will not be able to view this Source using WebRTC (default)
- **Pass-Through** – passes the stream through to WebRTC without transcoding. This option *can only be used* if the input stream is already in a WebRTC compliant format (video – H.264 codec with *Baseline* or *Main* profile and no B frames, Audio – Opus codec).
- **Auto** – ZEN Master automatically transcodes the stream using the optimal profile for each specific user. In this option Zixi Broadcaster will decode the video, transforming it into RAW frames, which will be passed to the WebRTC library, where it will be re-encoded for each individual user.

WebRTC Playback

NOTE: Best quality. However, if monitored by multiple users this can consume extensive resources.

- **1080p/720p/480p/360p** – ZEN Master transcodes the stream to a WebRTC compliant profile with the specified resolution. The transcoding is done by Zixi Broadcaster's transcoder.

NOTE: This method requires a Zixi Broadcaster with X264 or Nvidia for transcoding. This method allows many users to monitor the stream without encoding separately for each individual user, which saves CPU capacity. Since there is only one stream resolution, it is recommended to encode to a low resolution and low bitrate so that the stream will be viewable by all users monitoring the stream.

Initial State

Disabled

Select this checkbox if you would like to disable this Source upon initial configuration.

Muted

Select this checkbox if you would like to disable error/recovery notifications for this Source upon initial configuration.

Advanced

Billing Codes	If you would like to track usage for this Source, enter your Billing Code details, see BILLING CODES . (Supported for Broadcasters v14.8+)
Auto Pull MTU	Specify the maximum transmission unit (largest data packet that a network-connected device will accept) in bytes for the Auto Pull.
Apply Input NIC selection to network device	Select this checkbox to apply Input NIC selection to the network device.
Frozen Video Minimal Duration	Specify the default minimal duration in seconds of frozen video after which the Broadcaster will trigger a Frozen video alert. Default: 10 seconds. This setting is supported for Broadcaster version 16.3 and higher. For existing sources, you may need to restart the source.
Blank Video Minimal Duration	Specify the default minimal duration in seconds of blank video after which the Broadcaster will trigger a Blank video alert. Default: 10 seconds. This setting is supported for Broadcaster version 16.3 and higher. For existing sources, you may need to restart the source.

Adding a Source – RIST

ZEN Master can receive a Source directly from a RIST input.

RIST seeks to provide reliable, high performance media transport by using UDP at the transport layer to avoid the inefficiencies of TCP, then layering on top Forward Error Correction and Retransmits to add the reliability inherently absent from UDP. Zixi Broadcaster supports RIST streams from any compliant RIST device.

Zixi supports the following RIST profiles:

- **Simple Profile** – (Zixi Broadcasters v13+) The RIST Simple Profile provides best-in-class packet protection, as well as support for multi-link bonding and seamless switching.
- **Main Profile** – (Zixi Broadcasters v14) The RIST Main Profile builds upon the features of the Simple Profile to provide backwards compatibility, while opening the door for additional features, including:
 - **Encryption and authentication** - RIST Main Profile uses industry-standard DTLS or PSK with a variety of available cyphers to ensure the most up-to-date protection, while being flexible to accommodate local legal regulations. Support for pre-shared keys is also included, which makes RIST Main Profile

compatible with one-to-many environments such as satellite or multicast distribution.

- **Native tunneling and multiplexing** - the ability to combine multiple Simple Profile RIST streams into one single connection, optionally with one single encryption and authentication step, using industry-standard GRE over UDP.
- **Bandwidth optimization** - by deleting NULL packets at the source and re-inserting them at the destination.
- **Support for high bit rate streams** - The RIST Main Profile includes an RTP header extension which increases the sequence number size to 32-bits, and therefore increases the maximum size of retransmission buffers, and thus opens the door for higher bitrate streams, such as lightly compressed (e.g. JPEG 2000, Tico) and uncompressed video.



Contact your Zixi representative to learn more about interoperability testing between Zixi Broadcaster and 3rd party devices. More details about RIST can be found at www.rist.tv.

The following procedure describes how to add a RIST Source in ZEN Master. In addition, an explanation of each of the configuration parameters is given in the table below.

➔ To add a RIST Source:

1. In the main navigation, click **Sources**.
2. Click **+ Add**.
The **Create New Source** window is displayed.

CREATE NEW SOURCE

ZEN MASTER

Zixi - Zixi push from a connected Feeder, Broadcaster, AWS MediaConnect, or other Zixi enabled device to ZEN Master.

Monitor Only - Monitor an existing input on a ZEN Master enabled Broadcaster. Limited functionality.

Failover - Combine existing Sources into a single Source that will switch between them to maintain quality.

Transcoded - Transcode an existing source into a new one.

PID Mapping - Create a Source with modified PIDs from an existing source

Inter-Cluster - Send a Source from one cluster to another

UDP/RTP - Receive UDP or RTP stream directly.>

File - Create a Source from a .ts file on a Broadcaster

SRT - Receive stream via SRT protocol

RIST - Receive stream via RIST protocol

NDI - Receive an NDI stream in the local network and encode it for transmission

RTMP - Receive stream via RTMP protocol

HLS - Receive stream via HLS protocol

Demux - Create a Demux Source on a Broadcaster

Multiviewer - Collection of selected sources in a grid

Multiplex - Create a Multiplex Source on a Broadcaster

AWS MEDIA

AWS MediaConnect - Create a Source to use with an AWS MediaConnect Flow.

AWS Elemental Link - Source from AWS Elemental Link device to AWS MediaLive

X Cancel

3. Click on **RIST**.

The **Create New RIST** window opens.


CREATE NEW RIST

INFO

Name *

Access Tags * ⓘ

Events Configuration Profile

Location ⓘ
 

RIST CONFIGURATION

Profile
 Simple ⓘ Main ⓘ

Multicast Address ⓘ

Port * ⓘ

Use Forward Error Correction (FEC) ⓘ

Max Bitrate *

Latency [ms]

SOURCE CONFIGURATION

Ingest Cluster *

Target Broadcaster/s *

Input NIC

Select a Target Broadcaster to enable Input NIC selection.
 Broadcasters older than version 15 ignore this setting.

PID Mapping Profile

Alert on PID Changes

Log SCTE-35
 Requires Cluster configuration and version 13.1.40262 or newer Broadcasters

Enable SCTE-35 alerts
 Requires SCTE-35 Logging

Public Output
 Allow

Enable Content Analysis ⓘ

Monitor CEA-608/CEA-708 Closed Captions
 Requires version 14.4 or newer Broadcaster

Disable Auto-Pull
 Disabling Auto-Pull will lock Channels using this Source to the Source's ingest Cluster and Targets to the Source's current active Broadcaster.

Auto-Pull Latency [ms] *

WebRTC Playback
 Disabled Pass-Through Auto 1080p 720p 480p 360p

Using WebRTC to monitor a stream requires transcoding (except in Pass-through mode). When playback begins, Zen Master starts transcoding on the Broadcaster, while respecting the Broadcaster's transcoding thresholds.
 In Auto mode, the Source is transcoded separately for each active WebRTC client (which consumes additional resources).

INITIAL STATE

Disabled

Muted

ADVANCED +

4. In the **Info** section, in the **Name** field, type a logical name for the Source.5. In the **Tags** field, select one or more of the predefined Tags from the drop-down list.

Tags are used for access control. By selecting a Tag, you are relating this Source to that Tag. Tags are associated with certain roles (through the Users & Roles screen), and roles,

in turn, are associated with users and user groups. If you would like to create a new Tag, see [CREATING A TAG](#).

6. In the **Events Configuration Profile** field, select from the dropdown list the profile that you would like to apply to this Source. By default, the *Default* profile is applied.



Events Profiles consist of a series of rules that determine precisely how various types of Events are logged and what results they trigger.

7. The Source's location is used to represent it in the proper position in the Map display (see [MAPS](#)). By default, the location is determined automatically based on the Source's IP. If you would like to manually set the location of the Source (Optional), use the following procedure:
 - a. Click on the **Edit** icon next to the **Location** field.
A search box is shown below the **Location** field.
 - b. Enter identifying info for the location (e.g. street address, zip code, coordinates).
Search results are displayed below the search box as you type.
 - c. Click on the desired location.
The selected location populates the **Location** field.
8. In the **RIST Configuration** section, under **Profile**, select the radio button for the desired Profile. Options are *Simple* (default) or *Main*.
 - If you selected **Simple**, then fill in the configuration fields as follows:
 - a. If you would like to join a Multicast group, in the **Multicast Address** field enter the Multicast address.



The multicast address should be in the range of 224.0.0.0 ~ 239.225.255.255.

- b. If you entered a *Multicast Address*, then, in the **Source Specific Multicast** field, you can specify a particular IP from which you will accept data.
- c. In the **Port** field, specify the port to listen on for the incoming content.



This port must be open on all firewalls between the Ingest Cluster and the input device.

- d. If you would like to use FEC, then select the **Use Forward Error Correction** checkbox.



When FEC is used, repair packets are sent on additional ports, enabling packet recovery.

- If you selected **Main**, then then fill in the configuration fields as follows:
 - a. Under **Mode**, select the mode used for sending the stream. Options are *Push* or *Pull*.
 - b. In the **Port** field, specify the port to listen on for the incoming content.
 - c. For *Pull* mode, in the **Remote Host** field, enter the hostname of the RIST server.

- d. For *Pull* mode, in the **Remote Port** field, specify the remote port in the Source RIST device. Default: 0 (any port).
 - e. If you would like to use FEC, then select the **Use Forward Error Correction** checkbox.
 - f. If you would like to use DTLS, select the **Use Datagram Transport Layer Security** checkbox.
9. In the **Max Bitrate** field, select from the drop-down list the maximum bitrate for this Source.



Make sure that the value is greater than the max bitrate of the input. The default is set automatically based on the current bitrate of the input.

10. In the **Latency** field, enter the latency in milliseconds (default: 4000)
11. In the **Source Configuration** section, in the **Ingest Cluster** field, select from the drop-down list one of the available Ingest Clusters as the destination for the Source.
12. In the **Target Broadcaster/s** field, select your broadcaster preference. Either select a specific broadcaster to be used OR specify your preference for using primary vs. backup broadcasters, options are: *Prefer Primary Broadcasters*, *Primary Broadcasters only*, *Backup Broadcasters only* or *Prefer Backup Broadcasters*.



For managed clusters, it is not recommended to select a specific broadcaster, as the broadcaster's availability may not remain stable.

13. In the **Input NIC** field, if you would like to specify which NIC is used, then select the IP of that NIC from the drop-down list. By default, *Any* is selected.
14. If you would like to apply a PID Mapping profile to this Source, then in the **PID Mapping** field, select the desired profile from the dropdown list.



Using this method creates a single Source in ZEN Master with PID Mapping applied. If you would like to maintain a Source with the original PIDs and create an additional Source with PID Mapping (e.g. if you want to create several different PID Mapped variations), then use the method described in [ADDING A SOURCE – PID MAPPING](#).

To create a new PID Mapping Profile, see [ADDING PID MAPPING PROFILES](#).

15. If you would like to generate email notifications whenever a PID change is detected, select the **Alert on PID changes** checkbox.
16. Select the **Log SCTE-35** checkbox if you would like to log SCTE-35 markers for this stream.



To log SCTE-35 markers, SCTE-35 needs to be enabled both on the Ingest Cluster and in the Source configuration.



SCTE-35 logging is only available for v13.1.40262+ Broadcasters.

17. If **Log SCTE-35** was selected, you can choose to receive alerts for SCTE-35 markers by selecting the **Enable SCTE-35 alerts** checkbox.
18. In the **Public Output** field, if you would like to allow access to the stream directly through a supported player, select the **Allow** checkbox.
19. If you selected the **Allow** checkbox, then enter a password in the **Password** field to authenticate access to the stream.
20. If you would like enable Content Analysis (CQA), verify that the **Enable Content Analysis** checkbox is selected (default).



It is generally recommended to enable Content Analysis unless it is causing technical problems. If Content Analysis is disabled, the system won't detect errors in the video and audio content of the stream and won't generate warnings for such events. Even when Content Analysis is disabled the system will still detect TR101 errors in the stream.

21. If you would like to monitor CEA-608/CEA-708 closed captions, select the **Monitor CEA-608/CEA-708** checkbox.



Monitoring CEA-608/CEA-708 Closed Captions requires using a version 14.4 or newer Broadcaster.

22. If you would like to disable auto-pull, select the **Disable Auto-Pull** checkbox.



Disabling Auto-Pull will lock Channels using this Source to the Source's Ingest Cluster and Targets to the Source's current active Broadcaster. This setting only applies to Pass-Through Channels.

23. If Auto-Pull is *enabled*, in the **Auto-Pull Latency [ms]** field, specify the desired latency for auto-pull actions. (Default: 1000 ms)
24. In the **WebRTC Playback** section, select the desired playback method.



WebRTC enables you to monitor the stream via web browsers and mobile applications with real-time communication (RTC). WebRTC needs to be activated independently for each Source in ZEN Master (by default it is disabled).

Select one of the following options:

- **Disabled** – users will not be able to view this Source using WebRTC (default)
- **Pass-Through** – passes the stream through to WebRTC without transcoding. This option *can only be used* if the input stream is already in a WebRTC compliant format (video - H.264 codec with *Baseline* or *Main* profile and no B frames, Audio – Opus codec).
- **Auto** - ZEN Master automatically transcodes the stream using the optimal profile for each specific user. In this option Zixi Broadcaster will decode the video, transforming it into RAW frames, which will be passed to the WebRTC library, where it will be re-encoded for each individual user.



Best quality. However, if monitored by multiple users this can consume extensive resources.

- **1080p/720p/480p/360p** – ZEN Master transcodes the stream to a *WebRTC compliant* profile with the specified resolution. The transcoding is done by Zixi Broadcaster's transcoder.



This method requires a Zixi Broadcaster with X264 or Nvidia for transcoding. This method allows many users to monitor the stream without encoding separately for each individual user, which saves CPU capacity. Since there is only one stream version, it is recommended to encode to a low resolution and low bitrate so that the stream will be viewable by all users monitoring the stream.

25. In the **Initial State** section, select the **Disabled** checkbox if you would like to disable this Source upon initial configuration.
26. Select the **Muted** checkbox if you would like to disable error/recovery notifications for this Source upon initial configuration.



You can Enable/Unmute the Source at any time.

27. If you would like to adjust the advanced settings, click **Advanced**.
The **Advanced** settings fields are displayed:

ADVANCED —

Billing Code
Billing Code

Billing Password
Billing Password
Validate billing code

Auto-Pull Billing Code
Auto-Pull Billing Code

Auto-Pull Billing Password
Auto-Pull Billing Password
Validate billing code

Auto Pull MTU
MTU

Apply Input NIC selection to network device

Frozen Video Minimal Duration
10
Broadcasters older than version 16.3 will ignore this setting

Blanc Video Minimal Duration
10
Broadcasters older than version 16.3 will ignore this setting

< Back × Cancel ✓ Save

28. If you would like to track usage for this Source, enter your **Billing Code** details. See [BILLING CODES](#).
29. In the **Auto Pull MTU** field, specify the maximum transmission unit (largest data packet that a network-connected device will accept) in bytes for the Auto Pull.
30. To apply Input NIC selection to the network device, select the **Apply Input NIC selection to network device** checkbox.
31. To set the detection of frozen video, in the **Frozen Video Minimal Duration** field, specify the default minimal duration in seconds of frozen video after which the Broadcaster will trigger a Frozen video alert. Default: 10 seconds. This setting is supported for Broadcaster version 16.3 and higher.
32. To set the detection of blank video, in the **Blank Video Minimal Duration** field, specify the default minimal duration in seconds of blank video after which the Broadcaster will trigger a Blank video alert. Default: 10 seconds. This setting is supported for Broadcaster version 16.3 and higher.
33. Click **Save**.

RIST Source Configuration Parameters Table

Parameter	Description
Info	
Name	Specify a name for the RIST Source in ZEN Master.
Tags	<p>Select one or more of the predefined Tags from the drop-down list.</p> <p>Tags are used for access control. By selecting a Tag, you are relating this Source to that Tag. Tags are associated with certain roles (through the Users & Roles screen), and roles, in turn, are associated with users and user groups. If you would like to create a new Tag, see CREATING A TAG.</p>
Events Configuration Profile	<p>Select from the dropdown list the profile that you would like to apply to this Source. By default, the <i>Default</i> profile is applied.</p> <p>NOTE: <i>Events Profiles</i> consist of a series of rules that determine precisely how various types of Events are logged and what results they trigger.</p>
Location (Optional)	The Source's location is used to represent it in the proper position in the Map display (see MAPS). By default, the location is determined automatically based on the Source's IP. Enter identifying info for the location (e.g. street address, zip code, coordinates) and select the desired location from the suggestions that are shown.
RIST Configuration	
Profile	Select the radio button for the desired Profile. Options are <i>Simple</i> (default) or <i>Main</i> .
For Simple	
Multicast Address	<p>If you would like to join a multicast group, enter the multicast address.</p> <p>The multicast address should be in the range of 224.0.0.0 ~ 239.225.255.255.</p>
Source Specific multicast	Specify a particular IP from which you will accept data.
Port	<p>Specify the port to listen on for the incoming content.</p> <p>This port must be open on all firewalls between the Ingest Cluster and the input device.</p>

Sources

Use Forward Error Connection (FEC)	If you would like to use FEC, then select this checkbox. When FEC is used, repair packets are sent on additional ports, enabling packet recovery.
For Main	
Mode	Select the mode used for sending the Source. Options are: <i>Push</i> or <i>Pull</i> .
Port	Specify the port to listen on for the incoming content. This port must be open on all firewalls between the Ingest Cluster and the input device.
Remote Host (for Pull)	Enter the hostname of the RIST server.
Remote Port (for Pull)	Specify the remote port in the Source RIST device. Default: 0 (any port).
Use Forward Error Correction (FEC)	If you would like to use FEC, then select this checkbox. When FEC is used, repair packets are sent on additional ports, enabling packet recovery.
Use Datagram Transport Layer Security (DTLS)	If you would like to encrypt the stream dynamically using DTLS, select this checkbox.
Source Configuration	
Ingest Cluster	Select from the drop-down list one of the available Ingest Clusters as the destination for the Source.
Target Broadcaster/s	Select your Broadcaster preferences. Either select a specific Broadcaster to be used OR specify your preference for using primary vs. backup Broadcasters. Options are: <i>Prefer Primary Broadcasters</i> , <i>Primary Broadcasters only</i> , <i>Backup Broadcasters only</i> or <i>Prefer Backup Broadcasters</i> . NOTE: For managed clusters, it is not recommended to select a specific Broadcaster, as the Broadcaster's availability may not remain stable.
Input NIC	If you would like to specify which NIC is used, select the IP of that NIC from the drop-down list. By default, <i>Any</i> is selected.

PID Mapping (Optional)	<p>If you would like to apply a PID Mapping profile to this Source, then select the desired profile from the dropdown list.</p> <p>To create a new PID Mapping Profile, see ADDING PID MAPPING PROFILES.</p> <p>NOTE: Using this method creates a single Source in ZEN Master with PID Mapping applied. If you would like to maintain a Source with the original PIDs and create an additional Source with PID Mapping (e.g. if you want to create several different PID Mapped variations), then use the method described in ADDING A SOURCE – PID MAPPING.</p>
Alert on PID changes	<p>If you would like to generate email notifications whenever a PID change is detected, select this checkbox.</p>
Log SCTE-35	<p>Select this checkbox if you would like to log SCTE-35 markers for this stream.</p> <p>NOTE: To log SCTE-35 markers, SCTE-35 needs to be enabled both on the Ingest Cluster and in the Source configuration.</p> <p>NOTE: SCTE-35 logging is only available for v13.1.40262+ Broadcasters</p>
Enable SCTE-35 alerts (for Log SCTE-35)	<p>If you would like to receive alerts for SCTE-35 markers, select this checkbox.</p>
Public Output	<p>If you would like to allow access to the stream directly through a supported player, select the Allow checkbox.</p>
Password (for Public Output)	<p>If you selected Allow in the <i>Public Output</i> field, specify a password in this field to authenticate access to the stream.</p>
Enable Content Analysis	<p>If you would like to enable Content Analysis (CQA), verify that this checkbox is selected (default).</p> <p>NOTE: It is generally recommended to enable Content Analysis unless it is causing technical problems. If Content Analysis is disabled, the system won't detect errors in the video and audio content of the stream and won't generate warnings for such events. Even when Content Analysis is disabled the system will still detect TR101 errors in the stream.</p>
Monitor CEA-608/CEA-708 Closed Captions	<p>If you would like to monitor CEA-608/CEA-708 closed captions, select this checkbox.</p> <p>NOTE: Monitoring CEA-608/CEA-708 Closed Captions requires using a version 14.4 or newer Broadcaster.</p>

Sources

	If you would like to disable auto-pull, select this checkbox.
Disable Auto-Pull	NOTE: Disabling Auto-Pull will lock Channels using this Source to the Source's Ingest Cluster and Targets to the Source's current active Broadcaster.
Auto-Pull Latency [ms]	Specify the desired latency for auto-pull actions. (Default: 1,000 ms)

Select the desired playback method.

NOTE: WebRTC enables you to monitor the stream via web browsers and mobile applications with real-time communication (RTC). WebRTC needs to be activated independently for each Source in ZEN Master (by default it is disabled).

Select one of the following options:

- **Disabled** – users will not be able to view this Source using WebRTC (default)
- **Pass-Through** – passes the stream through to WebRTC without transcoding. This option *can only be used* if the input stream is already in a WebRTC compliant format (video – H.264 codec with *Baseline* or *Main* profile and no B frames, Audio – Opus codec).
- **Auto** – ZEN Master automatically transcodes the stream using the optimal profile for each specific user. In this option Zixi Broadcaster will decode the video, transforming it into RAW frames, which will be passed to the WebRTC library, where it will be re-encoded for each individual user.

WebRTC Playback

NOTE: Best quality. However, if monitored by multiple users this can consume extensive resources.

- **1080p/720p/480p/360p** – ZEN Master transcodes the stream to a WebRTC compliant profile with the specified resolution. The transcoding is done by Zixi Broadcaster’s transcoder.

NOTE: This method requires a Zixi Broadcaster with X264 or Nvidia for transcoding. This method allows many users to monitor the stream without encoding separately for each individual user, which saves CPU capacity. Since there is only one stream resolution, it is recommended to encode to a low resolution and low bitrate so that the stream will be viewable by all users monitoring the stream.

Initial State

Disabled

Select this checkbox if you would like to disable this Source upon initial configuration.

Muted

Select this checkbox if you would like to disable error/recovery notifications for this Source upon initial configuration.

Advanced	
Billing Codes	If you would like to track usage for this Source, enter your Billing Code details, see BILLING CODES . (Supported for Broadcasters v14.8+)
Auto Pull MTU	Specify the maximum transmission unit (largest data packet that a network-connected device will accept) in bytes for the Auto Pull.
Apply Input NIC selection to network device	Select this checkbox to apply Input NIC selection to the network device.
Frozen Video Minimal Duration	Specify the default minimal duration in seconds of frozen video after which the Broadcaster will trigger a Frozen video alert. Default: 10 seconds. This setting is supported for Broadcaster version 16.3 and higher. For existing sources, you may need to restart the source.
Blank Video Minimal Duration	Specify the default minimal duration in seconds of blank video after which the Broadcaster will trigger a Blank video alert. Default: 10 seconds. This setting is supported for Broadcaster version 16.3 and higher. For existing sources, you may need to restart the source.

Adding a Source – NDI

ZEN Master can receive a Source directly from an NDI input. Because NDI streams are provided to the Broadcaster as raw video frames, you need to encode the stream by selecting a Transcoding Profile that encodes both the video and audio (i.e. doesn't pass through either the video or audio).



NDI Sources are only supported on v14+ Broadcasters



PID mapping and SCTE 35 logging are not available with NDI because this data does not appear in NDI streams.



NDI inputs can be resized but not padded with black bars. Enabling the "Keep aspect ratio" checkbox in the transcoding profile will cause the transcoder to fail.

The following procedure describes how to add an NDI Source in ZEN Master. In addition, an explanation of each of the configuration parameters is given in the table below.

➔ **To add an NDI Source:**

1. In the main navigation, click **Sources**.
2. Click **+ Add**.
The **Create New Source** window is displayed.

CREATE NEW SOURCE

ZEN MASTER

Zixi - Zixi push from a connected Feeder, Broadcaster, AWS MediaConnect, or other Zixi enabled device to ZEN Master.

Monitor Only - Monitor an existing input on a ZEN Master enabled Broadcaster. Limited functionality.

Failover - Combine existing Sources into a single Source that will switch between them to maintain quality.

Transcoded - Transcode an existing source into a new one.

PID Mapping - Create a Source with modified PIDs from an existing source

Inter-Cluster - Send a Source from one cluster to another

UDP/RTP - Receive UDP or RTP stream directly.>

File - Create a Source from a .ts file on a Broadcaster

SRT - Receive stream via SRT protocol

RIST - Receive stream via RIST protocol

NDI - Receive an NDI stream in the local network and encode it for transmission

RTMP - Receive stream via RTMP protocol

HLS - Receive stream via HLS protocol

Demux - Create a Demux Source on a Broadcaster

Multiviewer - Collection of selected sources in a grid

Multiplex - Create a Multiplex Source on a Broadcaster

AWS MEDIA

AWS MediaConnect - Create a Source to use with an AWS MediaConnect Flow.

AWS Elemental Link - Source from AWS Elemental Link device to AWS MediaLive

✕ Cancel

3. Click on **NDI**.
The **Create New NDI** window opens.


CREATE NEW NDI

INFO

Name *

Access Tags * ⓘ

Events Configuration Profile

Location ⓘ
 

CONFIGURATION

Ingest Cluster *

Target Broadcaster/s *

NDI Stream *

Profile *

Assign to GPU

Pad to CBR [kbps]

Leave blank for VBR

Audio Reference Level [dB]

Alert on PID Changes

Public Output
 Allow

Enable Content Analysis ⓘ

Monitor CEA-608/CEA-708 Closed Captions
Requires version 14.4 or newer Broadcaster

Disable Auto-Pull
Disabling Auto-Pull will lock Channels using this Source to the Source's Ingest Cluster and Targets to the Source's current active Broadcaster.

Auto-Pull Latency [ms] *

WebRTC Playback
 Disabled Pass-Through Auto 1080p 720p 480p 360p

Using WebRTC to monitor a stream requires transcoding (except in Pass-through mode). When playback begins, Zen Master starts transcoding on the Broadcaster, while respecting the Broadcaster's transcoding thresholds.
In Auto mode, the Source is transcoded separately for each active WebRTC client (which consumes additional resources).

INITIAL STATE

Disabled

Muted

ADVANCED +

4. In the **Info** section, in the **Name** field, enter a unique name to identify this Source in the system.
5. In the **Tags** field, select one or more of the predefined Tags from the drop-down list. Tags are used for access control. By selecting a Tag, you are relating this Source to that Tag. Tags are associated with certain roles (through the Users & Roles screen), and roles, in turn, are associated with users and user groups. If you would like to create a new Tag, see [CREATING A TAG](#).
6. In the **Events Configuration Profile** field, select from the dropdown list the profile that you would like to apply to this Source. By default, the *Default* profile is applied.



Events Profiles consist of a series of rules that determine precisely how various types of Events are logged and what results they trigger.

7. The Source's location is used to represent it in the proper position in the Map display (see [MAPS](#)). By default, the location is determined automatically based on the Source's IP. If you would like to manually set the location of the Source (Optional), use the following procedure:
 - a. Click on the **Edit** icon next to the **Location** field.
A search box is shown below the **Location** field.
 - b. Enter identifying info for the location (e.g. street address, zip code, coordinates).
Search results are displayed below the search box as you type.
 - c. Click on the desired location.
The selected location populates the **Location** field.
8. In the **Configuration** section, in the **Ingest Cluster** field, select from the drop-down list one of the available Ingest Clusters as the destination for the Source.
9. In the **Target Broadcaster/s** field, select your broadcaster preference. Either select a specific broadcaster to be used OR specify your preference for using primary vs. backup broadcasters, options are: *Prefer Primary Broadcasters*, *Primary Broadcasters only*, *Backup Broadcasters only* or *Prefer Backup Broadcasters*.



For managed clusters, it is not recommended to select a specific broadcaster, as the broadcaster's availability may not remain stable.

10. In the **NDI Stream** field, select from the drop-down list the desired NDI stream on the local network where the Broadcaster is hosted.
11. In the **Profile** field, select one of the pre-configured Transcoding Profiles to apply to this Source. If you would like to create a new transcoding profile, see [ADDING TRANSCODING PROFILES](#).



You must select a Transcoding Profile that either encodes both the video and audio or transcodes one and removes the other. A profile that passes through either the video or audio cannot be used.

12. If you would like to assign the transcoding process to a multi GPU Broadcaster, select the **Assign to GPU** checkbox, and then select from the drop-down list the desired GPU instance. Options are: 0(default), 1, 2 and 3.



This feature is useful if you are running several heavy transcoding activities, as it enables you to distribute the load among several different GPUs.

13. In the **Pad to CBR** field, enter the amount of CBR padding to be added (in kbps).
14. In the **Audio Reference Level** field, enter the audio reference level (0-20).
15. If you would like to generate email notifications whenever a PID change is detected, select the **Alert on PID changes** checkbox.
16. In the **Public Output** field, if you would like to allow access to the stream directly through a supported player, select the **Allow** checkbox.
17. If you selected the **Allow** checkbox, then enter a password in the **Password** field to authenticate access to the stream.
18. If you would like to enable Content Analysis (CQA), verify that the **Enable Content Analysis** checkbox is selected (default).



It is generally recommended to enable Content Analysis unless it is causing technical problems. If Content Analysis is disabled, the system won't detect errors in the video and audio content of the stream and won't generate warnings for such events. Even when Content Analysis is disabled the system will still detect TR101 errors in the stream.

19. If you would like to monitor CEA-608/CEA-708 closed captions, select the **Monitor CEA-608/CEA-708** checkbox.



Monitoring CEA-608/CEA-708 Closed Captions requires using a version 14.4 or newer Broadcaster.

20. If you would like to disable auto-pull, select the **Disable Auto-Pull** checkbox.



Disabling Auto-Pull will lock Channels using this Source to the Source's Ingest Cluster and Targets to the Source's current active Broadcaster.

21. If Auto-Pull is *enabled*, in the **Auto-Pull Latency [ms]** field, specify the desired latency for auto-pull actions. (Default: 1000 ms)
22. In the **WebRTC Playback** section, select the desired playback method.



WebRTC enables you to monitor the stream via web browsers and mobile applications with real-time communication (RTC). WebRTC needs to be activated independently for each Source in ZEN Master (by default it is disabled).

Select one of the following options:

- **Disabled** – users will not be able to view this Source using WebRTC (default)

- **Pass-Through** – passes the stream through to WebRTC without transcoding. This option *can only be used* if the input stream is already in a WebRTC compliant format (video - H.264 codec with *Baseline* or *Main* profile and no B frames, Audio – Opus codec).
- **Auto** - ZEN Master automatically transcodes the stream using the optimal profile for each specific user. In this option Zixi Broadcaster will decode the video, transforming it into RAW frames, which will be passed to the WebRTC library, where it will be re-encoded for each individual user.



Best quality. However, if monitored by multiple users this can consume extensive resources.

- **1080p/720p/480p/360p** – ZEN Master transcodes the stream to a *WebRTC compliant* profile with the specified resolution. The transcoding is done by Zixi Broadcaster's transcoder.



This method requires a Zixi Broadcaster with X264 or Nvidia for transcoding. This method allows many users to monitor the stream without encoding separately for each individual user, which saves CPU capacity. Since there is only one stream version, it is recommended to encode to a low resolution and low bitrate so that the stream will be viewable by all users monitoring the stream.

23. In the **Initial State** section, select the **Disabled** checkbox if you would like to disable this Source upon initial configuration.
24. Select the **Muted** checkbox if you would like to disable error/recovery notifications for this Source upon initial configuration.



You can Enable/Unmute the Source at any time.

25. If you would like to adjust the advanced settings, click **Advanced**. The **Advanced** settings fields are displayed:

ADVANCED —

Auto-Pull Billing Code

Auto-Pull Billing Code

Auto-Pull Billing Password

Auto-Pull Billing Password

Validate billing code

Auto Pull MTU

MTU

Frozen Video Minimal Duration

10

Broadcasters older than version 16.3 will ignore this setting

Blanc Video Minimal Duration

10

Broadcasters older than version 16.3 will ignore this setting

< Back x Cancel ✓ Save

26. If you would like to track usage for this Source, enter your **Billing Code** details. See [BILLING CODES](#).
27. In the **Auto Pull MTU** field, specify the maximum transmission unit (largest data packet that a network-connected device will accept) in bytes for the Auto Pull.
28. To set the detection of frozen video, in the **Frozen Video Minimal Duration** field, specify the default minimal duration in seconds of frozen video after which the Broadcaster will trigger a Frozen video alert. Default: 10 seconds. This setting is supported for Broadcaster version 16.3 and higher.
29. To set the detection of blank video, in the **Blank Video Minimal Duration** field, specify the default minimal duration in seconds of blank video after which the Broadcaster will trigger a Blank video alert. Default: 10 seconds. This setting is supported for Broadcaster version 16.3 and higher.

30. Click **Save**.

NDI Source Configuration Parameters Table

Parameter	Description
Info	
Name	Specify a name for the NDI Source in ZEN Master.
Tags	<p>Select one or more of the predefined Tags from the drop-down list.</p> <p>Tags are used for access control. By selecting a Tag, you are relating this Source to that Tag. Tags are associated with certain roles (through the Users & Roles screen), and roles, in turn, are associated with users and user groups. If you would like to create a new Tag, see CREATING A TAG.</p>
Events Configuration Profile	<p>Select from the dropdown list the profile that you would like to apply to this Source. By default, the <i>Default</i> profile is applied.</p> <p>NOTE: <i>Events Profiles</i> consist of a series of rules that determine precisely how various types of Events are logged and what results they trigger.</p>
Location (Optional)	<p>The Source's location is used to represent it in the proper position in the Map display (see MAPS). By default, the location is determined automatically based on the Source's IP. Enter identifying info for the location (e.g. street address, zip code, coordinates) and select the desired location from the suggestions that are shown.</p>
Configuration	
Ingest Cluster	Select from the drop-down list one of the available Ingest Clusters as the destination for the Source.
Target Broadcaster/s	<p>Select your Broadcaster preferences. Either select a specific Broadcaster to be used OR specify your preference for using primary vs. backup Broadcasters. Options are: <i>Prefer Primary Broadcasters</i>, <i>Primary Broadcasters only</i>, <i>Backup Broadcasters only</i> or <i>Prefer Backup Broadcasters</i>.</p> <p>NOTE: For managed clusters, it is not recommended to select a specific Broadcaster, as the Broadcaster's availability may not remain stable.</p>

Sources

NDI Stream	Select from the drop-down list the NDI stream on the local network where the Broadcaster is hosted.
Profile	Select one of the pre-configured transcoding profiles to apply to this Source. If you would like to create a new transcoding profile, see ADDING TRANSCODING PROFILES . NOTE: You must select a Transcoding Profile that either encodes both the video and audio or transcodes one and removes the other. A profile that passes through either the video or audio cannot be used.
Assign to GPU	Select this checkbox if you would like to assign the transcoding process to a multi GPU Broadcaster, and then select from the drop-down list the desired GPU instance. Options are: 0 (default), 1, 2, and 3. NOTE: This feature is useful if you are running several heavy transcoding activities, as it enables you to distribute the load among several different GPUs.
Pad to CBR [kbps]	Specify the amount of CBR padding to be added (in kbps).
Audio Reference Level	Specify the audio reference level (0-20).
Alert on PID changes	If you would like to generate email notifications whenever a PID change is detected, select this checkbox.
Public Output	If you would like to allow access to the stream directly through a supported player, select the Allow checkbox.
Password (for Public Output)	If you selected Allow in the <i>Public Output</i> field, specify a password in this field to authenticate access to the stream.
Enable Content Analysis	If you would like to enable Content Analysis (CQA), verify that this checkbox is selected (default). NOTE: It is generally recommended to enable Content Analysis unless it is causing technical problems. If Content Analysis is disabled, the system won't detect errors in the video and audio content of the stream and won't generate warnings for such events. Even when Content Analysis is disabled the system will still detect TR101 errors in the stream.
Monitor CEA-608/CEA-708 Closed Captions	If you would like to monitor CEA-608/CEA-708 closed captions, select this checkbox. NOTE: Monitoring CEA-608/CEA-708 Closed Captions requires using a version 14.4 or newer Broadcaster.

Sources

	If you would like to disable auto-pull, select this checkbox.
Disable Auto-Pull	NOTE: Disabling Auto-Pull will lock Channels using this Source to the Source's Ingest Cluster and Targets to the Source's current active Broadcaster.
Auto-Pull Latency [ms]	Specify the desired latency for auto-pull actions. (Default: 1,000 ms)

Select the desired playback method.

NOTE: WebRTC enables you to monitor the stream via web browsers and mobile applications with real-time communication (RTC). WebRTC needs to be activated independently for each Source in ZEN Master (by default it is disabled).

Select one of the following options:

- **Disabled** – users will not be able to view this Source using WebRTC (default)
- **Pass-Through** – passes the stream through to WebRTC without transcoding. This option *can only be used* if the input stream is already in a WebRTC compliant format (video – H.264 codec with *Baseline* or *Main* profile and no B frames, Audio – Opus codec).
- **Auto** – ZEN Master automatically transcodes the stream using the optimal profile for each specific user. In this option Zixi Broadcaster will decode the video, transforming it into RAW frames, which will be passed to the WebRTC library, where it will be re-encoded for each individual user.

WebRTC Playback

NOTE: Best quality. However, if monitored by multiple users this can consume extensive resources.

- **1080p/720p/480p/360p** – ZEN Master transcodes the stream to a WebRTC compliant profile with the specified resolution. The transcoding is done by Zixi Broadcaster’s transcoder.

NOTE: This method requires a Zixi Broadcaster with X264 or Nvidia for transcoding. This method allows many users to monitor the stream without encoding separately for each individual user, which saves CPU capacity. Since there is only one stream resolution, it is recommended to encode to a low resolution and low bitrate so that the stream will be viewable by all users monitoring the stream.

Initial State

Disabled

Select this checkbox if you would like to disable this Source upon initial configuration.

Muted

Select this checkbox if you would like to disable error/recovery notifications for this Source upon initial configuration.

Advanced	
Billing Codes	If you would like to track usage for this Source, enter your Billing Code details, see BILLING CODES . (Supported for Broadcasters v14.8+)
Auto Pull MTU	Specify the maximum transmission unit (largest data packet that a network-connected device will accept) in bytes for the Auto Pull.
Frozen Video Minimal Duration	Specify the default minimal duration in seconds of frozen video after which the Broadcaster will trigger a Frozen video alert. Default: 10 seconds. This setting is supported for Broadcaster version 16.3 and higher. For existing sources, you may need to restart the source.
Blank Video Minimal Duration	Specify the default minimal duration in seconds of blank video after which the Broadcaster will trigger a Blank video alert. Default: 10 seconds. This setting is supported for Broadcaster version 16.3 and higher. For existing sources, you may need to restart the source.

Adding a Source – RTMP

ZEN Master can receive a Source directly from an RTMP input.



When this method is used, the stream is not protected by the Zixi protocol.

ZEN Master can receive RTMP streams that are sent using either *Push* or *Pull* method.

The following procedure describes how to add an RTMP Source in ZEN Master. In addition, an explanation of each of the configuration parameters is given in the table below.

➔ To add an RTMP Source:

1. In the main navigation, click **Sources**.

2. Click **+ Add**.
The **Create New Source** window is displayed.

CREATE NEW SOURCE

ZEN MASTER

[Zixi](#) - Zixi push from a connected Feeder, Broadcaster, AWS MediaConnect, or other Zixi enabled device to ZEN Master.

[Monitor Only](#) - Monitor an existing input on a ZEN Master enabled Broadcaster. Limited functionality.

[Failover](#) - Combine existing Sources into a single Source that will switch between them to maintain quality.

[Transcoded](#) - Transcode an existing source into a new one.

[PID Mapping](#) - Create a Source with modified PIDs from an existing source

[Inter-Cluster](#) - Send a Source from one cluster to another

[UDP/RTP](#) - Receive UDP or RTP stream directly.>

[File](#) - Create a Source from a .ts file on a Broadcaster

[SRT](#) - Receive stream via SRT protocol

[RIST](#) - Receive stream via RIST protocol

[NDI](#) - Receive an NDI stream in the local network and encode it for transmission

[RTMP](#) - Receive stream via RTMP protocol

[HLS](#) - Receive stream via HLS protocol

[Demux](#) - Create a Demux Source on a Broadcaster

[Multiviewer](#) - Collection of selected sources in a grid

[Multiplex](#) - Create a Multiplex Source on a Broadcaster

AWS MEDIA

[AWS MediaConnect](#) - Create a Source to use with an AWS MediaConnect Flow.

[AWS Elemental Link](#) - Source from AWS Elemental Link device to AWS MediaLive

✕ Cancel

3. Click on **RTMP**.

The **Create New RTMP** window opens.

CREATE NEW RTMP

INFO

Name *

Name

Access Tags * ⓘ

Select Access Tags

Events Configuration Profile

Default

Location ⓘ

Location

RTMP CONFIGURATION

Mode

Push Pull

URL *

rtmp://server/live

Stream *

Stream

Username

Username

Password

Password

Ignore TLS certificate errors ⓘ

Disconnect idle stream ⓘ

SOURCE CONFIGURATION

Ingest Cluster *

Select Cluster

Target Broadcaster/s *

Select Broadcaster/s

Input NIC

Select Input NIC

Select a Target Broadcaster to enable Input NIC selection.
Broadcasters older than version 15 ignore this setting.

PID Mapping Profile

Select PID Mapping Profile

Alert on PID Changes

Log SCTE-35

Requires Cluster configuration and version 13.1.40262 or newer Broadcasters

Enable SCTE-35 alerts

Requires SCTE-35 Logging

Public Output

Allow Password

Enable Content Analysis ⓘ

Monitor CEA-608/CEA-708 Closed Captions

Requires version 14.4 or newer Broadcaster

Disable Auto-Pull

Disabling Auto-Pull will lock Channels using this Source to the Source's Ingest Cluster and Targets to the Source's current active Broadcaster.

Auto-Pull Latency [ms] *

1000

WebRTC Playback

Disabled Pass-Through Auto 1080p 720p 480p 360p

Using WebRTC to monitor a stream requires transcoding (except in Pass-through mode). When playback begins, Zen Master starts transcoding on the Broadcaster, while respecting the Broadcaster's transcoding thresholds.
In Auto mode, the Source is transcoded separately for each active WebRTC client (which consumes additional resources).

INITIAL STATE

Disabled

Muted

ADVANCED +

Back Cancel Save

4. In the **Info** section, in the **Name** field, type a logical name for the Source.

5. In the **Tags** field, select one or more of the predefined Tags from the drop-down list.

Tags are used for access control. By selecting a Tag, you are relating this Source to that

Tag. Tags are associated with certain roles (through the Users & Roles screen), and roles, in turn, are associated with users and user groups. If you would like to create a new Tag, see [CREATING A TAG](#).

6. In the **Events Configuration Profile** field, select from the dropdown list the profile that you would like to apply to this Source. By default, the *Default* profile is applied.



Events Profiles consist of a series of rules that determine precisely how various types of Events are logged and what results they trigger.

7. The Source's location is used to represent it in the proper position in the Map display (see [MAPS](#)). By default, the location is determined automatically based on the Source's IP. If you would like to manually set the location of the Source (Optional), use the following procedure:
 - a. Click on the **Edit** icon next to the **Location** field.
A search box is shown below the **Location** field.
 - b. Enter identifying info for the location (e.g. street address, zip code, coordinates).
Search results are displayed below the search box as you type.
 - c. Click on the desired location.
The selected location populates the **Location** field.
8. In the **RTMP Configuration** section, under **Mode**, select the mode used to send the stream. Options are: *Push* or *Pull*.
9. If you selected *Pull* mode:
 - a. In the **URL** field, enter the URL of the RTMP server (e.g. `rtmp://server/live`).
 - b. In the **Stream** field, enter the RTMP stream name as defined in the RTMP server.
 - c. In the **Username** field, enter the RTMP stream access credentials – Username.
 - d. In the **Password** field, enter the RTMP stream access credentials – Password.
 - e. Select the **Ignore TLS certificate errors** checkbox if you are sending the stream to a trusted server which does not have a valid certificate. When this option is selected, the Zixi Broadcaster will ignore TLS certificate errors and send the stream to its destination.
10. If you would like to disconnect the stream when the bitrate drops very low, verify that the **Disconnect idle stream** checkbox is selected. (Default: selected)
11. In the **Source Configuration** section, in the **Ingest Cluster** field, select from the drop-down list one of the available Ingest Clusters as the destination for the Source.
12. In the **Target Broadcaster/s** field, select your broadcaster preference. Either select a specific broadcaster to be used OR specify your preference for using primary vs. backup broadcasters, options are: *Prefer Primary Broadcasters*, *Primary Broadcasters only*, *Backup Broadcasters only* or *Prefer Backup Broadcasters*.



For managed clusters, it is not recommended to select a specific broadcaster, as the broadcaster's availability may not remain stable.

13. In the **Input NIC** field, if you would like to specify which NIC is used, then select the IP of that NIC from the drop-down list. By default, *Any* is selected.

14. If you would like to apply a PID Mapping profile to this Source, then in the **PID Mapping Profile** field, select the desired profile from the drop-down list.



Using this method creates a single Source in ZEN Master with PID Mapping applied. If you would like to maintain a Source with the original PIDs and create an additional Source with PID Mapping (e.g. if you want to create several different PID Mapped variations), then use the method described in [ADDING A SOURCE – PID MAPPING](#).

To create a new PID Mapping Profile, see [ADDING PID MAPPING PROFILES](#).

15. If you would like to generate email notifications whenever a PID change is detected, select the **Alert on PID changes** checkbox.
16. Select the **Log SCTE-35** checkbox if you would like to log SCTE-35 markers for this stream.



To log SCTE-35 markers, SCTE-35 needs to be enabled both on the Ingest Cluster and in the Source configuration.



SCTE-35 logging is only available for v13.1.40262+ Broadcasters.

17. If **Log SCTE-35** was selected, you can choose to receive alerts for SCTE-35 markers by selecting the **Enable SCTE-35 alerts** checkbox.
18. In the **Public Output** field, if you would like to allow access to the stream directly through a supported player, select the **Allow** checkbox.
19. If you selected the **Allow** checkbox, then enter a password in the **Password** field to authenticate access to the stream.
20. If you would like enable Content Analysis (CQA), verify that the **Enable Content Analysis** checkbox is selected (default).



It is generally recommended to enable Content Analysis unless it is causing technical problems. If Content Analysis is disabled, the system won't detect errors in the video and audio content of the stream and won't generate warnings for such events. Even when Content Analysis is disabled the system will still detect TR101 errors in the stream.

21. If you would like to monitor CEA-608/CEA-708 closed captions, select the **Monitor CEA-608/CEA-708** checkbox.



Monitoring CEA-608/CEA-708 Closed Captions requires using a version 14.4 or newer Broadcaster.

22. If you would like to disable auto-pull, select the **Disable Auto-Pull** checkbox.



Disabling Auto-Pull will lock Channels using this Source to the Source's Ingest Cluster and Targets to the Source's current active Broadcaster. This setting only applies to Pass-Through Channels.

23. If Auto-Pull is *enabled*, in the **Auto-Pull Latency [ms]** field, specify the desired latency for auto-pull actions. (Default: 1000 ms)

24. In the **WebRTC Playback** section, select the desired playback method.



WebRTC enables you to monitor the stream via web browsers and mobile applications with real-time communication (RTC). WebRTC needs to be activated independently for each Source in ZEN Master (by default it is disabled).

Select one of the following options:

- **Disabled** – users will not be able to view this Source using WebRTC (default)
- **Pass-Through** – passes the stream through to WebRTC without transcoding. This option *can only be used* if the input stream is already in a WebRTC compliant format (video - H.264 codec with *Baseline* or *Main* profile and no B frames, Audio – Opus codec).
- **Auto** - ZEN Master automatically transcodes the stream using the optimal profile for each specific user. In this option Zixi Broadcaster will decode the video, transforming it into RAW frames, which will be passed to the WebRTC library, where it will be re-encoded for each individual user.



Best quality. However, if monitored by multiple users this can consume extensive resources.

- **1080p/720p/480p/360p** – ZEN Master transcodes the stream to a *WebRTC compliant* profile with the specified resolution. The transcoding is done by Zixi Broadcaster's transcoder.



This method requires a Zixi Broadcaster with X264 or Nvidia for transcoding. This method allows many users to monitor the stream without encoding separately for each individual user, which saves CPU capacity. Since there is only one stream version, it is recommended to encode to a low resolution and low bitrate so that the stream will be viewable by all users monitoring the stream.

25. In the **Initial State** section, select the **Disabled** checkbox if you would like to disable this Source upon initial configuration.

26. Select the **Muted** checkbox if you would like to disable error/recovery notifications for this Source upon initial configuration.



You can Enable/Unmute the Source at any time.

27. If you would like to adjust the advanced settings, click **Advanced**.
The **Advanced** settings fields are displayed:

ADVANCED —

Billing Code
Billing Code

Billing Password
Billing Password

Validate billing code

Auto-Pull Billing Code
Auto-Pull Billing Code

Auto-Pull Billing Password
Auto-Pull Billing Password

Validate billing code

Auto Pull MTU
MTU

Apply Input NIC selection to network device

Frozen Video Minimal Duration
10
Broadcasters older than version 16.3 will ignore this setting

Blank Video Minimal Duration
10
Broadcasters older than version 16.3 will ignore this setting

< Back × Cancel ✓ Save

28. If you would like to track usage for this Source, enter your **Billing Code** details. See [BILLING CODES](#).
29. In the **Auto Pull MTU** field, specify the maximum transmission unit (largest data packet that a network-connected device will accept) in bytes for the Auto Pull.
30. To apply Input NIC selection to the network device, select the **Apply Input NIC selection to network device** checkbox.
31. To set the detection of frozen video, in the **Frozen Video Minimal Duration** field, specify the default minimal duration in seconds of frozen video after which the Broadcaster will trigger a Frozen video alert. Default: 10 seconds. This setting is supported for Broadcaster version 16.3 and higher.
32. To set the detection of blank video, in the **Blank Video Minimal Duration** field, specify the default minimal duration in seconds of blank video after which the Broadcaster will trigger a Blank video alert. Default: 10 seconds. This setting is supported for Broadcaster version 16.3 and higher.
33. Click **Save**.

RTMP Source Configuration Parameters Table

Parameter	Description
Info	
Name	Specify a name for the RTMP Source in ZEN Master.
Tags	<p>Select one or more of the predefined Tags from the drop-down list.</p> <p>Tags are used for access control. By selecting a Tag, you are relating this Source to that Tag. Tags are associated with certain roles (through the Users & Roles screen), and roles, in turn, are associated with users and user groups. If you would like to create a new Tag, see CREATING A TAG.</p>
Events Configuration Profile	<p>Select from the dropdown list the profile that you would like to apply to this Source. By default, the <i>Default</i> profile is applied.</p> <p>NOTE: <i>Events Profiles</i> consist of a series of rules that determine precisely how various types of Events are logged and what results they trigger.</p>
Location (Optional)	The Source's location is used to represent it in the proper position in the Map display (see MAPS). By default, the location is determined automatically based on the Source's IP. Enter identifying info for the location (e.g. street address, zip code, coordinates) and select the desired location from the suggestions that are shown.
RTMP Configuration	
Mode	To create an RTMP Source, select the mode used for sending the stream. Options are: <i>Push</i> or <i>Pull</i> .
URL (for Pull)	Enter the URL of the RTMP server (e.g. <code>rtmp://server/live</code>).
Stream (for Pull)	Enter the RTMP stream name as defined in the RTMP server.
Username (for Pull)	Enter the RTMP stream access credentials – Username.
Password (for Pull)	Enter the RTMP stream access credentials – Password.
Ignore TLS certificate errors (for Pull)	Select this checkbox if you are sending the stream to a trusted server which does not have a valid certificate. When this option is selected, the Zixi Broadcaster will ignore TLS certificate errors and send the stream to its destination.

Sources

Disconnect idle stream	Verify that this checkbox is selected if you would like to disconnect the stream when the bitrate drops very low. (Default: selected)
Source Configuration	
Ingest Cluster	Select from the drop-down list one of the available Ingest Clusters as the destination for the Source.
Target Broadcaster/s	Select your Broadcaster preferences. Either select a specific Broadcaster to be used OR specify your preference for using primary vs. backup Broadcasters. Options are: <i>Prefer Primary Broadcasters</i> , <i>Primary Broadcasters only</i> , <i>Backup Broadcasters only</i> or <i>Prefer Backup Broadcasters</i> . NOTE: For managed clusters, it is not recommended to select a specific Broadcaster, as the Broadcaster's availability may not remain stable.
Input NIC	If you would like to specify which NIC is used, select the IP of that NIC from the drop-down list. By default, <i>Any</i> is selected.
PID Mapping Profile (Optional)	If you would like to apply a PID Mapping profile to this Source, then select the desired profile from the dropdown list. To create a new PID Mapping Profile, see ADDING PID MAPPING PROFILES . NOTE: Using this method creates a single Source in ZEN Master with PID Mapping applied. If you would like to maintain a Source with the original PIDs and create an additional Source with PID Mapping (e.g. if you want to create several different PID Mapped variations), then use the method described in ADDING A SOURCE – PID MAPPING .
Alert on PID changes	If you would like to generate email notifications whenever a PID change is detected, select this checkbox.
Log SCTE-35	Select this checkbox if you would like to log SCTE-35 markers for this stream. NOTE: To log SCTE-35 markers, SCTE-35 needs to be enabled both on the Ingest Cluster and in the Source configuration. NOTE: SCTE-35 logging is only available for v13.1.40262+ Broadcasters
Enable SCTE-35 alerts (for Log SCTE-35)	If you would like to receive alerts for SCTE-35 markers, select this checkbox.
Public Output	If you would like to allow access to the stream directly through a supported player, select the Allow checkbox.

Sources

Password (for Public Output)	If you selected Allow in the <i>Public Output</i> field, specify a password in this field to authenticate access to the stream.
Alert on PID changes	If you would like to generate email notifications whenever a PID change is detected, select this checkbox.
Enable Content Analysis	<p>If you would like to enable Content Analysis (CQA), verify that this checkbox is selected (default).</p> <p>NOTE: It is generally recommended to enable Content Analysis unless it is causing technical problems. If Content Analysis is disabled, the system won't detect errors in the video and audio content of the stream and won't generate warnings for such events. Even when Content Analysis is disabled the system will still detect TR101 errors in the stream.</p>
Monitor CEA-608/CEA-708 Closed Captions	<p>If you would like to monitor CEA-608/CEA-708 closed captions, select this checkbox.</p> <p>NOTE: Monitoring CEA-608/CEA-708 Closed Captions requires using a version 14.4 or newer Broadcaster.</p>
Disable Auto-Pull	<p>If you would like to disable auto-pull, select this checkbox.</p> <p>NOTE: Disabling Auto-Pull will lock Channels using this Source to the Source's Ingest Cluster and Targets to the Source's current active Broadcaster. This setting only applies to Pass-Through Channels.</p>
Auto-Pull Latency [ms]	Specify the desired latency for auto-pull actions. (Default: 1,000 ms)

Select the desired playback method.

NOTE: WebRTC enables you to monitor the stream via web browsers and mobile applications with real-time communication (RTC). WebRTC needs to be activated independently for each Source in ZEN Master (by default it is disabled).

Select one of the following options:

- **Disabled** – users will not be able to view this Source using WebRTC (default)
- **Pass-Through** – passes the stream through to WebRTC without transcoding. This option *can only be used* if the input stream is already in a WebRTC compliant format (video – H.264 codec with *Baseline* or *Main* profile and no B frames, Audio – Opus codec).
- **Auto** – ZEN Master automatically transcodes the stream using the optimal profile for each specific user. In this option Zixi Broadcaster will decode the video, transforming it into RAW frames, which will be passed to the WebRTC library, where it will be re-encoded for each individual user.

WebRTC Playback

NOTE: Best quality. However, if monitored by multiple users this can consume extensive resources.

- **1080p/720p/480p/360p** – ZEN Master transcodes the stream to a WebRTC compliant profile with the specified resolution. The transcoding is done by Zixi Broadcaster's transcoder.

NOTE: This method requires a Zixi Broadcaster with X264 or Nvidia for transcoding. This method allows many users to monitor the stream without encoding separately for each individual user, which saves CPU capacity. Since there is only one stream resolution, it is recommended to encode to a low resolution and low bitrate so that the stream will be viewable by all users monitoring the stream.

Initial State

Disabled

Select this checkbox if you would like to disable this Source upon initial configuration.

Muted

Select this checkbox if you would like to disable error/recovery notifications for this Source upon initial configuration.

Advanced

Billing Codes	If you would like to track usage for this Source, enter your Billing Code details, see BILLING CODES . (Supported for Broadcasters v14.8+)
Auto Pull MTU	Specify the maximum transmission unit (largest data packet that a network-connected device will accept) in bytes for the Auto Pull.
Apply Input NIC selection to network device	Select this checkbox to apply Input NIC selection to the network device.
Frozen Video Minimal Duration	Specify the default minimal duration in seconds of frozen video after which the Broadcaster will trigger a Frozen video alert. Default: 10 seconds. This setting is supported for Broadcaster version 16.3 and higher. For existing sources, you may need to restart the source.
Blank Video Minimal Duration	Specify the default minimal duration in seconds of blank video after which the Broadcaster will trigger a Blank video alert. Default: 10 seconds. This setting is supported for Broadcaster version 16.3 and higher. For existing sources, you may need to restart the source.

Adding a Source – HLS

ZEN Master can receive a Source directly from an HLS input.



This method only supports single bitrate media playlists. If a multi bitrate master playlist was entered, ZEN Master will load the component playlists out of it and you will need to select one of the renditions. If you want the full master playlist to be in ZEN Master, you can repeat the following procedure for each of the renditions.

The following procedure describes how to add an HLS Source in ZEN Master. In addition, an explanation of each of the configuration parameters is given in the table below.

➔ To add an HLS Source:

1. In the main navigation, click **Sources**.

2. Click **+** **Add**.
The **Create New Source** window is displayed.

CREATE NEW SOURCE

ZEN MASTER

Zixi - Zixi push from a connected Feeder, Broadcaster, AWS MediaConnect, or other Zixi enabled device to ZEN Master.

Monitor Only - Monitor an existing input on a ZEN Master enabled Broadcaster. Limited functionality.

Failover - Combine existing Sources into a single Source that will switch between them to maintain quality.

Transcoded - Transcode an existing source into a new one.

PID Mapping - Create a Source with modified PIDs from an existing source

Inter-Cluster - Send a Source from one cluster to another

UDP/RTP - Receive UDP or RTP stream directly.>

File - Create a Source from a .ts file on a Broadcaster

SRT - Receive stream via SRT protocol

RIST - Receive stream via RIST protocol

NDI - Receive an NDI stream in the local network and encode it for transmission

RTMP - Receive stream via RTMP protocol

HLS - Receive stream via HLS protocol

Demux - Create a Demux Source on a Broadcaster

Multiviewer - Collection of selected sources in a grid

Multiplex - Create a Multiplex Source on a Broadcaster

AWS MEDIA

AWS MediaConnect - Create a Source to use with an AWS MediaConnect Flow.

AWS Elemental Link - Source from AWS Elemental Link device to AWS MediaLive

✕ Cancel

- Click on **HLS**.
The **Create New HLS** window opens.

CREATE NEW HLS

INFO

Name *

Name


Access Tags * ⓘ

Select Access Tags

Events Configuration Profile

Default

Location ⓘ

Location 

HLS CONFIGURATION

URL

https://example.com/index.m3u8

Enter an HLS master or media playlist URL above, then click *Load media playlists* to verify and select the relevant media stream URL below

[Load media playlists](#)

HLS media stream URL *

Select HLS media stream URL

Buffer Size [ms] *

30000

Convert EXT-X-CUE-OUT/EXT-X-CUE-IN ad markers to SCTE-35

SOURCE CONFIGURATION

Ingest Cluster *

Select Cluster

Target Broadcaster/s *

Select Broadcaster/s

PID Mapping Profile

Select PID Mapping Profile

Alert on PID Changes

Log SCTE-35
Requires Cluster configuration and version 13.1.40262 or newer Broadcasters

Enable SCTE-35 alerts
Requires SCTE-35 Logging

Public Output

Allow Password

Enable Content Analysis ⓘ

Monitor CEA-608/CEA-708 Closed Captions
Requires version 14.4 or newer Broadcaster

Disable Auto-Pull
Disabling Auto-Pull will lock Channels using this Source to the Source's Ingest Cluster and Targets to the Source's current active Broadcaster.

Auto-Pull Latency [ms] *

1000

WebRTC Playback

[Disabled](#) [Pass-Through](#) [Auto](#) [1080p](#) [720p](#) [480p](#) [360p](#)

Using WebRTC to monitor a stream requires transcoding (except in Pass-through mode). When playback begins, Zen Master starts transcoding on the Broadcaster, while respecting the Broadcaster's transcoding thresholds.
In Auto mode, the Source is transcoded separately for each active WebRTC client (which consumes additional resources).

INITIAL STATE

Disabled

Muted

ADVANCED +

[Back](#) [Cancel](#) [Save](#)

- In the **Info** section, in the **Name** field, type a logical name for the Source.

5. In the **Tags** field, select one or more of the predefined Tags from the drop-down list. Tags are used for access control. By selecting a Tag, you are relating this Source to that Tag. Tags are associated with certain roles (through the Users & Roles screen), and roles, in turn, are associated with users and user groups. If you would like to create a new Tag, see [CREATING A TAG](#).
6. In the **Events Configuration Profile** field, select from the dropdown list the profile that you would like to apply to this Source. By default, the *Default* profile is applied.



Events Profiles consist of a series of rules that determine precisely how various types of Events are logged and what results they trigger.

7. The Source's location is used to represent it in the proper position in the Map display (see [MAPS](#)). By default, the location is determined automatically based on the Source's IP. If you would like to manually set the location of the Source (Optional), use the following procedure:
 - a. Click on the **Edit** icon next to the **Location** field.
A search box is shown below the **Location** field.
 - b. Enter identifying info for the location (e.g. street address, zip code, coordinates).
Search results are displayed below the search box as you type.
 - c. Click on the desired location.
The selected location populates the **Location** field.
8. In the **HLS Configuration** section, in the **URL** field, enter an HLS master or media playlist URL (e.g. <https://example.com/index.m3u8>).
9. Click on the **Load media playlists** button to verify the URL.
10. In the **HLS media stream URL** field, select the relevant media stream from the drop-down list.
11. In the **Buffer Size [ms]** field, select the buffer size. (Default: 30,000)
12. If you would like to convert EXT-X-CUE-OUT/EXT-X-CUE-IN ad markers to SCTE-35, select the **Convert EXT-X-CUE-OUT/EXT-X-CUE-IN ad markers to SCTE-35** checkbox.
13. In the **Source Configuration** section, in the **Ingest Cluster** field, select from the drop-down list one of the available Ingest Clusters as the destination for the Source.
14. In the **Target Broadcaster/s** field, select your broadcaster preference. Either select a specific broadcaster to be used OR specify your preference for using primary vs. backup broadcasters, options are: *Prefer Primary Broadcasters*, *Primary Broadcasters only*, *Backup Broadcasters only* or *Prefer Backup Broadcasters*.



For managed clusters, it is not recommended to select a specific broadcaster, as the broadcaster's availability may not remain stable.

15. If you would like to apply a PID Mapping profile to this Source, then in the **PID Mapping Profile** field, select the desired profile from the drop-down list.



Using this method creates a single Source in ZEN Master with PID Mapping applied. If you would like to maintain a Source with the original PIDs and create an additional Source with PID Mapping (e.g. if you want to create several different PID Mapped variations), then use the method described in [ADDING A SOURCE – PID MAPPING](#).

To create a new PID Mapping Profile, see [ADDING PID MAPPING PROFILES](#).

16. If you would like to generate email notifications whenever a PID change is detected, select the **Alert on PID changes** checkbox.
17. Select the **Log SCTE-35** checkbox if you would like to log SCTE-35 markers for this stream.



To log SCTE-35 markers, SCTE-35 needs to be enabled both on the Ingest Cluster and in the Source configuration.



SCTE-35 logging is only available for v13.1.40262+ Broadcasters.

18. If **Log SCTE-35** was selected, you can choose to receive alerts for SCTE-35 markers by selecting the **Enable SCTE-35 alerts** checkbox.
19. In the **Public Output** field, if you would like to allow access to the stream directly through a supported player, select the **Allow** checkbox.
20. If you selected the **Allow** checkbox, then enter a password in the **Password** field to authenticate access to the stream.
21. If you would like to enable Content Analysis (CQA), verify that the **Enable Content Analysis** checkbox is selected (default).



It is generally recommended to enable Content Analysis unless it is causing technical problems. If Content Analysis is disabled, the system won't detect errors in the video and audio content of the stream and won't generate warnings for such events. Even when Content Analysis is disabled the system will still detect TR101 errors in the stream.

22. If you would like to monitor CEA-608/CEA-708 closed captions, select the **Monitor CEA-608/CEA-708** checkbox.



Monitoring CEA-608/CEA-708 Closed Captions requires using a version 14.4 or newer Broadcaster.

23. If you would like to disable auto-pull, select the **Disable Auto-Pull** checkbox.



Disabling Auto-Pull will lock Channels using this Source to the Source's Ingest Cluster and Targets to the Source's current active Broadcaster. This setting only applies to Pass-Through Channels.

24. If Auto-Pull is *enabled*, in the **Auto-Pull Latency [ms]** field, specify the desired latency for auto-pull actions. (Default: 1000 ms)
25. In the **WebRTC Playback** section, select the desired playback method.



WebRTC enables you to monitor the stream via web browsers and mobile applications with real-time communication (RTC). WebRTC needs to be activated independently for each Source in ZEN Master (by default it is disabled).

Select one of the following options:

- **Disabled** – users will not be able to view this Source using WebRTC (default)
- **Pass-Through** – passes the stream through to WebRTC without transcoding. This option *can only be used* if the input stream is already in a WebRTC compliant format (video - H.264 codec with *Baseline* or *Main* profile and no B frames, Audio – Opus codec).
- **Auto** - ZEN Master automatically transcodes the stream using the optimal profile for each specific user. In this option Zixi Broadcaster will decode the video, transforming it into RAW frames, which will be passed to the WebRTC library, where it will be re-encoded for each individual user.



Best quality. However, if monitored by multiple users this can consume extensive resources.

- **1080p/720p/480p/360p** – ZEN Master transcodes the stream to a *WebRTC compliant* profile with the specified resolution. The transcoding is done by Zixi Broadcaster's transcoder.



This method requires a Zixi Broadcaster with X264 or Nvidia for transcoding. This method allows many users to monitor the stream without encoding separately for each individual user, which saves CPU capacity. Since there is only one stream version, it is recommended to encode to a low resolution and low bitrate so that the stream will be viewable by all users monitoring the stream.

26. In the **Initial State** section, select the **Disabled** checkbox if you would like to disable this Source upon initial configuration.
27. Select the **Muted** checkbox if you would like to disable error/recovery notifications for this Source upon initial configuration.



You can Enable/Unmute the Source at any time.

28. If you would like to adjust the advanced settings, click **Advanced**. The **Advanced** settings window is displayed:

ADVANCED —

Billing Code

Billing Password

Validate billing code

Auto-Pull Billing Code

Auto-Pull Billing Password

Validate billing code

Auto Pull MTU

Frozen Video Minimal Duration

Broadcasters older than version 16.3 will ignore this setting

Blank Video Minimal Duration

Broadcasters older than version 16.3 will ignore this setting

< Back x Cancel **Save**

29. If you would like to track usage for this Source, enter your **Billing Code** details. See [BILLING CODES](#).
30. In the **Auto Pull MTU** field, specify the maximum transmission unit (largest data packet that a network-connected device will accept) in bytes for the Auto Pull.
31. To set the detection of frozen video, in the **Frozen Video Minimal Duration** field, specify the default minimal duration in seconds of frozen video after which the Broadcaster will trigger a Frozen video alert. Default: 10 seconds. This setting is supported for Broadcaster version 16.3 and higher.
32. To set the detection of blank video, in the **Blank Video Minimal Duration** field, specify the default minimal duration in seconds of blank video after which the Broadcaster will trigger a Blank video alert. Default: 10 seconds. This setting is supported for Broadcaster version 16.3 and higher.
33. Click **Save**.

HLS Source Configuration Parameters Table

Parameter	Description
Info	
Name	Specify a name for the HLS Source in ZEN Master.
Tags	Select one or more of the predefined Tags from the drop-down list. Tags are used for access control. By selecting a Tag, you are relating this Source to that Tag. Tags are associated with certain roles (through the Users & Roles screen), and roles, in turn, are associated with users and user groups. If you would like to create a new Tag, see CREATING A TAG .
Events Configuration Profile	Select from the dropdown list the profile that you would like to apply to this Source. By default, the <i>Default</i> profile is applied. NOTE: <i>Events Profiles</i> consist of a series of rules that determine precisely how various types of Events are logged and what results they trigger.
Location (Optional)	The Source's location is used to represent it in the proper position in the Map display (see MAPS). By default, the location is determined automatically based on the Source's IP. Enter identifying info for the location (e.g. street address, zip code, coordinates) and select the desired location from the suggestions that are shown.
HLS Configuration	
URL	Enter an HLS master or media playlist URL (e.g. https://example.com/index.m3u8).
Load media playlists	Click on this button to verify the URL.
HLS media stream URL	Select the relevant media stream from the drop-down list.
Buffer Size [ms]	Select the Buffer size. (Default: 30,000)
Convert EXT-X-CUE-OUT/EXT-X-CUE-IN ad markers to SCTE-35	Select this checkbox if you would like to convert EXT-X-CUE-OUT/EXT-X-CUE-IN ad markers to SCTE-35.
Source Configuration	
Ingest Cluster	Select from the drop-down list one of the available Ingest Clusters as the destination for the Source.

Target Broadcaster/s	<p>Select your Broadcaster preferences. Either select a specific Broadcaster to be used OR specify your preference for using primary vs. backup Broadcasters. Options are: <i>Prefer Primary Broadcasters</i>, <i>Primary Broadcasters only</i>, <i>Backup Broadcasters only</i> or <i>Prefer Backup Broadcasters</i>.</p> <p>NOTE: For managed clusters, it is not recommended to select a specific Broadcaster, as the Broadcaster's availability may not remain stable.</p>
PID Mapping Profile (Optional)	<p>If you would like to apply a PID Mapping profile to this Source, then select the desired profile from the dropdown list.</p> <p>To create a new PID Mapping Profile, see ADDING PID MAPPING PROFILES.</p> <p>NOTE: Using this method creates a single Source in ZEN Master with PID Mapping applied. If you would like to maintain a Source with the original PIDs and create an additional Source with PID Mapping (e.g. if you want to create several different PID Mapped variations), then use the method described in ADDING A SOURCE – PID MAPPING.</p>
Alert on PID changes	<p>If you would like to generate email notifications whenever a PID change is detected, select this checkbox.</p>
Log SCTE-35	<p>Select this checkbox if you would like to log SCTE-35 markers for this stream.</p> <p>NOTE: To log SCTE-35 markers, SCTE-35 needs to be enabled both on the Ingest Cluster and in the Source configuration.</p> <p>NOTE: SCTE-35 logging is only available for v13.1.40262+ Broadcasters</p>
Enable SCTE-35 alerts (for Log SCTE-35)	<p>If you would like to receive alerts for SCTE-35 markers, select this checkbox.</p>
Public Output	<p>If you would like to allow access to the stream directly through a supported player, select the Allow checkbox.</p>
Password (for Public Output)	<p>If you selected Allow in the <i>Public Output</i> field, specify a password in this field to authenticate access to the stream.</p>
Alert on PID changes	<p>If you would like to generate email notifications whenever a PID change is detected, select this checkbox.</p>

Sources

Enable Content Analysis	<p>If you would like to enable Content Analysis (CQA), verify that this checkbox is selected (default).</p> <p>NOTE: It is generally recommended to enable Content Analysis unless it is causing technical problems. If Content Analysis is disabled, the system won't detect errors in the video and audio content of the stream and won't generate warnings for such events. Even when Content Analysis is disabled the system will still detect TR101 errors in the stream.</p>
Monitor CEA-608/CEA-708 Closed Captions	<p>If you would like to monitor CEA-608/CEA-708 closed captions, select this checkbox.</p> <p>NOTE: Monitoring CEA-608/CEA-708 Closed Captions requires using a version 14.4 or newer Broadcaster.</p>
Log SCTE-35	<p>Select this checkbox if you would like to log SCTE-35 markers for this stream.</p> <p>NOTE: To log SCTE-35 markers, SCTE-35 needs to be enabled both on the Ingest Cluster and in the Source configuration.</p> <p>NOTE: SCTE-35 logging is only available for v13.1.40262+ Broadcasters.</p>
Enable SCTE-35 alerts (for Log SCTE-35)	<p>If you would like to receive alerts for SCTE-35 markers, select this checkbox.</p>
Disable Auto-Pull	<p>If you would like to disable auto-pull, select this checkbox.</p> <p>NOTE: Disabling Auto-Pull will lock Channels using this Source to the Source's Ingest Cluster and Targets to the Source's current active Broadcaster. This setting only applies to Pass-Through Channels.</p>
Auto-Pull Latency [ms]	<p>Specify the desired latency for auto-pull actions. (Default: 1,000 ms)</p>

Select the desired playback method.

NOTE: WebRTC enables you to monitor the stream via web browsers and mobile applications with real-time communication (RTC). WebRTC needs to be activated independently for each Source in ZEN Master (by default it is disabled).

Select one of the following options:

- **Disabled** – users will not be able to view this Source using WebRTC (default)
- **Pass-Through** – passes the stream through to WebRTC without transcoding. This option *can only be used* if the input stream is already in a WebRTC compliant format (video – H.264 codec with *Baseline* or *Main* profile and no B frames, Audio – Opus codec).
- **Auto** – ZEN Master automatically transcodes the stream using the optimal profile for each specific user. In this option Zixi Broadcaster will decode the video, transforming it into RAW frames, which will be passed to the WebRTC library, where it will be re-encoded for each individual user.

WebRTC Playback

NOTE: Best quality. However, if monitored by multiple users this can consume extensive resources.

- **1080p/720p/480p/360p** – ZEN Master transcodes the stream to a WebRTC compliant profile with the specified resolution. The transcoding is done by Zixi Broadcaster’s transcoder.

NOTE: This method requires a Zixi Broadcaster with X264 or Nvidia for transcoding. This method allows many users to monitor the stream without encoding separately for each individual user, which saves CPU capacity. Since there is only one stream resolution, it is recommended to encode to a low resolution and low bitrate so that the stream will be viewable by all users monitoring the stream.

Initial State

Disabled

Select this checkbox if you would like to disable this Source upon initial configuration.

Muted

Select this checkbox if you would like to disable error/recovery notifications for this Source upon initial configuration.

Advanced

Billing Codes	If you would like to track usage for this Source, enter your Billing Code details, see BILLING CODES . (Supported for Broadcasters v14.8+)
Auto Pull MTU	Specify the maximum transmission unit (largest data packet that a network-connected device will accept) in bytes for the Auto Pull.
Frozen Video Minimal Duration	Specify the default minimal duration in seconds of frozen video after which the Broadcaster will trigger a Frozen video alert. Default: 10 seconds. This setting is supported for Broadcaster version 16.3 and higher. For existing sources, you may need to restart the source.
Blank Video Minimal Duration	Specify the default minimal duration in seconds of blank video after which the Broadcaster will trigger a Blank video alert. Default: 10 seconds. This setting is supported for Broadcaster version 16.3 and higher. For existing sources, you may need to restart the source.

Cloning a Source

If you would like to create a new Source with properties similar to those of an existing Source, you can use the *Clone* feature to simplify the process.

➔ To Clone a Source:

1. In the main navigation, click **Sources**.
2. Select the Source that you would like to Clone (i.e. the Source that is already configured in ZEN Master which has settings similar to those that you would like to set for the new Source that you are creating).
3. Click **Clone**.
The **Clone Source** window is displayed with all fields other than **Name** populated with the configuration data of the original Source.
4. In the **Name** field, enter the name of the new Source.
5. Change any of the fields that you would like to configure differently than the original Source. See the above sections that describe how to create new Sources of various types.
6. Click **Save**.
The Source is created.

Viewing Existing Sources

The Sources screen displays all existing Sources, and information about the status and configuration of each Source.

Sources

Name	Status	Ingest CL	Act. Bc	Type	Input	TR101	IP	Bitrate	Uptime	Shared
azure_blob_source	Ok	azure-eastus-ingest	azure-eastus-ingest-2r...	File	-	P1: P2: HTTP File	-	9,968 kbps	640:13:31	-
CDI-Demo-MediaLive	Disabled	aws_virginia_ingest	-	RTP	-9009	-	-	0 kbps	-	-
Evertz_Tor_HD_1	Pending	aws_canada_ingest	-	Other	-	-	-	0 kbps	-	-
FrmCheddar	Disabled	aws_virginia_ingest	-	Feeder	Demo_ZEN_FX01 / FrmCheddar	-	-	0 kbps	-	-
FrmCheddar2	Disabled	ZIXI_CLOUD_DATACENT...	-	Feeder	Demo_ZEN_FX01 / FrmCheddar2	-	-	0 kbps	-	-
lab_bx02_push_01	ok	aws_virginia_ingest	aws_virginia_ingest-32...	Broadcaster	lab_boston_bx02_AB / bbb_50_10...	-	199.188.233.146	10,000 kbps	316:58:49	-
lab_bx02_push_03_x	ok	aws_virginia_ingest	aws_virginia_ingest-32...	Broadcaster	lab_boston_bx02_AB / bbb_50_10...	P1: P2:	199.188.233.146	9,374 kbps	316:59:31	-
lab_bx02_push_03_xy	ok	aws_virginia_ingest	aws_virginia_ingest-32...	Fallover	-	P1: P2:	-	10,680 kbps	424:36:13	-
lab_bx02_push_03_y	ok	aws_virginia_ingest	aws_virginia_ingest-32...	Broadcaster	lab_boston_bx02_AB / bbb_50_10...	P1: P2:	199.188.233.146	9,108 kbps	468:12:44	-
lab_bx02_push_clock	ok	aws_virginia_ingest	aws_virginia_ingest-32...	Broadcaster	lab_boston_bx02_AB / clock-from...	P1: P2:	199.188.233.146	415 kbps	316:59:18	-
lab_bx03_input-tx_01	ok	lab_boston_bx03_AB	lab_boston_bx03_AB	Transcoded	lab_boston_bx03_input01	P1: P2:	Transcoded	7,333 kbps	613:20:56	-
lab_bx03_input-tx_02	ok	lab_boston_bx03_AB	lab_boston_bx03_AB	Transcoded	lab_boston_bx03_input01	P1: P2:	Transcoded	5,690 kbps	613:20:56	-

When a Source is selected, the list pane is minimized and detailed info about the selected Receiver is shown on the right side of the screen. The info can be shown in *Tab* view or *Accordion* view, see [INFO PAGES](#).

SOURCES + Refresh

Filter

- azure_blob_source
- CDI-Demo-MediaLive
- Evertz_Tor_HD_1
- FrmCheddar
- FrmCheddar2
- lab_bx02_push_01
- lab_bx02_push_03_x
- lab_bx02_push_03_xy
- lab_bx02_push_03_y
- lab_bx02_push_clock
- lab_bx03_input-tx_01
- lab_bx03_input-tx_02
- lab_bx03_input-tx_03
- lab_bx03_input-tx_04
- lab_bx03_input-tx_05
- lab_bx03_input-tx_06
- lab_bx03_input-tx_07
- lab_bx03_input-tx_08
- lab_bx03_input-tx_09
- lab_bx03_input01
- lab_bx03_push_01_adaptive
- lab_bx03_push_02_adaptive
- lab_bx03_push_03_adaptive

azure_blob_source Mute Channel Edit Clone Share Disable Delete

DETAILS DIAGRAM CONTENT ANALYSIS HISTORY HEALTH EVENTS NOTES

INFORMATION

Name: azure_blob_source

Health: 100

Bitrate: 8,039 kbps

Uptime: [Rtmm:ss] 640:15:41

Tags: azure

(Requires VLC with Zixi plugin Windows, Mac)

INPUT

Type: FILE

URL: https://zivizendemo.blob.core.windows.net/sources/rdev-source-LURPlus-10M-Transcode-s323y9_20230405-19.51.23.ts

DESTINATION

Ingest Cluster: azure-eastus-ingest-2rgdw @ azure-eastus-ingest

Target Broadcaster/s: azure-eastus-ingest-2rgdw

SETTINGS

Events Configuration Profile: zen_demo_alerts_profile_quiet

Public Output: Disabled

Preserve closed captions: Enabled

Content Analysis: Enabled

Auto-Pull Latency [ms]: 1000

Show overlay

TV Schedule Next 10:27

23:00: **Stocks Mixed But Mainly Decline**

23:00: **Puerto Rico Faces Budget Deficits With Lower Medicaid Funding**

23:00: **Daybreak Australia**

STREAM INFORMATION

```
graph TD
    PAT --> NULL
    NULL --> Programs
    Programs --> Program_1[Program #1]
    Program_1 --> PMT_PID[PMT PID: 32 (0x20)]
    Program_1 --> PCR_PID[PCR PID: 256 (0x100)]
    Program_1 --> Elementary_PIDs
    Elementary_PIDs --> PID_256[PID: 256 (0x100)]
    PID_256 --> Type[Type: AVC/H.264 VIDEO (FE0)]
    PID_256 --> Min_Bitrate[Min bitrate: 5251 kbps (65.3%)]
    PID_256 --> Max_Bitrate[Max bitrate: 20279 kbps (252.3%)]
    PID_256 --> Avg_Bitrate[Avg bitrate: 11303 kbps (140.6%)]
    PID_256 --> CC_Errors[CC errors: 0]
    PID_256 --> Scrambled[Scrambled: 0]
    PID_256 --> Bytes[Bytes: 2869903916620]
```


It is possible to add more columns to the list, see [Show/Hide Columns](#). If you want to view resources that were marked as **Priority**, add the **Priority** column and sort by it.

When a Source is selected, the following sections are shown in the Info pane:

- **Details** – configuration details of the Source.
- **Diagram** - a diagram showing the streaming objects in the path. In this case, the diagram displays the Source. Click on the Source name to view its details.
- **Stream Information** – a stream information tree that displays cumulative statistics regarding the stream.
- **Bonding (for Network Bonding)** - shows all of the NICs being used for this stream and their IP addresses. It also shows the bitrate and Up time for each connection.
- **Sources (for Failover)** – shows information about each of the Sources that is included in the failover group.
- **Content Analysis** – shows TR101 Priority 1 and Priority 2 warnings. This allows inspection of the stream itself to understand its quality and any issues it may have before being handled by the Zixi solution. In addition, the Content Analysis sub-section shows errors in the audio and video content. (The Content Analysis sub-section is not shown for streams for which this feature has been disabled.)
- **History** – a graphical display of the stream’s performance over time.
- **Health** - graphs that show the health score of the stream over time along with network analysis, connection, and packet timing graphs.
- **Events** - all the related events that have been generated by the system, such as connections, errors, warnings and disconnections. To learn about the data that is displayed in the Events tab see [EVENTS](#). Click **Quick Report** to generate a report of events related to this Channel and download the .xls file.
- **SCTE-35** – displays a log of all the SCTE-35 markers for this Source.
- **Configuration** – configuration settings for connecting unmanaged resources.
- **Notes** – free-form text can be added with pertinent information about this Source.
- **Traceroute** – shows the traceroutes used by this stream. Click on the Traceroute Map button to show a geographical mapping of the traceroutes in a new window. Note: this mapping is based on IP2location which is not consistently reliable.

The main display includes the following data and actions for each Source:

Parameter	Description
-----------	-------------

	Select one or more Sources and perform batch actions on all selected Sources. Available actions are:
Selection Checkbox	<ul style="list-style-type: none"> • Mute All - disables notification for error/recovery events for the selected Sources. • Unmute All – enables notification for error/recovery events for the selected Sources. • Enable All – re-activates all active streams for the selected Sources. • Disable All - stops all active streams for that Source without deleting the configuration of the Source. • Delete All – deletes the Source configuration for the selected Sources.
Name	The name of the Source as configured in ZEN Master.
Status	<p>The connection status of the Source. Possible values:</p> <ul style="list-style-type: none"> • Green – OK (i.e. connected and streaming without errors) • Red - disconnected • Pink (shown together with a checkmark) – acknowledged error state • Gray – standby (i.e. pending, disabled or not assigned) <p>The  icon next to a Source indicates that the Source is muted, disabling notifications for error/recovery events.</p>
Health	A score from 0 to 100 indicating the overall health of the Source. A low health score indicates a likelihood of an offline event or packet loss occurring within the next two hours. The health score is determined based on ML algorithms (Zixi’s Intelligent Data Platform) that assess over 100 measurements of the Source’s performance.
Ingest Cluster	The Ingest cluster in ZEN Master that receives this stream. Click on the link to view details about the Ingest Cluster.
Active Broadcaster	<p>The specific Broadcaster which is currently handling the Source. Click on the link to view details about the Broadcaster.</p> <p>Note: the link takes you to the relevant Broadcaster Cluster. You can then click on the Broadcasters tab to view the specific Broadcaster.</p>

Sources

Type	<p>The type of the Source in ZEN Master e.g. Broadcaster, ZEC, Feeder, Monitor Only, RIST etc.</p> <p>Note: a “From MediaConnect” Source is a Source that receives a stream from MediaConnect (<i>Method 1</i> integration), a “To MediaConnect” Source is a ZEN Master Managed MediaConnect Source, which was created in ZEN Master (<i>Method 2</i> integration), see</p> <p>ADDING A SOURCE – AWS Media.</p>
Input	<p>The name of the input stream. (For inputs from Feeders, ZEC, or Broadcasters configured in ZEN Master this includes a link to view the ZEC/Feeder/Broadcaster details.)</p>
TR101	<p>An indicator of the TR101 analysis. There are two indicators, P1 for high priority warnings and P2 for low priority warnings.</p> <p>Green – no current errors</p> <p>Red – there are current errors</p> <p>Details about the TR101 warnings are shown in the Content Analysis tab for the selected Source.</p>
IP	<p>The IP address of the Source's input resource.</p>
Bitrate	<p>The bitrate of the stream.</p>
Up Time	<p>For online Sources, shows the number of hours, minutes and seconds that the Source has been online.</p>

Actions on a Source

Click on one of the Sources to display information about the Source in the Info pane on the right side of the screen.

The **Info** pane contains buttons for taking the following actions on the selected Source:

- **Acknowledge/Clear Acknowledgment** (for Sources in disconnected status) – mark/clear the status of this Source as acknowledged.
- **Mute/Unmute** – disables/activates notification for error/recovery events. Set the date and time when the mute will automatically be cleared by clicking on the down arrow and selecting **mute until**.
- **+ Channel** – create a new Channel for this Source with the parameters automatically populated with this Source's details.
- **Edit** – enables you to edit the Source configuration.



Fields in the Source creation form that are marked with a lock symbol can't be edited. As a rule, you can't change the type of Source. However, for Zixi Push Sources you can change the type of input between *Feeder*, *Broadcaster*, *AWS MediaConnect* and *Other*.

- **Clone** – create an additional Source based on the settings of the selected Source.
- **Share** – shares a link to a source object thumbnail page by sending a URL. The link can be accessed by external users, without requiring them to have a ZEN Master account. See [Sharing a Source](#).
- **Disable/Enable** – Disabling a Source stops all active streams for that Source without deleting the configuration of the Source.
- **Delete** – deletes the Source configuration.
- **Reset** – resets the Source's statistics.
- **Accordions/Tabs** – view.

[Sharing a Source](#)

The share feature allows you to share a link to a source object thumbnail page by sending a URL link. The link can be accessed by external users, without requiring them to have a ZEN Master account. This feature can be used to share visibility into a source with users that need to view a source, such as live event producers, service customers, external department, 3rd parties, and others. The link is temporary and can be configured to begin and end at specified times. After creating the link, its details will appear in the **Shared** tab of the source.

➔ **To Share a Source:**

1. In the main navigation, click **Sources**.
2. Select the Source that you would like to share.

3. Click **Share**.

The **Share Source** window is displayed.

4. In the **Name** field, enter the name for the link.5. Specify a **Start /End Time**.6. Click **Create Link**.

The link and password details are displayed.


7. Click the copy button on the link and password and send them to the recipients. Anyone with this link and password can view the shared page until it expires. This is the only time that the shared page link can be copied, if you lose the link, create a new one and make the old inactive.

➔ **To Regenerate a Shared Source Password:**

1. In the main navigation, click **Sources**.
2. Select the Source that you have shared.
3. In the **Shared** tab, under **Actions**, click the **Regenerate Password** icon. When generating a new password, the active users will be logged out and required to enter the new

password.


The screenshot shows a software interface for managing sources. At the top, there is a header with the text 'password.' and a tab labeled 'ertyre'. Below the header is a navigation bar with several tabs: 'DETAILS', 'DIAGRAM', 'CONTENT ANALYSIS', 'HISTORY', 'EVENTS', 'NOTES', and 'SHARED'. The 'SHARED' tab is currently selected. Below the navigation bar is a table with the following columns: 'Name', 'Start Time', 'End Time', and 'Actions'. The table contains one row with the following data: 'Name' is 'ERT', 'Start Time' is 'May 17, 2023, 4:00:00 AM', and 'End Time' is 'May 17, 2023, 8:15:12 PM'. The 'Actions' column contains a 'Regenerate password' button, which is highlighted with a red box. Below the table, there is a pagination control showing '1 - 1 of 1' and 'Rows: 10'.

Name	Start Time	End Time	Actions
ERT	May 17, 2023, 4:00:00 AM	May 17, 2023, 8:15:12 PM	

4. Click the **Regenerate password** button.
5. Click the **Copy** button to copy the regenerated password.

Source Details

The **Details** section shows the following information:

Parameter	Description
Name	The name of the Source.
Ingest Cluster	The name of the Ingest Cluster where the Source is located. (Includes a link to view details about the Broadcaster Cluster.)
Play	Downloads a .vlc stream file that is automatically played back in the VLC player with the necessary parameters to view the Zixi stream (Requires Zixi VLC Plugin), see VIEWING PREVIEW IN VLC .
Play WebRTC (for WebRTC enabled)	Plays the stream in a new browser using RTC protocol. NOTE: Playing a stream over WebRTC involves using the Broadcaster to transcode the source to a WebRTC compliant codec. If this causes the Broadcaster to exceed a CPU/GPU threshold, then the playback will be stopped.
Preview	A thumbnail preview of the stream is shown. For a list of supported formats for thumbnail view, see SUPPORTED FORMATS FOR THUMBNAIL VIEW .
Tags	The Tag/s that is associated with this Source. You can edit the tag/s as follows: click the  icon. Then, delete the current tag by clicking the "X" next to the tag and/or add a new tag/s by selecting one or more tags from the drop-down list.
Type	The type of the Source in ZEN Master e.g. Broadcaster, Feeder, Monitor Only, RIST etc. Note: a “ From MediaConnect” Source is a Source that receives a stream from MediaConnect (<i>Method 1</i> integration), a “ To MediaConnect” Source is a ZEN Master Managed MediaConnect Source, which was created in ZEN Master (<i>Method 2</i> integration), see ADDING A SOURCE – AWS Media .
Location	The location of the Source.
Network	The ISP/network of the Source
Transcoding Profile (for Transcoded)	The Transcoding Profile that is applied to this Source. (Includes a link to view details about the Transcoding Profile.)
Input (for Configure & Monitor mode)	The name of the Input stream.

Sources

Max Bitrate (for Configure & Monitor mode)	The maximal bitrate for the Source.
Latency (for Configure & Monitor mode)	The latency value for the Source.
Public Output	This is a Zixi URL for stream playback. If a password was configured for the public output authorization, then the password is included in the URL.
Log SCTE-35	Shows if the Source is enabled to log SCTE-35 markers.
SCTE-35 Alerts	Shows if the Source is enabled to send alerts for SCTE-35 markers.
Source IP	The IP address of the Source's input resource.
Source Password	The password to connect the Source. Click show to display the password.
Bitrate	The current bitrate of the Source.
Up Time	For online Sources, shows the number of hours, minutes and seconds that the Source has been online.

Viewing Preview in VLC

The preview is played back directly from the Zixi Broadcaster and can be used to preview the stream before any Channel processing. The playback is only possible when the session is active. This means that you must be logged in to view the content.

You can choose between two viewing modes:

- **High Resilience** – uses relatively high latency setting (4 seconds) for the Zixi protocol to provide very good resiliency for any network conditions.
- **Low Latency** – uses low latency (500ms including VLCs latency requirements), for situations that require viewing the Source as close to real-time as possible. This mode can only be used when the Network supports that level of performance.

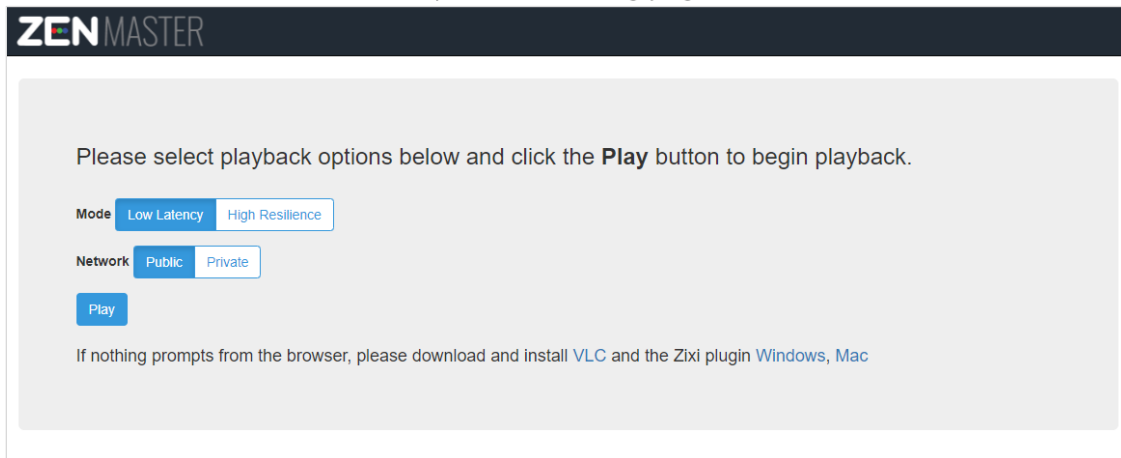
For Manual clusters with broadcasters that are configured with a private IP, you can select whether the private IP or public IP is used for viewing the preview.



The first time that you view a Source preview you will need to ensure that the VLC player is installed with the Zixi plugin. The landing page has links to install the player and plugin if needed.

➔ To view a Source preview in VLC:

1. In the **Details** section for the desired Source, click on the **Play** button. You are redirected to the Source preview landing page.



2. In the **Mode** section, select the latency mode. Options are: *Low Latency* or *High Resilience*.
3. In the **Network** section, select the type of network that is used for viewing the preview. Options are: *Public* or *Private*.
4. Click **Play**.
The preview is shown in VLC.



Your button selections on the landing page are saved in the browser and will be remembered from session to session in that browser. Also, you only need to click the "Play" button on the landing page the first time you view the page. The next time you preview a Source, the browser will go to the landing page and start the playback sequence automatically. If you want to change the settings, you can close VLC, causing the landing page to be shown again.



You can share the link for the landing page with other ZEN Master users. If they are already logged in to ZEN Master the landing page will open on their browser and they can click **Play**. If they are not logged in, they will be taken to the ZEN Master login page first and then to the Source preview landing page after logging in.

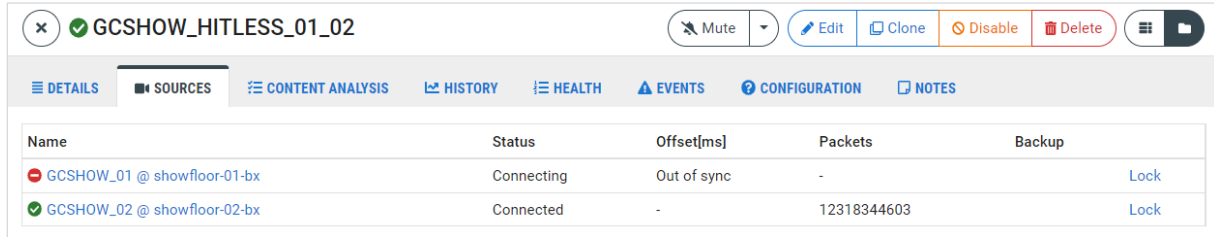
Source Stream Information

Shows a stream information tree that displays cumulative statistics regarding the stream. You can reset the stream information by clicking on the *Reset* button at the bottom of the page.

Sources (for Failover)

Shows information about each of the component Sources that are included in the Failover group.

Sources



The screenshot shows a web interface for a source named GCSHOW_HITLESS_01_02. At the top, there are control buttons: Mute, Edit, Clone, Disable, and Delete. Below this is a navigation bar with tabs: DETAILS, SOURCES, CONTENT ANALYSIS, HISTORY, HEALTH, EVENTS, CONFIGURATION, and NOTES. The SOURCES tab is active, displaying a table with the following data:

Name	Status	Offset[ms]	Packets	Backup
GCSHOW_01 @ showfloor-01-bx	Connecting	Out of sync	-	Lock
GCSHOW_02 @ showfloor-02-bx	Connected	-	12318344603	Lock

The following table explains the data shown for each listing:

Parameter	Description
Name	The name of the Source.
Status	The Status of the Source.
Offset [ms]	Shows the offset level of the Source in milliseconds.
Packets	The number of packets received from the Source.
Backup	Shows if the Source is configured as a backup Source.
Backup	NOTE: You can manually select one of the streams to be active by clicking on the <i>Lock</i> button. The Source designated as <i>Locked</i> will be used whenever it is available until you click <i>Unlock</i> .

Source Content Analysis

Shows a list of streaming errors that occurred on this Source. The list includes sub-sections for Content Analysis, TR101 Priority 1 and TR101 Priority 2. Content Analysis shows errors detected in the audio and video content itself. TR101 shows errors detected in the stream. This information can be helpful for troubleshooting problems in the system. For example, if you get *Continuity Count* errors you should check in the History Tab if this coincides with detection of *Unrecovered Packets*, which would indicate a problem with the way that your Zixi Source is being processed. You can reset the Content Analysis and TR101 logs by clicking on the **Reset** button at the bottom of the page.



PCR Accuracy Errors are only relevant for CBR streams. For VBR streams these errors can be ignored.

×
Ateme_CM5000

Mute
Edit
Clone
Disable
Delete

DETAILS
CONTENT ANALYSIS
HISTORY
EVENTS
CONFIGURATION
NOTES

Content Analysis

Name	Count	Time	Description
✓ Frozen Video	0	-	-
✓ Blank Picture	0	-	-
✓ Silent Audio	0	-	-
✓ Audio Clipping	0	-	-

TR101 - Priority 1

Name	Count	Time	Description
✓ TS Sync Loss	0	-	-
✓ Sync Byte Error	0	-	-
✓ PAT Error	0	-	-
✗ Continuity Count Error	11	Sep 4, 2020, 10:52 PM	Incorrect continuity-count on PID 500 (expected: 7, found: 8)
✓ PMT Error	0	-	-
✓ PID Error	0	-	-

TR101 - Priority 2

Name	Count	Time	Description
✓ Transport Error	0	-	-
✓ CRC Error	0	-	-
✗ PCR Error	3	Sep 4, 2020, 10:45 PM	Un-signalled PCR discontinuity on PID 481 (allowed: 100ms, actual: 15063...
✗ PCR Accuracy Error	40104	Oct 13, 2020, 3:54 PM	PCR accuracy for pid 0x01E1 is not within +-500ns.
✓ PTS Error	0	-	-
✓ CAT Error	0	-	-

[Reset](#)

Sources

The following table explains the data shown for each listing.

Parameter	Description
	An indicator of the status for this Event Type.
Status	<ul style="list-style-type: none">• Red – The Source has experienced an event of this Event Type.• Green – This Source has not experienced an event of this Event Type.
Name	The type of event specified in this listing.
Count	The number of events of this type that have occurred on this Source.
Time	The date and time of the most recent event of this type.
Description	A description of the most recent event that occurred.

Source History

The History section shows a graphic display of the Source's activity and performance over time. You can create an **Incident** to group together related network failures and see network data for the relevant time period. This is done by selecting a time range on a graph and clicking the **Add Incident** button. For more information about Incidents, see [INCIDENTS](#).



Data is shown on separate line graphs for each topic that is relevant for the selected Source. Click on the section headings to expand/collapse the graph display.

Each graph shows color coded lines indicating the events that occurred over time. A key indicating the colors used to represent various types of data is shown below each graph.

The graphs have the following functionality:

- Set the time range of the display either by selecting one of the preset time ranges or by entering a custom time range. (Default: *Last 6 hr*)



One year of history is saved in the ZEN Master database even though the graphs show larger timeframes. Contact Zixi if you require more than one year of history.

- Manually refresh graph data or set the automatic refresh frequency.
- Hover over a point on the graph to show the total values for that time.
- Click and drag the cursor over a time range to zoom in on that time range.
- Double click on the graph to zoom out on the graph (i.e. expand the time range).
- Click on the title of a data element in the key to display only that element.



ZEN Master treats all graphs as a single component so that the zoom time range set for one graph is automatically applied to all graphs on that screen. Similarly, when you hover over a point on one graph, the tool-tip values are shown for the same point in time on all of the graphs



The granularity of the graph depends on the zoom level. Most graphs can zoom in to a resolution of one datapoint per minute.




For Broadcasters v14.1+, data is gathered at 5 second intervals. This enables ZEN Master to show min. and max. values for RTT, jitter and bitrates based on 5 second intervals within a given datapoint.


The following sections describe the various graphs that are shown in the History tab.

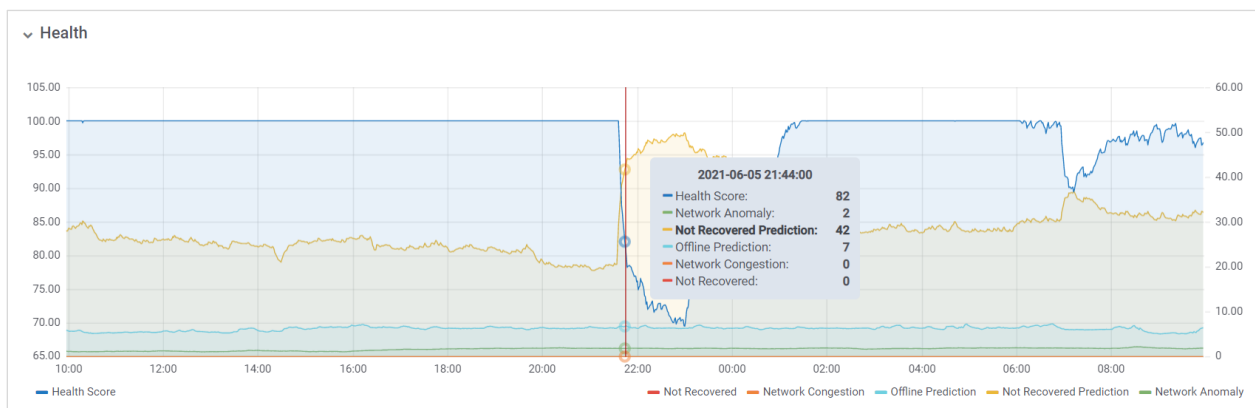
Source History Health

The Health score for Sources is a predictor of stream quality for the coming two hour period. The health score is determined based on ML algorithms (part of Zixi's Intelligent Data Platform) that assess over 100 measurements of the Source's performance. A score from 0 to 100 indicates the overall health of the Source. A low health score indicates a likelihood of an offline event or packet loss occurring within the next two hours.

The Health graph shows the Health score as well as the measures that contribute to the determination of the Health score.

 Health score is an add-on feature that needs to be activated in your ZEN Master account in order for the data to be shown.

 Health score is only available for Zixi Sources.



ZEN Master shows data for the following parameters in the Health graph:

- **Health Score** – a score from 0 to 100 indicating the health of the Source, as a predictor of stream quality over the coming two hours.
- **Not Recovered** – the count of not recovered packets.
- **Network Congestion** – a measurement of network congestion.
- **Offline Prediction** – a score from 0 to 100 predicting the likelihood of an offline event occurring in the coming two hours.
- **Not Recovered Prediction** – a score from 0 to 100 predicting the likelihood of packet loss occurring in the coming two hours.
- **Network Anomaly** – a score from 0 to 100 indicating the degree of anomalous activity occurring on the Source.

You can get additional information about the main metrics that contributed to the fluctuation of the Health Score at a particular time period by selecting a time period (up to 2 hr) on the graph and clicking on **Explain Offline** or **Explain not Recovered Predictions**. This opens a bar graph showing the main metrics that fluctuated at that time and the extent to which they contributed to the change in Health Score.

Source History Content Analysis

This graph shows the number of Content Analysis errors of each type (e.g. CC Errors, Blank Picture etc.) that occurred over time. Errors are shown separately for each PID.

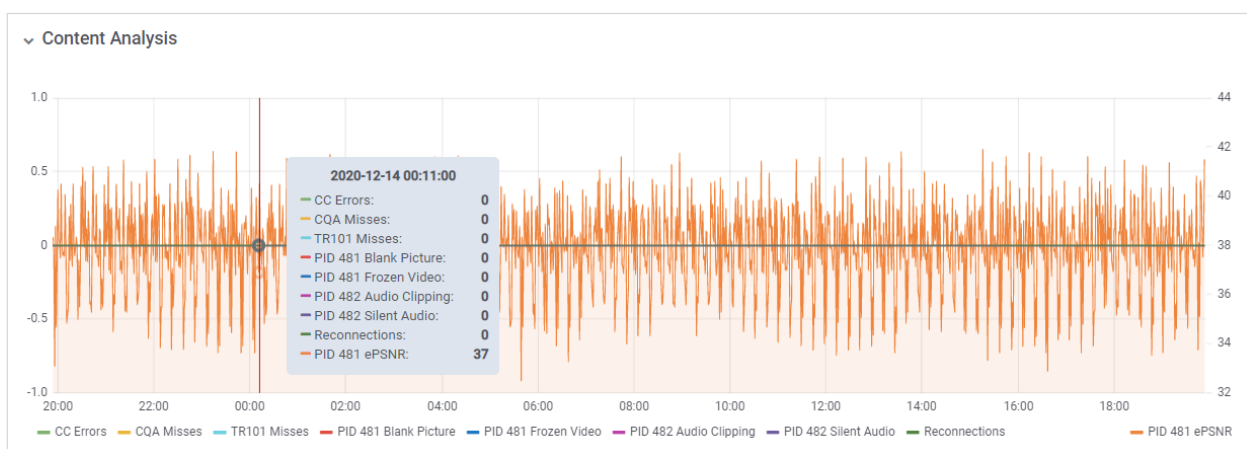
For Broadcaster (v13 and up) streams, the estimated Peak Signal-to-Noise Ratio (ePSNR) is shown for each relevant PID. The scale for the ePSNR is shown along the right side of the graph. ePSNR values can range from 11 to 60, with 60 representing the highest quality.



Additional ePSNR data is shown in the Source History Encoding Quality section.



ePSNR analysis is supported for MPEG2 or H.264 content, but not for most types of HEVC/H.265 content. Also, Sources must be 8-bit (not HDR) and Progressive (not Interlaced).



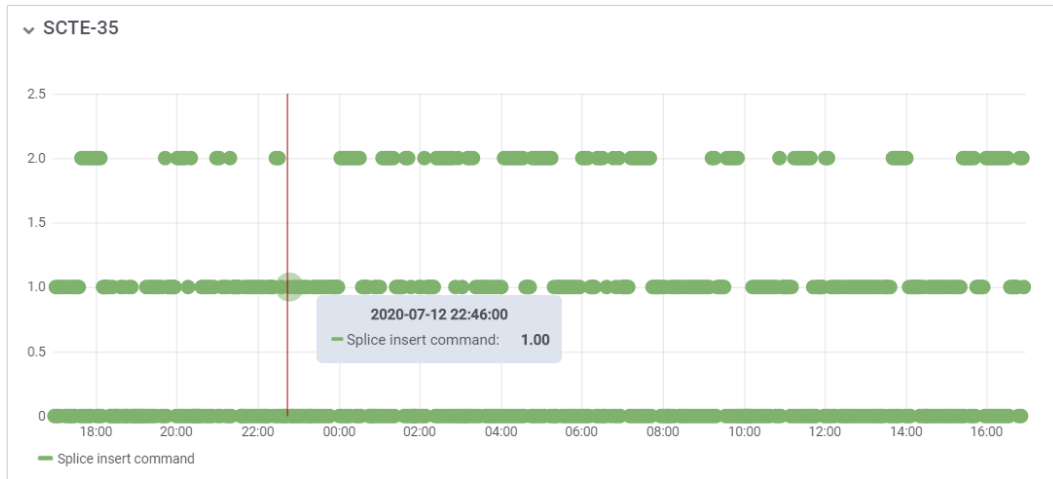
ZEN Master shows data for the following Content Analysis parameters:

- **CC (Continuity Count) Errors** – incorrect packet order, a packet occurs more than twice, lost packet
- **Blank Picture** - blank frames of any color for a duration of ~60s or longer
- **Frozen Video** – no motion detected for a duration of ~60s or longer
- **Audio Clipping** - clipped audio on AAC or MPEG audio
- **Silent Audio** – silent audio (dBFS < -90) on AAC or MPEG audio with a duration of ~30s or longer
- **CQA Misses** – shows the number of frames for which CQA (Content Quality Analytics) was skipped (i.e. to conserve resources).
- **TR101 Misses** – shows the number of frames for which TR101 was skipped (i.e. to conserve resources).
- **ePSNR** - weighted average of estimated Peak Signal-to-Noise Ratio (PSNR).

Sources

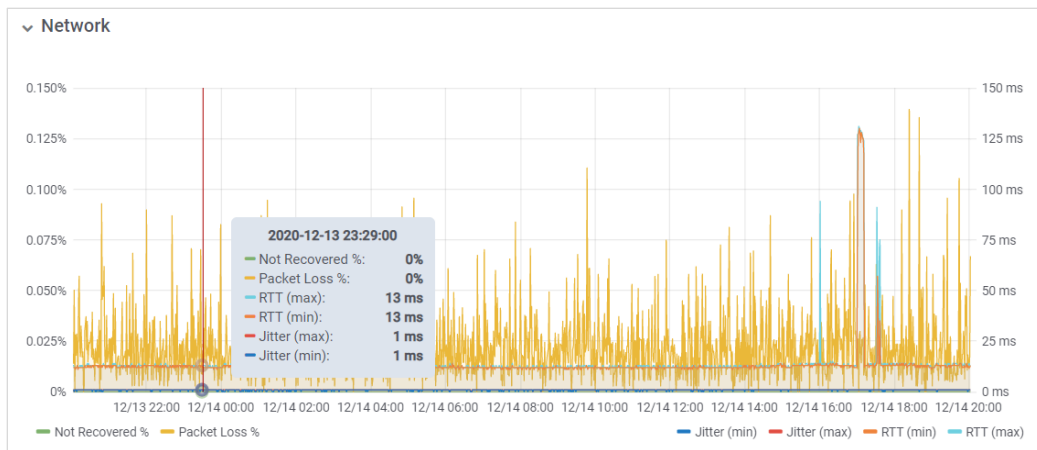
Source History SCTE-35

This graph shows the distribution of SCTE-35 messages of various types over time.



Source History Network

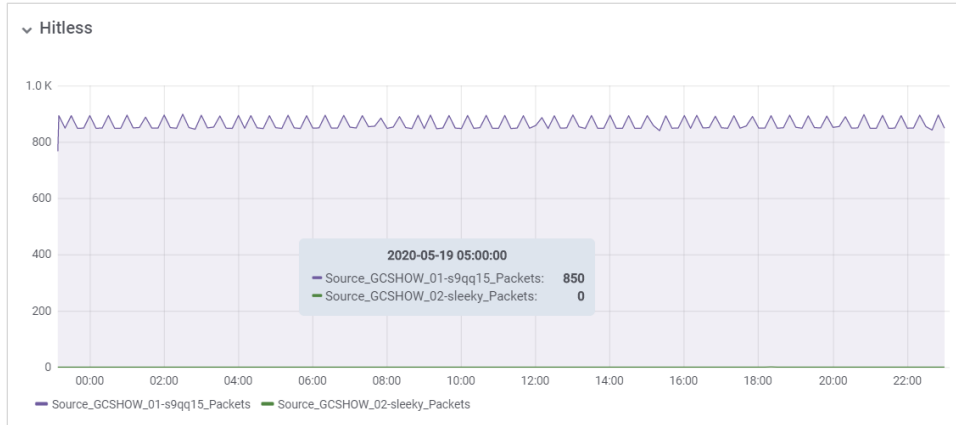
This graph shows network activity over time. This includes the percentage of lost packets and not recovered packets as well as values for RTT and Jitter.



Sources

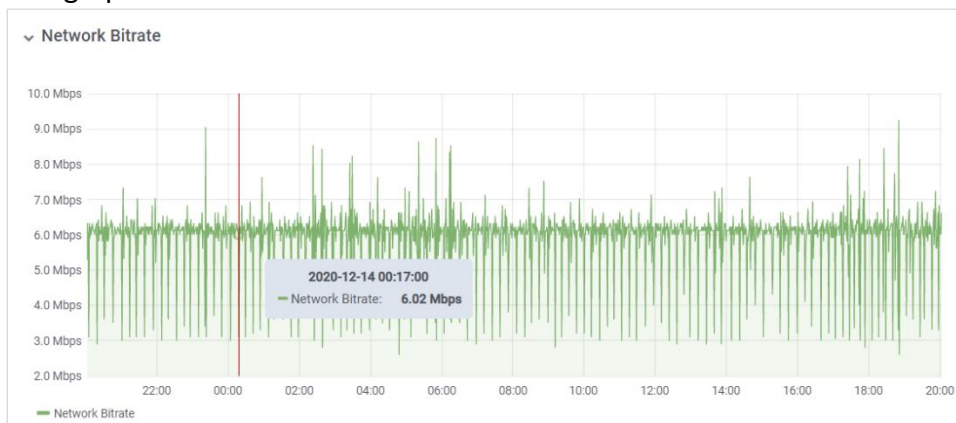
Source History Hitless (for Hitless Failover Sources)

For *Hitless Failover* Sources, this graph shows the number of packets that were taken from each stream over time.



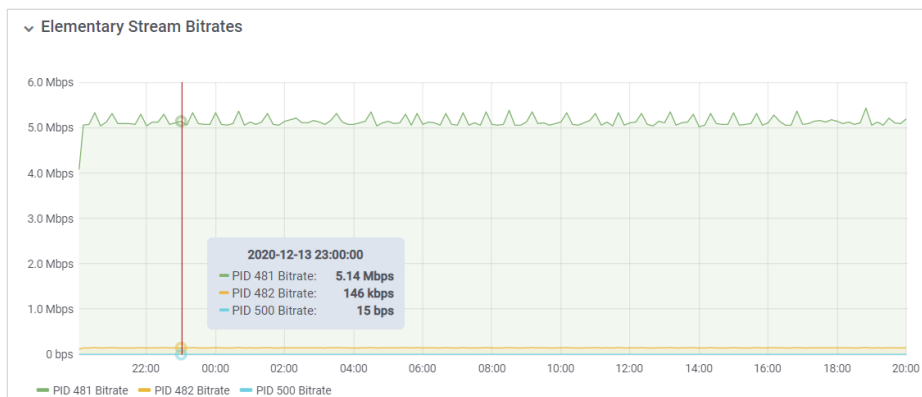
Source History Network Bitrate

This graph shows the total bitrate of the stream over time.



Source History Elementary Stream Bitrates

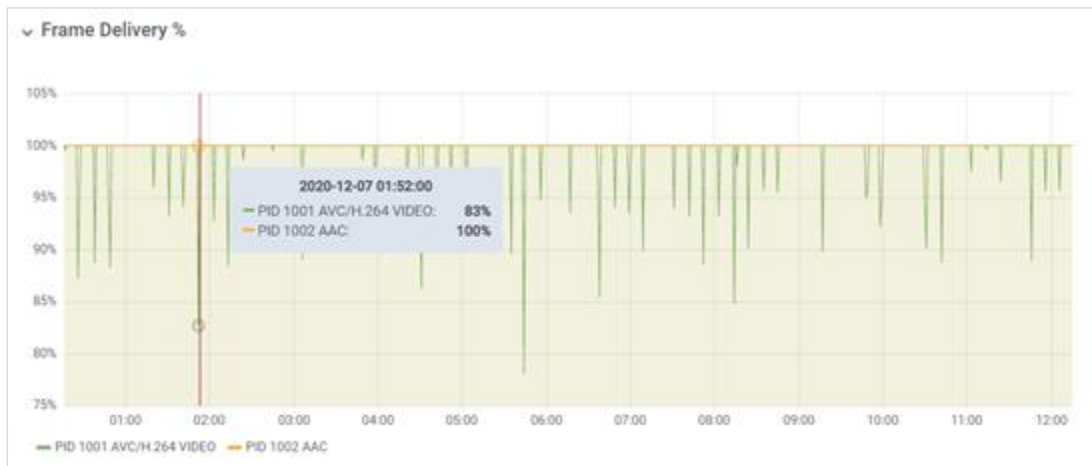
This graph shows the bitrates for each individual PID over time.



Source History Frame Delivery %

Frame Delivery analysis identifies missing or corrupt video or audio frames in a stream sent from a Feeder to a Broadcaster (v13 and up) on a per PID basis. A frame is considered corrupt if the frame's data is completely missing, partially missing or if it depends on a frame whose data is completely missing or partially missing.

This graph shows the percentage of good frames (i.e. not corrupt and not missing) out of the total frames per PID. So that a stream with no missing or corrupt frames would have Stream Quality 100% for all PIDs. If a stream had poor Stream Quality at a particular point in time you can check the Network and Content Analysis graphs for that point in time to help you to isolate the source of the problem.

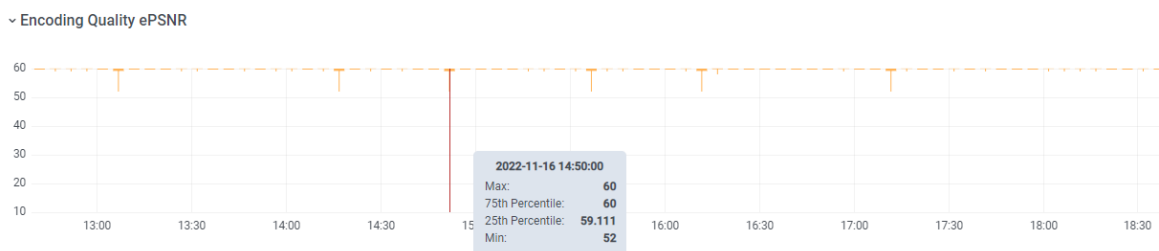


Source History Encoding Quality ePSNR

For Broadcaster (v13 and up) streams, the estimated Peak Signal-to-Noise Ratio (ePSNR) is shown on a candlestick graph. The candlestick graph shows the min and max in the narrow line and 25th percentile and 75th percentile in the thick line.

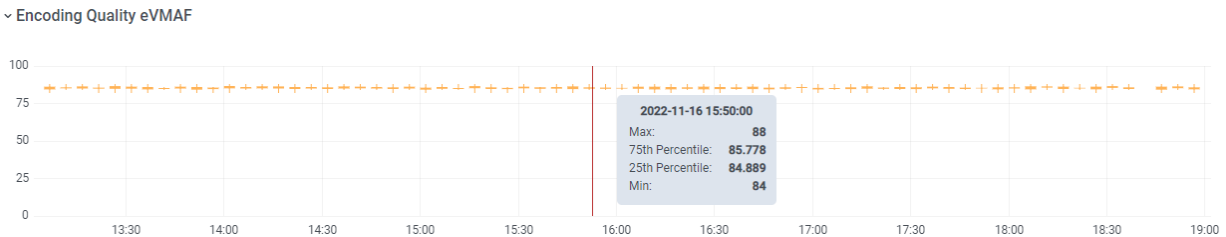


ePSNR analysis is supported for MPEG2 or H.264 content, but not for most types of HEVC/H.265 content. Also, Sources must be 8-bit (not HDR) and Progressive (not Interlaced).



Source History Encoding Quality eVMAF

For Broadcaster (v13 and up) streams, the estimated Video Multimethod Assessment Fusion (eVMAF) is shown on a candlestick graph. The candlestick graph shows the min and max in the narrow line and 25th percentile and 75th percentile in the thick line.

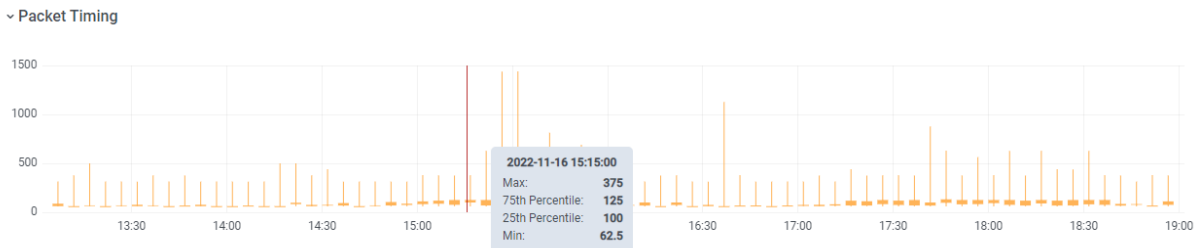


Source History Packet Timing

For Push and Pull Sources from a Broadcaster (v13 and above), this graph shows a candlestick graph of the packet arrival times over time. The scale for the latency is shown along the left side of the graph. The candlestick graph shows the min and max in the narrow line and 25th percentile and 75th percentile in the thick line. This information can be helpful in choosing the latency setting for the stream, since there is no need to allow longer latency than the time that is actually being used for packet recovery.



Dynamic use of FEC in the Zixi protocol can compensate for minor fluctuations in packet recovery times.

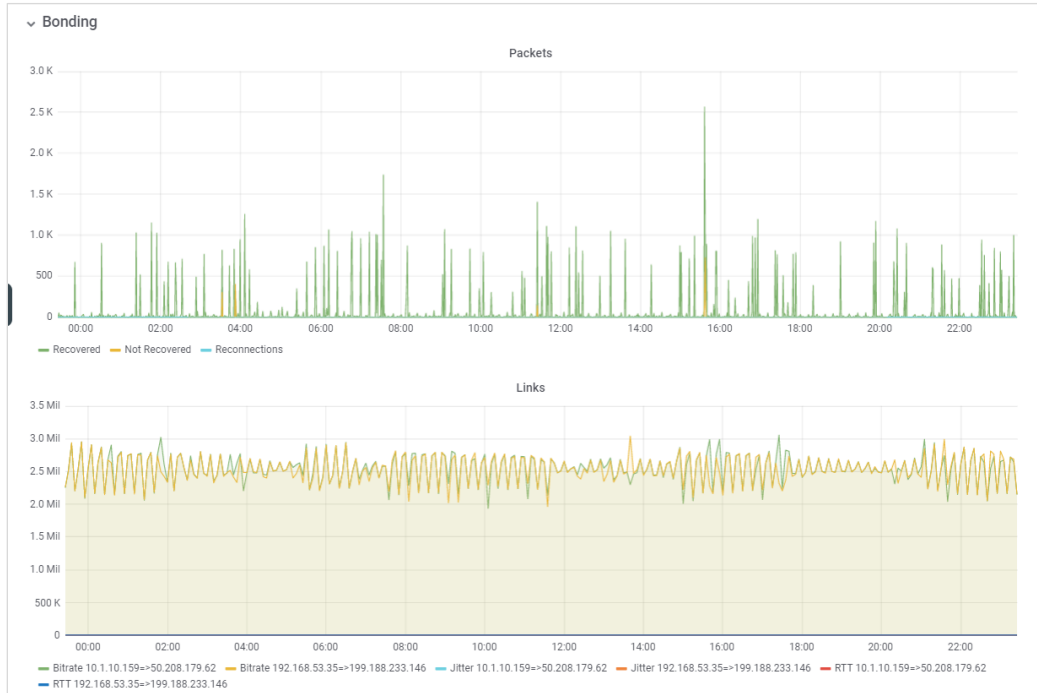


Source History Bonding (for Network Bonding Sources)

For *Bonded* streams, this section shows graphs for packet recovery and link performance. The Links graph shows separate performance info (Jitter, RTT and bitrate) over time for each NIC that is being used.



ZEN Master shows data for bonded streams that are configured in ZEN Master as well as for bonded streams that are configured directly on the Feeder.



Source History Traceroute

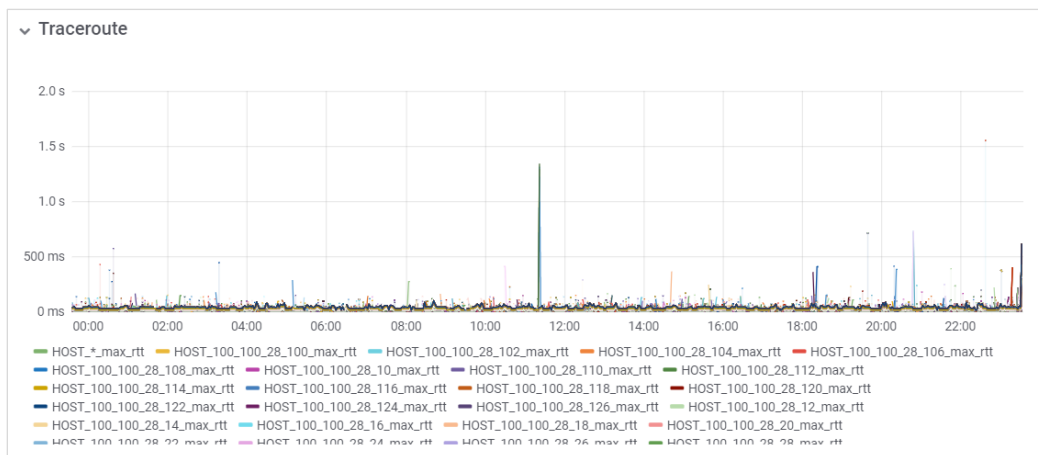
For streams sent from a Zixi Feeder to a Zixi Broadcaster (v13 or above) or from a Broadcaster to a Receiver, this tab shows historical traceroutes that have been used for this stream. The graph shows RTTs for each server used by the stream over time.



When routing through fixed fiber or MPLS connections, the RTT history may prove useful in debugging and resolving network bottlenecks. If there are persistent large round trip times through particular servers, a network reconfiguration may be necessary to alleviate the issue.



When configuring a Source in ZEN Master, the *Traceroute History* feature is **not** activated by default. If you would like to activate Traceroute History for a particular Source you can do so by selecting the **Traceroute History** checkbox in the advanced configuration options. This can be done during the initial configuration or you can edit an existing Source.



Source Events

The Events section shows all the events that have been generated by the system that relate to the selected Source (e.g., connections, errors, and disconnections). To learn about the data that is displayed in the Events tab see [EVENTS](#).

Click **Quick Report** to generate a report of events related to this Source and download the .xls file.

Source SCTE-35

If SCTE-35 was enabled for the Source, the SCTE-35 section shows a log of all the SCTE-35 markers for this Source. To learn about the data that is displayed in the SCTE-35 tab, see [SCTE-35](#). Click **Details** to view a JSON containing the raw message and a parsing of the message content.

Source Configuration

For Sources from Zixi enabled-devices (i.e. 'Configure & Monitor (Other)'), this tab contains specific configuration settings for the selected Source. When configuring a Source from a resource that is not managed in ZEN Master, you will need to use these settings to enable ZEN Master to connect to the encoder (see [CONNECTING A ZIXI-ENABLED DEVICE \(ENCODER UI\)](#)).

Source Notes

This section shows free-form notes with information about the Source.

Source Traceroute

For streams sent from a Zixi Feeder to a Zixi Broadcaster (v13 or above) or from a Broadcaster to a Receiver, this tab shows the traceroutes currently being used by the stream.



You can view historical traceroutes data, including RTT for each traceroute, in the Traceroute graph under the History tab, see [SOURCE HISTORY TRACEROUTE](#).

Channels

Channels are a combination of one or more Sources that are prepared for output in the ZEN system. Each Channel is assigned to a specific Channel Processing Broadcaster cluster. There are six types of Channels, each involving a different process in preparing the stream for output. The following is a description of the Channel types:

- **Adaptive Channel** – combines multiple Sources to create a unified HLS stream for output to an HTTP, S3, MediaStore or GCP Target.
- **Transcoded Channel** – transcodes a single Source to multiple bitrates for output to an HTTP, S3, MediaStore or GCP Target.
- **Pass-through Channel** – no actual processing is done on the stream. A Pass-Through Channel with a single Source simply sends the Source to an output. A Pass-Through Channel with multiple Sources creates redundancy by defining parallel streams from multiple Sources as a single entity. This ensures that if one Source becomes inactive the stream will be automatically transmitted from the parallel Source.
- **Failover Channel** – creates a Failover Channel.
- **AWS MediaConnect Flow** - create and manage a completely new MediaConnect Flow in ZEN Master. A MediaConnect Source that was configured in ZEN Master can be assigned to the MediaConnect Flow Channel.
- **AWS MediaLive Channel** – create and manage a new AWS MediaLive Channel in ZEN Master.

If you would like to create a new Channel with a configuration similar to an existing Channel you can use the Clone feature, see [ADDING AWS MEDIA LIVE CHANNELS](#).

Redundancy in ZEN Master

ZEN master supports multi-level redundancy to ensure availability of the content delivery. Your deployment may include multiple redundant Target hosts. You can configure both the Channel (which outputs the content from ZEN Master) and the Target (which receives the content) for redundancy. Redundancy of Sources can be configured in Pass-Through Channels and redundancy of hosts can be configured in Push or RTMP Targets. This feature is relevant for single bitrate push outputs only. Pull outputs enable any host to access the stream.

ZEN manages the various configurations as follows:

- **1 Source ➔ 1 host** - if there is one Source in the Channel and one host in the Target then the content is sent directly from the Source to the host and the content is available as long as both elements are active. In this case, you don't need to configure a Secondary Source in the Channel nor an Alt. Target.
- **1 Source ➔ 2 hosts** - if there is a single Source in the Channel and there are two hosts in the Target, the content is sent from the Source to the primary host as long as it is available. If the primary host becomes unavailable then the Source is sent to

the alternate Target host. In this case, you don't need to configure a Secondary Source, but will need to configure an Alt. Target.

- **2 Sources ➔ 1 host** – if there are two Sources in the Channel and one host in the Target then two outputs are created (one on each Broadcaster) and both are pushed to the same Target host. The host receives the output from the primary Source as long as it is available. If the primary Source becomes unavailable, then the host receives output from the secondary Source. Some services such as Akamai do not support output of multiple Sources to a single host. In this case, you need to configure a Secondary Source, but will not need to configure an Alt. Target.
- **2 Sources ➔ 2 hosts** – if there are two Sources in the Channel and two hosts in the Target then two outputs are created (one on each Broadcaster) and each is pushed to a different host. As long as all elements are active the content is available on both hosts. If one path fails, then the other path remains available. For this configuration, the Channel status remains OK as long as one of the paths is active. In this case, you need to configure a Secondary Source and configure an Alt. Target. If you would like to monitor the status of each path separately, you must create two separate Channels and send each one to a different Target. Then you will have two completely independent pathways for delivering identical content.



When configuring redundant Sources, make sure that each Source is located on a separate Broadcaster within the same Broadcaster Cluster so that one of the Sources will remain active if the other is disabled.

Adding Adaptive Channels

Adaptive Channels deliver a group of streams (with the same content) that are created to support different types of devices and various network conditions. Each stream in the group has a different bitrate.

The adaptive Channels support the HLS standard.

The following procedure describes how to add an Adaptive Channel in ZEN Master. In addition, an explanation of each of the configuration parameters is given in the table below.

➔ To add an adaptive Channel:

1. In the main navigation, click **Channels**.

2. Click **+ Add**.

The **Create New Channel** selection menu is displayed.

CREATE NEW CHANNEL

Select Channel Type ⓘ

Adaptive

Create an HLS adaptive channel from multiple sources.

Targets: HTTP, AWS S3, GCP Storage, Azure Blob Storage

Transcoded

Transcode a single source into multiple bitrates and create an HLS adaptive channel.

Targets: HTTP, AWS S3, GCP Storage, Azure Blob Storage

Pass-Through

Create a pass-through channel using one or two redundant sources that can be sent to Zixi enabled receivers or RTMP servers.

Targets: RTMP, Push, Pull, RIST, SRT, UDP/RTP/RTP-FEC

Failover Channel

Create a Failover Channel

Targets: RTMP, Push, Pull, RIST, SRT, UDP/RTP/RTP-FEC

AWS MediaConnect Flow

Create a MediaConnect Flow

Targets: Push, Pull, RIST, SRT, RTP/RTP-FEC

AWS MediaLive Channel

Create a MediaLive Channel

Targets: Medialive HTTP

× Cancel

3. Click on **Adaptive**.

The **Create Adaptive Channel** screen is displayed:

CREATE ADAPTIVE CHANNEL

INFO

Name *

Access Tags * ⓘ

Events Configuration Profile

CONFIGURATION

Processing Cluster * ⓘ

Target Broadcaster/s * ⓘ

Log HLS Ad Markers

Renditions *

Source	Bitrate [kbps]	
Filter: <input type="text"/>		
alon-source-01 @ QA-Gil-Alon-Tech-Writer		+
alon-source-webrtc @ QA-Gil-Alon-Tech-Writer		+
alon-source2 @ QA-Gil-Alon-Tech-Writer		+
appt4 @ webdev		+
appt5 @ webdev		+
bbb @ waltham		+
chubs @ WLBroadcaster		+
EliDem @ IBC4_LOCAL_CLSTR_SEC		+
encoder 01 @ waltham		+
gil-source-write-to-gcs @ QA-max-Jira-04		+

« 1 2 ... 15 »

INITIAL STATE

Disabled

Muted

ADVANCED +

4. In the **Info** section, in the **Name** field, type a name for the adaptive Channel.
5. In the **Tags** field, select one or more of the predefined Tags from the drop-down list. Tags are used for access control. By selecting a Tag, you are relating this Channel to that Tag. Tags are associated with certain roles (through the Users & Roles screen), and roles, in turn, are associated with users and user groups. If you would like to create a new Tag, see [CREATING A TAG](#).
6. In the **Events Configuration Profile** field, select from the dropdown list the profile that you would like to apply to this Channel. By default, the *Default* profile is applied.



Events Profiles consist of a series of rules that determine precisely how various types of Events are logged and what results they trigger.

7. In the **Configuration** section, in the **Processing Cluster** field, select from the drop-down list one of the Channel Processing clusters that has been configured in ZEN Master. The selected cluster will be used to process this Channel.



If the Source does not exist in the cluster, then the cluster will pull the Source automatically.

8. In the **Target Broadcaster/s** field, select your broadcaster preference. Either select a specific broadcaster to be used OR specify your preference for using primary vs. backup broadcasters, options are: *Prefer Primary Broadcasters*, *Primary Broadcasters only*, *Backup Broadcasters only* or *Prefer Backup Broadcasters*.



For managed clusters, it is not recommended to select a specific broadcaster, as the broadcaster's availability may not remain stable.

9. If you would like to log HLS ad markers for this Channel, select the **Log HLS Ad Markers** checkbox.
10. In the **Sources** section add one or more Sources to the Channel and configure the bitrate for each Source. This is done as follows:
 - a. Find the Source that you would like to add either by scrolling through the list of available Sources or by entering a search word into the **Filter** textbox. If the Source that you would like to add is not yet configured in ZEN Master see [SOURCES](#).
 - b. Add a Source by clicking the **+** button next to the Source.
 - c. Click on the **Bitrate** textbox for the Source and enter the expected bitrate. Default: the current measured bitrate.
 - d. Repeat the above procedure for each Source that you would like to add to the Channel.



If you would like to remove a Source from the Channel, click on the **-** button next to the Source.

11. In the **Initial State** section, select the **Disabled** checkbox if you would like to disable this Channel upon initial configuration.
12. Select the **Muted** checkbox if you would like to disable error/recovery notifications for this Channel upon initial configuration.



You can Enable/Unmute the Channel at any time.

13. If you would like to customize the HLS/CMAF configuration, click **Advanced** (for Broadcasters running v12+).
The **Advanced** settings are displayed.



The screenshot shows the 'ADVANCED' configuration panel. At the top, there is a blue header with the text 'ADVANCED' and a minus sign. Below this, there are two main sections for configuration. The first section is for 'HLS', which is checked with a blue checkbox. It contains two input fields: 'Segments' and 'Duration [seconds]'. Below these fields is a note: 'Requires version 12 Broadcaster, leave blank to use Broadcaster configuration'. The second section is for 'CMAF (DASH + fMP4 HLS)', which is unchecked. It also has 'Segments' and 'Duration [seconds]' input fields with the same note. Below these sections is a warning box with an orange background: 'Warning - Playback might stall if less than 5 segments are configured'. Further down, there is a checkbox for 'Convert CEA-708 to WebVTT'. Below that is a section for 'Convert SCTE-35 to EXT-X-CUE-OUT/IN ad markers' with three buttons: 'None', 'CUE-OUT only', and 'CUE-OUT and CUE-IN' (which is selected). Below this is a section for 'Timecode (EXT-X-PROGRAM-DATE-TIME) Source' with three buttons: 'None', 'System time' (selected), and 'SEI Timecode'. At the bottom, there is a checkbox for 'Disable renditions synchronization (Requires broadcaster v14.8 or newer)'. At the very bottom of the panel are three buttons: '< Back', 'x Cancel', and '✓ Save'.

14. Under **HLS**, set the values for the *Segments* and *Segment Duration*, or if you would like to disable HLS, deselect the checkbox.
15. If you would like to enable **CMAF (DASH + fMP4 HLS)**, select the checkbox and set the values for the *Segments* and *Segment Duration*.
16. If you would like to convert the captions format from CEA-70 to WebVTT, then select the **Convert...** checkbox.
17. Under **SCTE-35 to CUE-OUT/IN conversion**, select your preference for converting SCTE cues. Options are: *None*, *CUE-OUT only* or *CUE-OUT and CUE-IN* (default).
18. Under **Timecode (EXT-X-PROGRAM-DATE-TIME) Source**, select your preference for inserting a timecode. Options are: *None*, *System time* (default) or *SEI Timecode*.
19. Select the **Disable Renditions Synchronization** checkbox if you would like to disable synchronization between the Sources. (Supported for Broadcasters v14.8+)
20. Click **Save**.
The new Channel is created.

Adaptive Channel Configuration Parameters Table

Parameter	Description
Info	
Name	Specify a name for the Adaptive Channel in ZEN Master.
Tags	<p>Select one or more of the predefined Tags from the drop-down list.</p> <p>Tags are used for access control. By selecting a Tag, you are relating this Channel to that Tag. Tags are associated with certain roles (through the Users & Roles screen), and roles, in turn, are associated with users and user groups. If you would like to create a new Tag, see CREATING A TAG.</p>
Events Configuration Profile	<p>Select from the dropdown list the profile that you would like to apply to this Channel. By default, the <i>Default</i> profile is applied.</p> <p>NOTE: <i>Events Profiles</i> consist of a series of rules that determine precisely how various types of Events are logged and what results they trigger.</p>
Configuration	
Processing Cluster	<p>Select from the drop-down list one of the Channel Processing clusters that has been configured in ZEN Master. The selected cluster will be used to process this Channel.</p> <p>NOTE: If the Source does not exist in the cluster, then the cluster will pull the Source automatically.</p>
Target Broadcaster/s	<p>Select your broadcaster preference. Either select a specific broadcaster to be used OR specify your preference for using primary vs. backup broadcasters, options are: <i>Prefer Primary Broadcasters</i>, <i>Primary Broadcasters only</i>, <i>Backup Broadcasters only</i> or <i>Prefer Backup Broadcasters</i>.</p> <p>NOTE: For managed clusters, it is not recommended to select a specific broadcaster, as the broadcaster's availability may not remain stable.</p>
Log HLS Ad Markers	If you would like to log the HLS Ad Markers for this Channel, select this checkbox.

Channels

Sources	Add one or more Sources to the Channel by clicking the  button next to the Source and configure the bitrate for each Source. The default bitrate is the current measured bitrate. To remove a Source from the Channel, click on the  button next to the Source.
Initial State	
Disabled	Select this checkbox if you would like to disable this Channel upon initial configuration.
Muted	Select this checkbox if you would like to disable error/recovery notifications for this Channel upon initial configuration.
Advanced	
HLS	Set the values for <i>Segments</i> and <i>Segment Duration</i> . If you would like to disable HLS, deselect the checkbox.
CMAF (DASH + fMP4 HLS)	If you would like to enable CMAF (DASH + fMP4 HLS), select this checkbox and set the values for <i>Segments</i> and <i>Segment Duration</i> .
Convert CEA-708 to WebVTT	If you would like to convert the captions format from CEA-70 to WebVTT, then select this checkbox.
SCTE-35 to CUE-OUT/IN conversion	Select your preference for converting SCTE cues. Options are: <i>None</i> , <i>CUE-OUT only</i> or <i>CUE-OUT and CUE-IN (default)</i> .
Timecode (EXT-X-PROGRAM-DATE-TIME) Source	Select your preference for inserting a timecode. Options are: <i>None</i> , <i>System time (default)</i> or <i>SEI Timecode</i> .
Disable Renditions Synchronization	Select this checkbox if you would like to disable synchronization between the Sources. (Supported for Broadcasters v14.8+)

Adding Transcoded Channels

Transcoded Channels transcode a single Source into multiple bitrates for output to an HTTP or S3 Target.

Supported Video and Audio formats include:

- **Video Decoding** – MPEG2, H.264/AVC, H.265/HEVC
- **Video Encoding** – MPEG2, H.264/AVC, H.265/HEVC
- **Audio Decoding** – AAC, MPEG-1 Audio Layer I / II / III, MPEG-2 Audio Layer I / II / III, AC-3 (Dolby Digital)



For AC-3, which can contain up to six discrete Channels of sound, the transcoder only supports the left and right Channels and will ignore the other Channels.

- **Audio Encoding** – AAC, AAC-HE (High Efficiency) and AAC-HEv2; Pass through (no encoding) – any audio codec (MPEG1/2 / AAC / AC-3, E-AC-3 (Dolby Digital Plus)).



AAC-HE and AAC-HEv2 are only supported for Zixi Broadcasters, v13 and up.

The following procedure describes how to add a Transcoded Channel in ZEN Master. In addition, an explanation of each of the configuration parameters is given in the table below.

➔ **To add a Transcoded Channel:**

1. In the main navigation, click **Channels**.
2. Click **+Add**.
The **Create New Channel** selection menu is displayed.

CREATE NEW CHANNEL

Select Channel Type ⓘ

Adaptive

Create an HLS adaptive channel from multiple sources.

Targets: HTTP, AWS S3, GCP Storage, Azure Blob Storage

Transcoded

Transcode a single source into multiple bitrates and create an HLS adaptive channel.

Targets: HTTP, AWS S3, GCP Storage, Azure Blob Storage

Pass-Through

Create a pass-through channel using one or two redundant sources that can be sent to Zixi enabled receivers or RTMP servers.

Targets: RTMP, Push, Pull, RIST, SRT, UDP/RTP/RTP-FEC

Failover Channel

Create a Failover Channel

Targets: RTMP, Push, Pull, RIST, SRT, UDP/RTP/RTP-FEC

AWS MediaConnect Flow

Create a MediaConnect Flow

Targets: Push, Pull, RIST, SRT, RTP/RTP-FEC

AWS MediaLive Channel

Create a MediaLive Channel

Targets: Medialive HTTP

× Cancel

- Click on **Transcoded**.
The **Create Transcoded Channel** window is displayed.

CREATE TRANSCODED CHANNEL

INFO

Name *

Access Tags * ⓘ

Events Configuration Profile

CONFIGURATION

Processing Cluster * ⓘ

Target Broadcaster/s * ⓘ

Source *

Include Source

Log HLS Ad Markers

Preserve closed captions

Crop

Renditions *

Transcoding Profile	Video	Audio	Bitrate [kbps] ⓘ ⓘ
Filter: <input type="text"/>			
1080p	1920x1080	Original	<input style="float: right;" type="button" value="+"/>
320p	480x320	Original	<input style="float: right;" type="button" value="+"/>
320p_test	480x320 @ 500 kb...	128 kbps	670 kbps <input style="float: right;" type="button" value="+"/>
480p	720x480	Original	<input style="float: right;" type="button" value="+"/>
480P_test	720x480 @ 650 kb...	128 kbps	820 kbps <input style="float: right;" type="button" value="+"/>
720p	1280x720	Original	<input style="float: right;" type="button" value="+"/>
Profile50fps	1920x1080 @ 10,0...	80 kbps	10320 kbps <input style="float: right;" type="button" value="+"/>

Multi GPU

Ignore Transcode Thresholds

INITIAL STATE

Disabled

Muted

ADVANCED +

- In the **Info** section, in the **Name** field, enter a logical name for the Channel.

- In the **Tags** field, select one or more of the predefined Tags from the drop-down list. Tags are used for access control. By selecting a Tag, you are relating this Channel to that Tag. Tags are associated with certain roles (through the Users & Roles screen), and roles, in turn, are associated with users and user groups. If you would like to create a new Tag, see [CREATING A TAG](#).
- In the **Events Configuration Profile** field, select from the dropdown list the profile that you would like to apply to this Channel. By default, the *Default* profile is applied.



Events Profiles consist of a series of rules that determine precisely how various types of Events are logged and what results they trigger.

- In the **Configuration** section, in the **Processing Cluster** field, select from the drop-down list one of the Channel Processing clusters that has been configured in ZEN Master. The selected cluster will be used to process this Channel.



For heavy transcoding processes, use a Processing Cluster with a GPU. ZEN Master supports use of AWS, GCP and Azure instances that include Nvidia GPU.



If the Source does not exist in the cluster, then the cluster will pull the Source automatically.




If you are assigning the Transcoded Channel to a specific broadcaster, make sure that the broadcaster has sufficient available resources (CPU, GPU etc.) to handle the additional load.

- In the **Target Broadcaster/s** field, select your broadcaster preference. Either select a specific broadcaster to be used OR specify your preference for using primary vs. backup broadcasters, options are: *Prefer Primary Broadcasters*, *Primary Broadcasters only*, *Backup Broadcasters only* or *Prefer Backup Broadcasters*.



For managed clusters, it is not recommended to select a specific broadcaster, as the broadcaster's availability may not remain stable.

- In the **Source** field, select from the drop-down list the desired Source. Selected Sources are shown above the **Filter** box. (You can remove a Source by clicking the  button for that Source).
- If you would like to pass the original Source through, then do the following:
 - Select the **Include Source** checkbox.
 - Enter the desired **Bitrate** for this Source.
- If you would like to log the HLS Ad Markers for this Channel, select the **Log HLS Ad Markers** checkbox.
- If you would like to preserve closed captions for this Channel, verify that the **Preserve closed captions** checkbox is selected (default).

13. If you would like to crop the input stream, select the **Crop** checkbox and set the cropping parameters as follows:

The screenshot shows a user interface for crop settings. At the top, there is a checked checkbox labeled 'Crop'. Below it is a section titled 'Crop Settings'. Inside this section, there are two tabs: 'Pixels' (which is selected) and 'Percentages'. Below the tabs, there are four input fields: 'Left' (with 'pixels' entered), 'Top' (with 'pixels' entered), 'Width' (with 'pixels' entered), and 'Height' (with 'pixels' entered). Each input field is followed by the unit 'px'.

- a. In the **Units** section, select the type of units used to define the crop. Options are: *Pixels* or *Percentages*.
 - b. Enter the crop position for each of the parameters *Left*, *Top*, *Width* and *Height* in the appropriate fields.
14. In the **Transcoding Profiles** section add one or more Transcoding Profiles to the Channel and configure the bitrate for each profile. This is done as follows:
- a. Find the Transcoding Profile that you would like to add either by scrolling through the list of available profiles or by entering a search word into the **Filter** text-box. If the Transcoding Profile that you would like to add is not yet configured in ZEN Master see [ADDING TRANSCODING PROFILES](#).
 - b. Add a Transcoding Profile by clicking the **+** button next to the profile.
 - c. Click on the Bitrate textbox for the profile and enter the expected bitrate. Default: the estimated bitrate based on the transcoding profile.



The value should be the sum of the video and audio bitrates plus a small amount to account for streaming overhead. By default, a value is assigned based on the transcoding profile. For Sources in which either the video, audio or both are not transcoded, the user must manually input the value based on the actual bitrates of the Source. It is important to enter an accurate value since it will be included in the HLS/DASH manifest.

- d. If you would like to assign the transcoding process to a multi GPU broadcaster, select the **Multi GPU** checkbox, and then select from the drop-down list the desired GPU instance. Options are: 0 (default), 1, 2 and 3.



This feature is useful if you are running several heavy transcoding activities, as it enables you to distribute the load among several different GPUs.

- e. Repeat the above procedure for each Transcoding Profile that you would like to add to the Channel.



If you would like to remove a Transcoding Profile from the Channel, click on the **-** button next to the Source.

15. Select the **Ignore Transcode Thresholds** checkbox if you would like to override the Transcode thresholds on your Ingest Cluster (i.e. to allow use of full CPU/GPU and memory capacity).
16. In the **Initial State** section, select the **Disabled** checkbox if you would like to disable this Channel upon initial configuration.
17. Select the **Muted** checkbox if you would like to disable error/recovery notifications for this Channel upon initial configuration.



You can Enable/Unmute the Channel at any time.

18. If you would like to customize the HLS/CMAF configuration, click **Advanced** (for Broadcasters running v12+).
The **Advanced** settings are displayed.

The screenshot shows the 'ADVANCED' configuration panel with the following options:

- HLS**
 - Segments: [input field]
 - Duration [seconds]: [input field]
 - Requires version 12 Broadcaster, leave blank to use Broadcaster configuration
- CMAF (DASH + fMP4 HLS)**
 - Segments: [input field]
 - Duration [seconds]: [input field]
 - Requires version 12 Broadcaster, leave blank to use Broadcaster configuration
- Warning** - Playback might stall if less than 5 segments are configured
- Convert CEA-708 to WebVTT
- Convert SCTE-35 to EXT-X-CUE-OUT/IN ad markers
 - None
 - CUE-OUT only
 - CUE-OUT and CUE-IN (selected)
- Timecode (EXT-X-PROGRAM-DATE-TIME) Source
 - None
 - System time (selected)
 - SEI Timecode
- Disable renditions synchronization (Requires broadcaster v14.8 or newer)

Buttons: < Back, × Cancel, ✓ Save

- a. Under **HLS**, set the values for the *Segments* and *Segment Duration*, or if you would like to disable HLS, deselect the checkbox.
- b. If you would like to enable **CMAF (DASH + fMP4 HLS)**, select the checkbox and set the values for the *Segments* and *Segment Duration*
- c. If you would like to convert the captions format from CEA-708 to WebVTT, then select the **Convert...** checkbox.
- d. Under **SCTE-35 to CUE-OUT/IN conversion**, select your preference for converting SCTE cues. Options are: *None*, *CUE-OUT only* or *CUE-OUT and CUE-IN* (default).
- e. Under **Timecode (EXT-X-PROGRAM-DATE-TIME) Source**, select your preference for inserting a timecode. Options are: *None*, *System time* (default) or *SEI Timecode*.



- f. Select the **Disable Renditions Synchronization** checkbox if you would like to disable synchronization between the Sources. (Supported for Broadcasters v14.8+)
19. Click **Save**.

Transcoded Channel Configuration Parameters Table

Parameter	Description
Info	
Name	Specify a name for the Transcoded Channel in ZEN Master.
Tags	<p>Select one or more of the predefined Tags from the drop-down list.</p> <p>Tags are used for access control. By selecting a Tag, you are relating this Channel to that Tag. Tags are associated with certain roles (through the Users & Roles screen), and roles, in turn, are associated with users and user groups. If you would like to create a new Tag, see CREATING A TAG.</p>
Events Configuration Profile	<p>Select from the dropdown list the profile that you would like to apply to this Channel. By default, the <i>Default</i> profile is applied.</p> <p>NOTE: <i>Events Profiles</i> consist of a series of rules that determine precisely how various types of Events are logged and what results they trigger.</p>
Configuration	
Processing Cluster	<p>Select from the drop-down list one of the Channel Processing clusters that has been configured in ZEN Master. The selected cluster will be used to process this Channel.</p> <p>NOTE: For heavy transcoding processes, use a Processing Cluster with a GPU. ZEN Master supports use of AWS, GCP and Azure instances that include Nvidia GPU.</p> <p>NOTE: If the Source does not exist in the cluster, then the cluster will pull the Source automatically.</p> <p>NOTE: If you are assigning the Transcoded Channel to a specific broadcaster, make sure that the broadcaster has sufficient available resources (CPU, GPU etc.) to handle the additional load.</p>

Channels

Target Broadcaster/s	Select your broadcaster preference. Either select a specific broadcaster to be used OR specify your preference for using primary vs. backup broadcasters, options are: <i>Prefer Primary Broadcasters, Primary Broadcasters only, Backup Broadcasters only</i> or <i>Prefer Backup Broadcasters</i> . NOTE: For managed clusters, it is not recommended to select a specific broadcaster, as the broadcaster's availability may not remain stable.
Source	Select from the drop-down list the desired Source.
Include Source	If you would like to pass the original Source through, select this checkbox and enter the desired Bitrate for the Source.
Log HLS Ad Markers	If you would like to log the HLS Ad Markers for this Channel, select this checkbox.
Preserve closed captions	If you would like to preserve closed captions for this Channel, select this checkbox (default).
Crop	If you would like to crop the input stream, select this checkbox, select the type of units used to define the crop (options are: pixels or percentages), and specify the crop position for each of the parameters (<i>Left, Top, Width</i> and <i>Height</i>) in the appropriate fields.

Transcoding Profiles	<p>Add one or more Transcoding Profiles to the Channel by clicking the  button next to the profile, and configure the expected bitrate for each profile. The default bitrate is the estimated bitrate based on the transcoding profile.</p> <p>NOTE: The value should be the sum of the video and audio bitrates plus a small amount to account for streaming overhead. By default, a value is assigned based on the transcoding profile. For Sources in which either the video, audio or both are not transcoded, the user must manually input the value based on the actual bitrates of the Source. It is important to enter an accurate value since it will be included in the HLS/DASH manifest.</p> <p>To assign the transcoding process to a multi GPU broadcaster, select the Multi GPU checkbox, and then select from the drop-down list the desired GPU instance. Options are: <i>0</i> (default), <i>1</i>, <i>2</i> and <i>3</i>.</p> <p>NOTE: This feature is useful if you are running several heavy transcoding activities, as it enables you to distribute the load among several different GPUs.</p> <p>NOTE: If you would like to remove a Transcoding Profile from the Channel, click on the  button next to the Source.</p>
Ignore Transcode Thresholds	<p>Select this checkbox if you would like to override the Transcode thresholds for your Ingest Cluster (i.e. to allow use of full CPU/GPU and memory capacity).</p>
Initial State	
Disabled	<p>Select this checkbox if you would like to disable this Channel upon initial configuration.</p>
Muted	<p>Select this checkbox if you would like to disable error/recovery notifications for this Channel upon initial configuration.</p>
Advanced	
HLS	<p>Specify the values for <i>Segments</i> and <i>Segment Duration</i>. If you would like to disable HLS, deselect the checkbox.</p>
CMAF (DASH + fMP4 HLS)	<p>If you would like to enable CMAF (DASH + fMP4 HLS), select this checkbox and set the values for <i>Segments</i> and <i>Segment Duration</i>.</p>
Convert CEA-708 to WebVTT	<p>If you would like to convert the captions format from CEA-708 to WebVTT, then select this checkbox.</p>
SCTE-35 to CUE-OUT/IN conversion	<p>Select your preference for converting SCTE cues. Options are: <i>None</i>, <i>CUE-OUT only</i> or <i>CUE-OUT and CUE-IN (default)</i>.</p>

Timecode (EXT-X-PROGRAM-DATE-TIME) Source	Select your preference for inserting a timecode. Options are: <i>None</i> , <i>System time</i> (default) or <i>SEI Timecode</i> .
Disable Renditions Synchronization	Select this checkbox if you would like to disable synchronization between the Sources. (Supported for Broadcasters v14.8+)

Adding Pass-Through Channels

Pass-Through Channels do not involve any actual processing to the stream. A Pass-Through Channel with a single Source simply sends the Source to an output. A Pass-Through Channel with multiple Sources creates redundancy by defining parallel streams from multiple Sources as a single entity. This ensures that if one Source becomes inactive the stream will be automatically transmitted from the parallel Source. To learn more about redundancy in ZEN Master see [REDUNDANCY IN ZEN MASTER](#).

The following procedure describes how to add a Pass-Through Channel in ZEN Master. In addition, an explanation of each of the configuration parameters is given in the table below.

➔ **To add a Pass-Through Channel:**

1. In the main navigation, click **Channels**.
2. Click **+Add**.

The **Create New Channel** selection menu is displayed.

CREATE NEW CHANNEL

Select Channel Type ⓘ

Adaptive

Create an HLS adaptive channel from multiple sources.

Targets: HTTP, AWS S3, GCP Storage, Azure Blob Storage

Transcoded

Transcode a single source into multiple bitrates and create an HLS adaptive channel.

Targets: HTTP, AWS S3, GCP Storage, Azure Blob Storage

Pass-Through

Create a pass-through channel using one or two redundant sources that can be sent to Zixi enabled receivers or RTMP servers.

Targets: RTMP, Push, Pull, RIST, SRT, UDP/RTP/RTP-FEC

Failover Channel

Create a Failover Channel

Targets: RTMP, Push, Pull, RIST, SRT, UDP/RTP/RTP-FEC

AWS MediaConnect Flow

Create a MediaConnect Flow

Targets: Push, Pull, RIST, SRT, RTP/RTP-FEC

AWS MediaLive Channel

Create a MediaLive Channel

Targets: Medialive HTTP

✕ Cancel

- Click on **Pass-Through**.

The **Create Pass-Through Channel** window is displayed.

CREATE PASS-THROUGH CHANNEL

INFO

Name *

Access Tags * ⓘ

Events Configuration Profile

CONFIGURATION

Processing Cluster * ⓘ

Target Broadcaster/s *

Sources *

Source	Backup
Filter: <input type="text"/>	
LDN MPTS to Fuchsstadt Backup-tyjxmx @ LM...	+
LDN MPTS to Fuchsstadt Failover @ LM_cluster...	+
LDN MPTS to Oregon Backup-t4491m @ AWS O...	+
LDN MPTS to Oregon Failover @ AWS Oregon	+
MPTS - Program 1 @ Chris Test Cluster	+
MPTS - Program 3 @ Chris Test Cluster	+
MPTS - Program 4 @ Chris Test Cluster	+
MPTS - Program 5 @ Chris Test Cluster	+
MPTS SRT @ Chris Test Cluster	+
MPTS to Fuchsstadt-tg1omn @ LM_cluster_aws	+

« 1 2 »

INITIAL STATE

Disabled

Muted

< Back X Cancel ✓ Save

- In the **Info** section, in the **Name** field, enter a logical name for the Channel.
- In the **Tags** field, select one or more of the predefined Tags from the drop-down list. Tags are used for access control. By selecting a Tag, you are relating this Channel to that Tag. Tags are associated with certain roles (through the Users & Roles screen), and roles, in turn, are associated with users and user groups. If you would like to create a new Tag, see [CREATING A TAG](#).

6. In the **Events Configuration Profile** field, select from the dropdown list the profile that you would like to apply to this Channel. By default, the *Default* profile is applied.



Events Profiles consist of a series of rules that determine precisely how various types of Events are logged and what results they trigger.

7. In the **Configuration** section, in the **Processing Cluster** field, select from the drop-down list one of the Channel Processing clusters that has been configured in ZEN Master. The selected cluster will be used to process this Channel.



If the Source does not exist in the cluster, then the cluster will pull the Source automatically.

8. In the **Target Broadcaster/s** field, select your broadcaster preference. Either select a specific broadcaster to be used OR specify using primary vs. backup broadcasters, options are: *Primary Broadcasters only*, *Backup Broadcasters only* or *Any*.



For managed clusters, it is not recommended to select a specific broadcaster, as the broadcaster's availability may not remain stable.

9. In the **Sources** section, add one or more Sources to the Channel and designate whether it should be used as a backup source for redundancy. This is done as follows:
 - a. Find the Source that you would like to add either by scrolling through the list of available Sources or by entering a search word into the **Filter** textbox. If the Source that you would like to add is not yet configured in ZEN Master, see [SOURCES](#)
 - b. Add a Source by clicking the **+** button next to the Source. Selected Sources are shown above the **Filter** box.
 - c. To designate the Source as a backup, select the **Backup** checkbox.
 - d. Repeat the above procedure for each Source that you would like to add to the Channel.



If you would like to remove a selected Source, click on the **-** button next to the Source.



All Tags that are assigned to the selected Sources are added by default to the Channel.

10. In the **Initial State** section, select the **Disabled** checkbox if you would like to disable this Channel upon initial configuration.
11. Select the **Muted** checkbox if you would like to disable error/recovery notifications for this Channel upon initial configuration.





You can Enable/Unmute the Channel at any time.

12. Click **Save**.

Pass-Through Channel Configuration Parameters Table

Parameter	Description
Info	
Name	Specify a name for the Pass-Through Channel in ZEN Master.
Tags	<p>Select one or more of the predefined Tags from the drop-down list.</p> <p>Tags are used for access control. By selecting a Tag, you are relating this Channel to that Tag. Tags are associated with certain roles (through the Users & Roles screen), and roles, in turn, are associated with users and user groups. If you would like to create a new Tag, see CREATING A TAG.</p>
Events Configuration Profile	<p>Select from the dropdown list the profile that you would like to apply to this Channel. By default, the <i>Default</i> profile is applied.</p> <p>NOTE: <i>Events Profiles</i> consist of a series of rules that determine precisely how various types of Events are logged and what results they trigger.</p>
Configuration	
Processing Cluster	<p>Select from the drop-down list one of the Channel Processing clusters that has been configured in ZEN Master. The selected cluster will be used to process this Channel.</p> <p>NOTE: If the Source does not exist in the cluster, then the cluster will pull the Source automatically.</p>
Target Broadcaster/s	<p>Select your broadcaster preference. Either select a specific broadcaster to be used OR specify using primary vs. backup broadcasters, options are: <i>Primary Broadcasters only</i>, <i>Backup Broadcasters only</i> or <i>Any</i>.</p> <p>NOTE: For managed clusters, it is not recommended to select a specific broadcaster, as the broadcaster's availability may not remain stable.</p>

Sources	Add one or more Sources to the Channel by clicking the  button next to the Source and select the checkbox if you would like to designate them as backup sources for redundancy To remove a Source from the Channel, click on the  button next to the Source.
Initial State	
Disabled	Select this checkbox if you would like to disable this Channel upon initial configuration.
Muted	Select this checkbox if you would like to disable error/recovery notifications for this Channel upon initial configuration.

Adding Failover Channels

The Failover Channel has been specifically designed for the Live Events feature. As part of this channel, you can select multiple sources and define which one is the Slate source, and from the remaining selected channels which one is the preferred (primary) and which one is not preferred (secondary).

Failover channels are like Pass-Through channels in that they do not involve any actual processing to the stream, but rather creates redundancy by defining parallel streams from multiple Sources as a single entity. This ensures that if one Source becomes inactive the stream will be automatically transmitted from the parallel Source.

How priorities influence the failover process

A failover occurs when a current source has a malfunction and is no longer able to stream or that a high-priority source that went into error has resumed streaming. This means that the priority level hierarchy can influence on when a failover occurs, and if it occurs, to which of the sources it will failover to. In a Failover Channel the priority is as follows:

1. Preferred – high
2. Non-preferred – medium
3. Slate – low

So, the channel will play the preferred source by default. If the preferred source becomes unavailable, it will failover to a non-preferred stream (if one exists). If there is no non-preferred stream of it becomes unavailable (while the preferred stream is still unavailable), Zen Master will failover to the Slate.

How the failover process is overridden by a Live Event

The Failover behavior can be overridden by Live Event configuration. There are some stages of the event, where the Slate is the source that will be streamed. For example, in Pre-live the Live Event is configured to select the Slate source. In the Live event, it will automatically select the preferred source and if the preferred source is not available, it will fall back to a non-preferred source. If neither the non-preferred nor a preferred source is available, it will fall back to a Slate. For more information, see [REMOTE ACCESS](#)

In addition to the Zixi resources that are fully supported in ZEN Master (i.e. Feeders, Broadcasters and Receivers), you can connect other devices (that support reverse SSH tunnels) such as encoders and IRDs. You can establish a connection via SSH Tunnel which enables you to access the device's UI through ZEN Master and to configure the device to interact with ZEN Master.

Adding a Remote Access Profile

First, you need to create a remote access profile in ZEN Master. Then, you can use the configuration settings shown in ZEN Master to connect the device to ZEN Master using the device's UI. See the following section, [CONNECTING DEVICE USING REMOTE ACCESS](#).

➔ To add a remote access profile:

4. In the main navigation, click **Remote Access**.
5. Click **+ Add**.

The **Create New Remote Access** window is displayed.

CREATE NEW REMOTE ACCESS

INFO

Name *

Access Tags * ⓘ

Events Configuration Profile

CONFIGURATION

SSH Key * ⓘ

HTTP/HTTPS

Auto Detect / HTTPS HTTP

Cancel Save

6. In the **Info** section, in the **Name** field, type a logical name for the Zixi enabled device.
7. In the **Tags** field, select one or more of the predefined Tags from the drop-down list. Tags are used for access control. By selecting a Tag, you are relating this Remote Access to that Tag. Tags are associated with certain roles (through the Users & Roles screen),

and roles, in turn, are associated with users and user groups. If you would like to create a new Tag, see [CREATING A TAG](#).

8. In the **Events Configuration Profile** field, select from the dropdown list the profile that you would like to apply to this Remote Access. By default, the *Default* profile is applied.



Events Profiles consist of a series of rules that determine precisely how various types of Events are logged and what results they trigger.

9. In the **Configuration** section, in the **SSH Key** field, select from the drop-down list one of the existing remote access keys to be used for SSH tunneling between the Zixi Broadcaster and ZEN Master.



If you would like to configure a new SSH Key, see [CONFIGURING SSH KEYS](#).

10. Select a radio button to designate the manner in which ZEN Master accesses the remote device. Options are:
 - **Auto Detect/HTTPS** (default) – ZEN Master automatically detects whether the remote device uses HTTP or HTTPS.
 - **HTTP** – ZEN Master will always use HTTP.
11. Click **Save**.

Connecting Device Using Remote Access

Once you have created a remote access profile in ZEN Master you can to use the configuration settings shown in ZEN Master to connect the device to ZEN Master using the device's UI. The UI structure varies for different devices, however the following settings should be configured to connect to ZEN Master.

➔ To connect a Zixi-enabled device:

12. In **ZEN Master**, in the main navigation, click **Remote Access**.
13. Select the relevant Remote Access from the list of Remote Access profiles.
14. The **Details** pane at the right of the screen contains specific configuration settings for connecting the Zixi-enabled device.

Use the values shown for the following parameters to configure the Zixi-enabled device:

Parameter	Description
SSH Key	Enables you to download the SSH Key that was generated in ZEN Master for this connection.
Host	The IP address/URL of the ZEN Master host.
Username	The username assigned for this device in ZEN Master.
Tunnel Port	The port on the ZEN Master server assigned for communication with the Zixi-enabled device.

Viewing Existing Remote Access Profiles

The Remote Access screen displays all of the existing remote access profiles and information about the profile.

The screenshot shows the 'REMOTE ACCESS' screen with a list of profiles. The table has columns for Name, Status, and IP. There are three profiles listed: Demo-tunnel (Status: Ok), test (Status: Ok), and test2 (Status: Disabled). Each profile has an 'Open' link. The screen also includes a filter input, a '+ Add' button, a 'Refresh' button, and a 'Rows' dropdown set to 'Auto'.

Name	Status	IP
Demo-tunnel	Ok	-
test	Ok	-
test2	Disabled	-

When a Remote Access instance is selected, the list pane is minimized and detailed info about the selected instance is shown on the right side of the screen. The info can be shown in *Tab* view or *Accordion* view, see [INFO PAGES](#).

The screenshot shows the 'REMOTE ACCESS' screen with the 'Demo-tunnel' profile selected. The interface is split into three main sections: a minimized list pane on the left, an 'EVENTS' pane in the center, and a 'DETAILS' pane on the right. The 'DETAILS' pane shows configuration information for the 'Demo-tunnel' profile, including Name, Access Tags, SSH Key, Host, Username, Tunnel Port, and an 'Open' link. The 'EVENTS' pane shows a table with columns for Object, Date/Time, and Message, and a 'Quick Report' button. The list pane on the left shows the selected profile and other profiles in a minimized view.


When a Remote Access instance is selected, the following sections are shown in the Info pane at the right side of the screen:

- **Details** – configuration details of the remote access profile.
- **Events** - all the related events that have been generated by the system, such as connections, errors, and disconnections. To learn about the data that is displayed in the Events tab see [EVENTS](#). Click **Quick Report** to generate a report of events related to this Channel and download the .xls file.
- **Notes** – free-form text can be added with pertinent information about this remote access profile.

When a Remote Access instance is selected, the top of the **Info** pane includes buttons for taking the following actions on the selected instance:

- **Acknowledge/Clear Acknowledgment** (for instances in error state) – mark/clear the status of this Source as acknowledged.
- **Mute/Clear Mute** – disables/activates notification for error/recovery events. Set the date and time when the mute will automatically be cleared by clicking on the down arrow and selecting **mute until**.
- **Edit** – enables you to edit the Zixi Receiver configuration.
- **Clone** – create an additional Remote Access based on the settings of the selected Remote Access.
- **Disable/Enable** – disabling a Remote Access stops all activity for that device without deleting the configuration of the device.
- **Delete** – deletes the Remote Access configuration.


The main display shows following data:

Parameter	Description
Status	<p>The connection status of the remote access profile. Possible values:</p> <ul style="list-style-type: none">• Green – OK• Red – error state• Pink (shown together with a checkmark) – acknowledged error state• Gray – pending/disabled (waiting for initial connection) <p>The  icon next to a remote access connection indicates that the object is muted, disabling notifications for error/recovery events.</p>
Name	The name of the remote access profile as configured in ZEN Master.
IP	The IP of the remote device as seen by ZEN Master.
Actions	
Open	A link to the device UI.

When one of the Remote Access instances is selected, the **Info** pane, divided into sections, appears at the right side of the screen. The following info is shown:

Parameter	Description
Details	
SSH Key	The name of the SSH key file. Click on the link to download the SSH key.
Name	The name of the remote access profile as configured in ZEN Master.

Channels

Tag	The Tag/s that is associated with this remote access profile. You can edit the tag/s as follows: click the  icon. Then, delete the current tag by clicking the "X" next to the tag and/or add a new tag/s by selecting one or more tags from the dropdown list.
Host	The IP address/URL of the ZEN Master host.
Username	The username assigned for this device in ZEN Master.
Tunnel Port	The port on the ZEN Master server assigned for communication with the Zixi-enabled device.
Open	A link to the device's console.
Events	A log of the events that were generated in ZEN Master in relation to the selected remote access profile. To learn about viewing event logs in ZEN Master, see EVENTS . Click Quick Report to generate a report of events related to this device and download the .xls file.
Notes	Shows free-form notes relevant to the Remote Access instance.

Live Events.

➔ **To add a Failover Channel:**

1. In the main navigation, click **Channels**.
2. Click **+Add**.

The **Create New Channel** selection menu is displayed.

CREATE NEW CHANNEL

Select Channel Type ⓘ

<p>Adaptive</p> <p>Create an HLS adaptive channel from multiple sources.</p> <p>Targets: HTTP, AWS S3, GCP Storage, Azure Blob Storage</p>
<p>Transcoded</p> <p>Transcode a single source into multiple bitrates and create an HLS adaptive channel.</p> <p>Targets: HTTP, AWS S3, GCP Storage, Azure Blob Storage</p>
<p>Pass-Through</p> <p>Create a pass-through channel using one or two redundant sources that can be sent to Zixi enabled receivers or RTMP servers.</p> <p>Targets: RTMP, Push, Pull, RIST, SRT, UDP/RTP/RTP-FEC</p>
<p>Failover Channel</p> <p>Create a Failover Channel</p> <p>Targets: RTMP, Push, Pull, RIST, SRT, UDP/RTP/RTP-FEC</p>
<p>AWS MediaConnect Flow</p> <p>Create a MediaConnect Flow</p> <p>Targets: Push, Pull, RIST, SRT, RTP/RTP-FEC</p>
<p>AWS MediaLive Channel</p> <p>Create a MediaLive Channel</p> <p>Targets: Medialive HTTP</p>

× Cancel

- Click on **Failover Channel**.
The **Create New Failover Channel** window is displayed.

CREATE NEW FAILOVER CHANNEL

INFO

Name *

Access Tags * i

Events Configuration Profile

INPUT

Processing Cluster * i

Sources *

Source	Priority	i
Filter: <input type="text"/>		
- File INPUT @ Chris Test Cluster		+
⊙ OBS_stream @ LM_cluster_aws		+

INITIAL STATE

Disabled

Muted

< Back × Cancel ✓ Save

- In the **Info** section, in the **Name** field, enter a logical name for the Channel.
- In the **Tags** field, select one or more of the predefined Tags from the drop-down list. Tags are used for access control. By selecting a Tag, you are relating this Channel to that Tag. Tags are associated with certain roles (through the Users & Roles screen), and roles, in turn, are associated with users and user groups. If you would like to create a new Tag, see [CREATING A TAG](#).
- In the **Events Configuration Profile** field, select from the dropdown list the profile that you would like to apply to this Channel. By default, the *Default* profile is applied.



Events Profiles consist of a series of rules that determine precisely how various types of Events are logged and what results they trigger.

7. In the **Input** section, in the **Processing Cluster** field, select from the drop-down list one of the Channel Processing clusters that has been configured in ZEN Master. The selected cluster will be used to process this Channel.



If the Source does not exist in the cluster, then the cluster will pull the Source automatically.

8. In the Sources section, add one or more Sources to the Channel and specify whether they should be a Preferred Source (select the Preferred checkbox), a Non-preferred Source (do not select anything) or a Slate Source (select the Slate checkbox. This is done as follows:
 - a. Find the Source that you would like to add either by scrolling through the list of available Sources or by entering a search word into the **Filter** textbox. If the Source that you would like to add is not yet configured in ZEN Master, see [SOURCES](#)
 - b. Add a Source by clicking the **+** button next to the Source. Selected Sources are shown above the **Filter** box.
 - c. Do one of the following:
 - o Select the **Preferred** checkbox if you would like to designate the Source as preferred source.
 - o Select the **Slate** checkbox if you would like to designate the source as a Slate.
 - o Do not select any checkbox if you would like to designate the source as a Non-preferred source.
 - d. Repeat the above procedure for each Source that you would like to add to the Channel.



If you would like to remove a selected Source, click on the **-** button next to the Source.



All Tags that are assigned to the selected Sources are added by default to the Channel.

9. In the **Initial State** section, select the **Disabled** checkbox if you would like to disable this Channel upon initial configuration.
10. Select the **Muted** checkbox if you would like to disable error/recovery notifications for this Channel upon initial configuration.



You can Enable/Unmute the Channel at any time.

11. Click **Save**.

Failover Channel Configuration Parameters Table

Parameter	Description
Info	
Name	Specify a name for the Pass-Through Channel in ZEN Master.
Tags	<p>Select one or more of the predefined Tags from the drop-down list.</p> <p>Tags are used for access control. By selecting a Tag, you are relating this Channel to that Tag. Tags are associated with certain roles (through the Users & Roles screen), and roles, in turn, are associated with users and user groups. If you would like to create a new Tag, see CREATING A TAG.</p>
Events Configuration Profile	<p>Select from the dropdown list the profile that you would like to apply to this Channel. By default, the <i>Default</i> profile is applied.</p> <p>NOTE: <i>Events Profiles</i> consist of a series of rules that determine precisely how various types of Events are logged and what results they trigger.</p>
Input	
Processing Cluster	<p>Select from the drop-down list one of the Channel Processing clusters that has been configured in ZEN Master. The selected cluster will be used to process this Channel.</p> <p>NOTE: If the Source does not exist in the cluster, then the cluster will pull the Source automatically.</p>
Sources	<p>Add one or more Sources to the Channel by clicking the + button next to the Source and select the checkboxes if you would like to designate them as a Preferred Source or as a Slate. If you would like to designate the Source as non-preferred, leave the checkboxes empty.</p> <p>If you would like to remove a Source from the Channel, click on the - button next to the Source.</p>
Initial State	
Disabled	Select this checkbox if you would like to disable this Channel upon initial configuration.

Muted	Select this checkbox if you would like to disable error/recovery notifications for this Channel upon initial configuration.
-------	---

Adding MediaConnect Flow Channels

ZEN Master supports two different methods for integrating MediaConnect Flows.

- **Method 1 – Connecting MediaConnect Flows to ZEN Master:** This method uses an independent MediaConnect Flow as a Source (as described in [ADDING AN AWS MEDIACONNECT SOURCE – CONNECTING AN EXISTING Flow](#)) or Target (as described in [ADDING AWS MEDIACONNECT TARGETS](#)) in ZEN Master. The resultant Source or Target functions as a standard ZEN Master entity.
- **Method 2 – Creating ZEN Master Managed Flows:** This method involves creating a MediaConnect Flow that is fully managed within ZEN Master. This involves creating specialized MediaConnect Sources as well as specialized MediaConnect Flow Channels in ZEN Master. This method enables you to manage the Flow completely from within ZEN Master, including interchanging between Sources and Flow Channels. There are two ways of creating these Managed Flows:
 - **Create a new MediaConnect Flow** – create a completely new MediaConnect Flow from the ZEN Master console (i.e. without accessing the MediaConnect console or using their APIs). This involves creating a specialized MediaConnect Source in ZEN Master (as described in [CREATING A NEW MEDIACONNECT FLOW CHANNEL](#)) and then creating a specialized MediaConnect Flow Channel (as described in [ADDING MEDIACONNECT FLOW CHANNELS](#)). This enables you to work exclusively within the ZEN Master UI.
 - **Import an Existing MediaConnect Flow to Manage in ZEN Master** - This method involves importing an existing Flow from MediaConnect into ZEN Master (as described in [IMPORTING A MEDIACONNECT FLOW CHANNEL](#)). The input from your MediaConnect Flow is automatically created as a specialized MediaConnect Source in ZEN Master and the outputs are created as Targets in ZEN Master. In addition, the Flow itself is created as a specialized MediaConnect Flow Channel. All elements can be monitored and managed in ZEN Master.



Once you have created or imported a ZEN Master Managed Flow (method 2), you should manage that Flow entirely through ZEN Master and **not** through the MediaConnect console.

MediaConnect Flows that are created or imported as Channels in ZEN Master are independent of the Sources that are assigned to them so that you can swap Sources between Channels at any time.



MediaConnect Sources created using *Method 2* **must** be assigned to a special type of Channel, a MediaConnect Flow Channel. MediaConnect Sources created using *Method 1* can be assigned to standard ZEN Master Channels.

The following sections describe the procedure for creating ZEN Master Managed Flows by creating a new Flow in ZEN Master or importing an existing Flow. For Method 1, you just create a MediaConnect Source in ZEN Master as described in [ADDING AN AWS MEDIACONNECT SOURCE – CONNECTING AN EXISTING](#) Flow.

Creating a New MediaConnect Flow Channel

➔ **To create a new MediaConnect Flow Channel:**

1. In the main navigation, click **Channels**.
2. Click **+Add**.

The **Create New Channel** selection menu is displayed.

CREATE NEW CHANNEL

Select Channel Type ⓘ

Adaptive

Create an HLS adaptive channel from multiple sources.

Targets: HTTP, AWS S3, GCP Storage, Azure Blob Storage

Transcoded

Transcode a single source into multiple bitrates and create an HLS adaptive channel.

Targets: HTTP, AWS S3, GCP Storage, Azure Blob Storage

Pass-Through

Create a pass-through channel using one or two redundant sources that can be sent to Zixi enabled receivers or RTMP servers.

Targets: RTMP, Push, Pull, RIST, SRT, UDP/RTP/RTP-FEC

Failover Channel

Create a Failover Channel

Targets: RTMP, Push, Pull, RIST, SRT, UDP/RTP/RTP-FEC

AWS MediaConnect Flow

Create a MediaConnect Flow

Targets: Push, Pull, RIST, SRT, RTP/RTP-FEC

AWS MediaLive Channel

Create a MediaLive Channel

Targets: Medialive HTTP

× Cancel

3. Click on **AWS MediaConnect Flow**.
The **Create AWS MediaConnect Flow** window is displayed.

CREATE AWS MEDIACONNECT FLOW

[Info](#) [Config](#) [VPC Interfaces](#) [Media Streams](#)

INFO

Name *

Access Tags *

Events Configuration Profile

CONFIGURATION

[Create New](#) [Import Existing](#)

AWS Account *

Region *

Availability Zone *

Source

VPC INTERFACES

[+ Add VPC Interface](#)

MEDIA STREAMS

[+ Add Media Stream](#)

INITIAL STATE

Muted

[< Back](#) [✕ Cancel](#) [✓ Save](#)

4. In the **Info** section, in the **Name** field, enter a logical name for the Channel.
5. In the **Tags** field, select one or more of the predefined Tags from the drop-down list.
Tags are used for access control. By selecting a Tag, you are relating this Channel to that Tag. Tags are associated with certain roles (through the Users & Roles screen), and roles,

in turn, are associated with users and user groups. If you would like to create a new Tag, see [CREATING A TAG](#).

6. In the **Events Configuration Profile** field, select from the dropdown list the profile that you would like to apply to this Channel. By default, the *Default* profile is applied.



Events Profiles consist of a series of rules that determine precisely how various types of Events are logged and what results they trigger.

7. In the **Configuration** section, verify that **Create New** is selected (default).
8. In the **AWS Account** field, select from the drop-down list the AWS MediaConnect account that you would like to use for this Flow.



If the Source does not exist in the cluster, then the cluster will pull the Source automatically.

9. In the **Region** field, select from the drop-down list the AWS region that you would like to use for this Flow.
10. In the **Availability Zone** field, select from the drop-down list the Availability Zone that you would like to use for this Flow.
11. In the **Source** field, select from the drop-down list the AWS MediaConnect type Source that you would like to assign to this Channel.



Specifying a **Source** is optional. You can create a Channel without assigning a Source, although it won't be activated until you assign a Source at a later time. You can also switch to a different Source at a later time. To learn about creating a MediaConnect Source, see [ADDING AN AWS MEDIA SOURCE – CREATING A ZEN MASTER MANAGED](#) Flow.

12. Under **VPC Interfaces**, if you want to stream content between your Virtual Private Cloud (VPC) and MediaConnect, without going over the public internet, click **Add VPC**

Interface.

VPC INTERFACES

– New

Name * 🔒

Type * 🔒

Role ARN * 🔒

Subnet * 🔒

Security Groups * 🔒

– Remove VPC Interface


+ Add VPC Interface

13. In the **Name** field, enter a name for the VPC interface.
14. In the **Type** field, select the type of network adapter that you want MediaConnect to use on this interface.
15. In the **Role ARN** field, select the Role ARN of the IAM role that you have created when you set up MediaConnect as a trusted device.
16. In the **Subnet** field, select the VPC subnet that you want MediaConnect to use to set up your VPC configuration.
17. In the **Security Groups** field, select the relevant security groups and the inbound and outbound rules.
18. To add additional VPC interface, click **Add VPC Interface**.
19. Under the **Media Streams** section, click **Add Media Stream** to add a media stream to represent each component (e.g. video, audio, etc.) of the flow. Media streams can only


be added to a flow if the Source uses the ST 2110-22 JPEG-XS or CDI protocols.


MEDIA STREAMS

— New

Name * 


Type

Video 

Stream ID * 


A unique numeric identifier for this media stream.

Media clock rate

90000 

Clock rate (in kHz) for the stream


Video format

1080p 


Exact framerate *

The frame rate for the video stream, in frames per second. Sample format: 60000/1001


Colorimetry

BT709 

Scan Mode


Progressive 

TCS

SDR 

The transfer characteristic system (TCS) that is used in the video

Range

NARROW 

The encoding range of the video

PAR *

The pixel aspect ratio (PAR) of the video. Sample format: 12:11

— Remove Media Stream

+ Add Media Stream

20. In the **Name** field, enter a name for the media stream.
21. In the **Type** field, select the relevant stream type (video, audio, ancillary data)
22. In the **Stream ID** field, enter a unique numeric identifier for this media stream.

23. In the **Media Clock Rate** field, select the clock rate in KHz for the stream. For video 90000 is selected; for audio, select between 48000 and 96000; for ancillary data 96000 is selected.
24. In the **Video Format** field, select the maximum format of the video (affects flow pricing).
25. In the **Exact Framerate** field, select the frame rate for the video (in frames per second).
26. In the **Colorimetry** field, select the format used for the representation of color.
27. In the **Scan Mode** field, select the type of compression used to simplify the video appearance.
28. In the **TCS** field, select the transfer characteristics system that is used in the video.
29. In the **Range** field, select the encoding range of the video.
30. In the **PAR** field, select the pixel aspect ratio of the video.
31. In the **Language** field (audio only), enter the audio language, in a format that is recognized by your receiver. Number of characters 2 or 3 characters.
32. In the **Channel Order** field (audio only), select the format of the audio channel.
33. To add additional Media Streams, click **Add Media Stream**.
34. In the **Initial State** section, select the **Muted** checkbox if you would like to disable error/recovery notifications for this Channel upon initial configuration.



You can Unmute the Channel at any time.

35. Click **Save**.



A MediaConnect Flow Channel can be assigned to a standard Target of the following types in ZEN Master: Push, Pull, RIST, RTP/RTP-FEC.

New MediaConnect Flow Channel Configuration Parameters Table

Parameter	Description
Info	
Name	Specify a name for the MediaConnect Flow Channel in ZEN Master.
Tags	Select one or more of the predefined Tags from the drop-down list. Tags are used for access control. By selecting a Tag, you are relating this Channel to that Tag. Tags are associated with certain roles (through the Users & Roles screen), and roles, in turn, are associated with users and user groups. If you would like to create a new Tag, see CREATING A TAG .

Events Configuration Profile	<p>Select from the dropdown list the profile that you would like to apply to this Channel. By default, the <i>Default</i> profile is applied.</p> <p>NOTE: <i>Events Profiles</i> consist of a series of rules that determine precisely how various types of Events are logged and what results they trigger.</p>
Configuration	Verify that Create New is selected (default).
AWS Account	<p>Select from the drop-down list the AWS MediaConnect account that you would like to use for this Flow.</p> <p>NOTE: If the Source does not exist in the cluster, then the cluster will pull the Source automatically.</p>
Region	Select from the drop-down list the AWS region that you would like to use for this Flow.
Availability Zone	Select from the drop-down list the Availability Zone that you would like to use for this Flow.
Source	<p>Select from the drop-down list the AWS MediaConnect type Source that you would like to assign to this Channel.</p> <p>NOTE: Specifying a Source is optional. You can create a Channel without assigning a Source, although it won't be activated until you assign a Source at a later time. You can also switch to a different Source at a later time. To learn about creating a MediaConnect Source, see ADDING AN AWS MEDIA SOURCE – CREATING A ZEN MASTER MANAGED Flow.</p>
VPC Interfaces	if you want to stream content between your Virtual Private Cloud (VPC) and MediaConnect, without going over the public internet, click Add VPC Interface
Name	Enter a name for the VPC interface
Type	Select the type of network adapter that you want MediaConnect to use on this interface.
Role ARN	Select the Role ARN of the IAM role that you have created when you set up MediaConnect as a trusted device
Subnet	Select the VPC subnet that you want MediaConnect to use to set up your VPC configuration
Security Groups	Select the relevant security groups and the inbound and outbound rules

Channels

Media Streams	Click Add Media Stream to add a media stream to represent each component (e.g. video, audio, etc.) of the flow. Media streams can only be added to a flow if the Source uses the ST 2110-22 JPEG-XS or CDI protocols.
Name	Enter a name for the media stream
Type	Select the relevant stream type (video, audio, ancillary data)
Stream ID	Enter a unique numeric identifier for this media stream
Media Clock Rate	Select the clock rate in KHz for the stream. For video 90000 is selected; for audio, select between 48000 and 96000; for ancillary data 96000 is selected.
Video Format	Select the maximum format of the video (affects flow pricing).
Exact Framerate	Select the frame rate for the video (in frames per second).
Colorimetry	Select the format used for the representation of color.
Scan Mode	Select the type of compression used to simplify the video appearance.
TCS	Select the transfer characteristics system that is used in the video.
Range	Select the encoding range of the video.
PAR	Select the pixel aspect ratio of the video
Language (audio only)	Enter the audio language, in a format that is recognized by your receiver. Number of characters 2 or 3 characters
Channel Order (audio only)	Select the format of the audio channel
Initial State	
Muted	Select this checkbox if you would like to disable error/recovery notifications for this Channel upon initial configuration.

Importing a MediaConnect Flow Channel

➔ **To import an existing MediaConnect Flow Channel:**

1. In the main navigation, click **Channels**.
2. Click **+ Add**.

The **Create New Channel** selection menu is displayed.

CREATE NEW CHANNEL

Select Channel Type ⓘ

Adaptive Create an HLS adaptive channel from multiple sources. Targets: HTTP, AWS S3, GCP Storage, Azure Blob Storage
Transcoded Transcode a single source into multiple bitrates and create an HLS adaptive channel. Targets: HTTP, AWS S3, GCP Storage, Azure Blob Storage
Pass-Through Create a pass-through channel using one or two redundant sources that can be sent to Zixi enabled receivers or RTMP servers. Targets: RTMP, Push, Pull, RIST, SRT, UDP/RTP/RTP-FEC
Failover Channel Create a Failover Channel Targets: RTMP, Push, Pull, RIST, SRT, UDP/RTP/RTP-FEC
AWS MediaConnect Flow Create a MediaConnect Flow Targets: Push, Pull, RIST, SRT, RTP/RTP-FEC
AWS MediaLive Channel Create a MediaLive Channel Targets: Medialive HTTP

× Cancel

- Click on **AWS MediaConnect Flow**.
The **Create AWS MediaConnect Flow** window is displayed.

CREATE AWS MEDIACONNECT FLOW

INFO

Name *

Access Tags *

Events Configuration Profile

CONFIGURATION

Create New Import Existing

AWS Account *

Region *

AWS MediaConnect Flow

INITIAL STATE

Muted

< Back Cancel Save

- In the **Info** section, in the **Name** field, enter a logical name for the Channel.
- In the **Tags** field, select one or more of the predefined Tags from the drop-down list. Tags are used for access control. By selecting an Tag, you are relating this Channel to that Tag. Tags are associated with certain roles (through the Users & Roles screen), and roles, in turn, are associated with users and user groups. If you would like to create a new Tag, see [CREATING A TAG](#).
- In the **Events Configuration Profile** field, select from the dropdown list the profile that you would like to apply to this Channel. By default, the *Default* profile is applied.



Events Profiles consist of a series of rules that determine precisely how various types of Events are logged and what results they trigger.

- In the **Configuration** section, select **Import Existing**.
- In the **AWS Account** field, select from the drop-down list the AWS MediaConnect account that you would like to use for this Flow.



If the Source does not exist in the cluster, then the cluster will pull the Source automatically.

Channels

- In the **Region** field, select from the drop-down list the AWS region that you would like to use for this Flow.
- In the **AWS MediaConnect Flow** field, select from the drop-down list the Flow from which you would like to create this Channel.
- In the **Initial State** section, select the **Muted** checkbox if you would like to disable error/recovery notifications for this Channel upon initial configuration.



You can Unmute the Channel at any time.

- Click **Save**.

Import MediaConnect Flow Channel Configuration Parameters Table

Parameter	Description
Info	
Name	Specify a name for the MediaConnect Flow Channel in ZEN Master.
Tags	Select one or more of the predefined Tags from the drop-down list. Tags are used for access control. By selecting a Tag, you are relating this Channel to that Tag. Tags are associated with certain roles (through the Users & Roles screen), and roles, in turn, are associated with users and user groups. If you would like to create a new Tag, see CREATING A TAG .
Configuration	
AWS Account	Select Import Existing . Select from the drop-down list the AWS MediaConnect account that you would like to use for this Flow. NOTE: If the Source does not exist in the cluster, then the cluster will pull the Source automatically.
Region	Select from the drop-down list the AWS region that you would like to use for this Flow.
AWS MediaConnect Flow	Select from the drop-down list the Flow from which you would like to create this Channel.
Initial State	
Muted	Select this checkbox if you would like to disable error/recovery notifications for this Channel upon initial configuration.

Adding AWS MediaLive Channels

➔ To add an AWS MediaLive Channel:

1. In the main navigation, click **Channels**.
2. Click **+Add**.

The **Create New Channel** selection menu is displayed.

CREATE NEW CHANNEL

Select Channel Type ⓘ


Adaptive Create an HLS adaptive channel from multiple sources. Targets: HTTP, AWS S3, GCP Storage, Azure Blob Storage
Transcoded Transcode a single source into multiple bitrates and create an HLS adaptive channel. Targets: HTTP, AWS S3, GCP Storage, Azure Blob Storage
Pass-Through Create a pass-through channel using one or two redundant sources that can be sent to Zixi enabled receivers or RTMP servers. Targets: RTMP, Push, Pull, RIST, SRT, UDP/RTP/RTP-FEC
Failover Channel Create a Failover Channel Targets: RTMP, Push, Pull, RIST, SRT, UDP/RTP/RTP-FEC
AWS MediaConnect Flow Create a MediaConnect Flow Targets: Push, Pull, RIST, SRT, RTP/RTP-FEC
AWS MediaLive Channel Create a MediaLive Channel Targets: MediaLive HTTP


⌫ Cancel

3. Click on **AWS MediaLive Channel**.
The **Create AWS MediaConnect Flow** window is displayed.

CREATE AWS MEDIALIVE CHANNEL


INFO


Name * 


Access Tags * 

Events Configuration Profile


CONFIGURATION

AWS Account * 

Region * 

Availability Zone * 

IAM Role

Role ARN * 

Source

INITIAL STATE

Disabled

Muted

4. In the **Info** section, in the **Name** field, enter a logical name for the Channel.
5. In the **Tags** field, select one or more of the predefined Tags from the drop-down list.
Tags are used for access control. By selecting a Tag, you are relating this Channel to that Tag. Tags are associated with certain roles (through the Users & Roles screen), and roles,

Channels

in turn, are associated with users and user groups. If you would like to create a new Tag, see [CREATING A TAG](#).

6. In the **Events Configuration Profile** field, select from the dropdown list the profile that you would like to apply to this Channel. By default, the *Default* profile is applied.



Events Profiles consist of a series of rules that determine precisely how various types of Events are logged and what results they trigger.

7. In the **Configuration** section, select **Import Existing**.
8. In the **AWS Account** field, select from the drop-down list the AWS Media account that you would like to use for this Flow.



If the Source does not exist in the cluster, then the cluster will pull the Source automatically.

9. In the **Region** field, select from the drop-down list the AWS region that you would like to use for this Flow.
10. In the **Availability Zone** field, select from the drop-down list the Availability Zone that you would like to use for this Flow.
11. To use an existing IAM role ARN, select **Select Existing** and select an existing Role ARN from the drop-down list.
12. To specify a custom ARN, select **Specify Custom ARN** and enter the Amazon Resource Name in the **Role ARN** field.
13. In the **Source** field, select from the drop-down list the AWS MediaLive type Source that you would like to assign to this Channel.



Specifying a **Source** is optional. You can create a Channel without assigning a Source, although it won't be activated until you assign a Source at a later time. You can also switch to a different Source at a later time.

14. In the **Initial State** section, select the **Disabled** checkbox if you would like to disable this Channel upon initial configuration.
15. Select the **Muted** checkbox if you would like to disable error/recovery notifications for this Channel upon initial configuration.



You can Unmute the Channel at any time.

16. Click **Save**.

AWS MediaLive Channel

Parameter	Description
Info	
Name	Specify a name for the MediaConnect Flow Channel in ZEN Master.

	<p>Select one or more of the predefined Tags from the drop-down list.</p> <p>Tags are used for access control. By selecting a Tag, you are relating this Channel to that Tag. Tags are associated with certain roles (through the Users & Roles screen), and roles, in turn, are associated with users and user groups. If you would like to create a new Tag, see CREATING A TAG.</p>
Configuration	
AWS Account	<p>Select from the drop-down list the AWS Media account that you would like to use for this Flow.</p> <p>NOTE: If the Source does not exist in the cluster, then the cluster will pull the Source automatically.</p>
Region	Select from the drop-down list the AWS region that you would like to use for this Flow.
Availability Zone	Select from the drop-down list the Availability Zone that you would like to use for this Flow.
IAM Role	Select Select Existing or Specify Custom ARN .
Role ARN	<p><i>For Select Existing:</i> <u>Select from the drop-down list an existing Role ARN of the IAM role that you previously created.</u></p> <p><i>For Specify Custom ARN</i> <u>Enter a specific ARN in the field.</u></p>
Source	<p>Select from the drop-down list the AWS MediaLive type Source that you would like to assign to this Channel.</p> <p>NOTE: Specifying a Source is optional. You can create a Channel without assigning a Source, although it won't be activated until you assign a Source at a later time. You can also switch to a different Source at a later time.</p>
Initial State	
Disabled	Select this checkbox if you would like to disable this Channel upon initial configuration.
Muted	Select this checkbox if you would like to disable error/recovery notifications for this Channel upon initial configuration.

Cloning a Channel

If you would like to create a new Channel with properties similar to those of an existing Channel, you can use the *Clone* feature to simplify the process.

➔ To Clone a Channel:

1. In the main navigation, click **Channels**.
2. Select the Channel that you would like to Clone (i.e. the Channel that is already configured in ZEN Master which has settings similar to those that you would like to set for the new Channel that you are creating).
3. Click **Clone**.
The **Clone Channel** window is displayed with all fields other than **Name** populated with the configuration data of the original Channel.
4. In the **Name** field, enter the name of the new Channel.
5. Change any of the fields that you would like to configure differently than the original Channel. See the above sections that describe how to create new Channels of various types.
6. Click **Save**.
The Channel is created.

Viewing Existing Channels

The Channels screen displays all existing Channels, and information about the status and configuration of each Channel. You can click on the **Insights** button to open the Insights view. For more information, see [INSIGHTS](#).

CHANNELS								+ Add	Refresh
Filter								Columns	Report
<input type="checkbox"/> Name	Status	Proc. Cluster	Broadcaster	Type	Sources	Targets			
<input type="checkbox"/> Ateме_CM5000	✔ Ok	ZIXI_DEMOHD	demozicom	Pass-Through	✔ Ateме_CM5000 @ demozixi	✔ 2			
<input type="checkbox"/> Cheddar	✔ Ok	AWS_EL_Lab_Ingest	AWS_EL_Lab_Ingest-p2vp	Pass-Through	✔ FrmCheddar @ aws-el-lab-ingest	✔ 1			
<input type="checkbox"/> clocks	✔ Ok	ZIXI_DEMOHD	demozicom	Pass-Through	✔ clocks @ demozixi	✔ 3	✔ 2		
<input type="checkbox"/> Distribution	✔ Ok	Azure-Transcode	Azure-Transcode-w4nr	Pass-Through	✔ FrmCheddar2 @ zixi-onpremise-bx	✔ 2			
<input type="checkbox"/> Elemental	✔ Ok	AWS_DEMO_CLUSTER	AWS_DEMO_CLUSTER-g4j6	Pass-Through	✔ From_Elemental_Lab_2 @ aws-el-...				
<input type="checkbox"/> EMEA2	✔ Ok	ZIXI_DEMOHD	demozicom	Pass-Through	✔ clocks @ demozixi				
<input type="checkbox"/> EMEA4	✔ Ok	ZIXI_DEMOHD	demozicom	Pass-Through	✔ clocks @ demozixi				
<input type="checkbox"/> FiberHitless	✖ Error	ZIXI_CLOUD_DATACENTE...	Demo_ZEN_BX01	Pass-Through	✔ FXFiberBonded_Hitless @ zixi-onpre...				
<input type="checkbox"/> GCSHOW	✔ Ok	SHOWFLOOR_02_BX	SHOWFLOOR_02_BX	Pass-Through	✔ GCSHOW_HITLESS_01_02 @ showfl...	✔ 1			
<input type="checkbox"/> HPVZ-HITLESS-CHANNEL-01-02	✔ Ok	LINEAR_DISTRIBUTION	LINEAR_DISTRIBUTION-9lpd	Pass-Through	✔ HPVZFX-HITLESS-01-02 @ linear...	✔ 2			

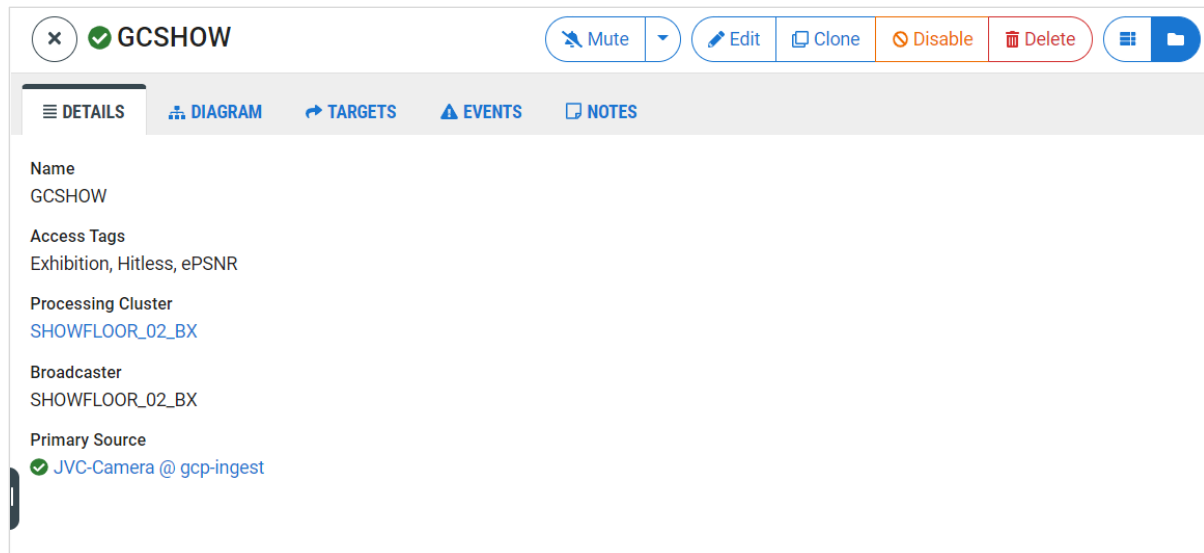
Showing: 1 - 10 of 44 Rows 10



It is possible to add more columns to the list, see [Show/Hide Columns](#). If you want to view resources that were marked as **Priority**, add the **Priority** column and sort by it.

Channels

When a Channel is selected, the list pane is minimized and detailed info about the selected Channel is shown on the right side of the screen. The info can be shown in *Tab* view or *Accordion* view, see [INFO PAGES](#).



When a Channel is selected, the following sections are shown in the Info pane:

- **Details** – configuration details of the selected Channel.
- **Diagram** - This tab shows a schematic diagram of the system elements associated with the Channel.
- **Sources** - shows the thumbnails of the Sources that are associated with the selected Channel. For more information, see [Viewing Thumbnail Grid Display](#).
- **Bitrates (for Adaptive and Transcoded Channels)** – shows details about the Sources/transcoding profiles that are used and their bitrates.
- **Targets** – Shows data about Targets that receive the selected Channel. You can also add Targets to a Channel on this tab.
- **Events** - all the related events that have been generated by the system, such as connections, errors, warnings and disconnections. To learn about the data that is displayed in the Events tab see [EVENTS](#). Click **Quick Report** to generate a report of events related to this Channel and download the .xls file.
- **Insights** – shows Insights graphs for the channel. For more information, see [Insights](#).
- **Notes** – free-form text can be added with pertinent information about this Channel.




There is an additional tab, **SCTE-35**, that is shown for relevant Channels. If the stream in an Adaptive or Transcoded Channel includes SCTE-35 markers, then information about these markers is shown in the SCTE-35 tab.

The main display includes the following data for each Channel:

Parameter	Description
-----------	-------------

Channels

	Select one or more Channels and perform actions on all selected Channel. Available actions are:
Selection Checkbox	<ul style="list-style-type: none">• Mute All - disables notification for error/recovery events for the selected Channel.• Unmute All – enables notification for error/recovery events for the selected Channel.• Enable All – re-activates all active streams for the selected Channel.• Disable All - stops all active streams for that Channel without deleting the configuration of the Channel.• Delete All – deletes the Channel configuration for the selected Sources.
Name	The name of the Channel.
Status	<p>Shows the status of the Channel. Possible statuses are:</p> <ul style="list-style-type: none">• Green – OK• Red – error state• Pink (shown together with a checkmark) – acknowledged error state• Yellow – Warning (recovered from error event)• Gray – pending/disabled <p>The  icon next to a Channel indicates that the Channel is muted, disabling notifications for error/recovery events.</p>
Proc. Cluster	The name of the Channel Processing cluster that is used for the Channel.
Broadcaster	The name of the Broadcaster that is used for the Channel.
Type	<p>The type of Channel, possible types are:</p> <ul style="list-style-type: none">• Adaptive Channel – combines multiple Sources to create a unified HLS stream for output to an HTTP, S3, MediaStore, Azure Blob or GCP Target.• Transcoded Channel – transcodes a single Source to multiple bitrates for output to an HTTP, S3, MediaStore, Azure Blob or GCP Target.• Pass-through Channel – sends the Source to an output.
Sources	The number of Sources assigned to the Channel and their statuses. For single Source Channels the name of the Source is displayed.
Targets	The number of output Targets and their statuses.

Actions on a Channel

When one of the Channels in the list is selected, information about the Channel is shown in the Info pane.

The **Info** pane has buttons for taking the following actions for the selected Channel.

- **Mute/Unmute** – disables/activates notification for error/recovery events. Set the date and time when the mute will automatically be cleared by clicking on the down arrow and selecting **mute until**.
- **Edit** – enables you to edit the Channel configuration.
- **Clone** - create an additional Channel based on the settings of the selected Channel.
- **Disable/Enable** – Disabling a Channel stops all active streams for that Channel without deleting the configuration of the Channel.
- **Delete** – deletes the Channel configuration.




When you delete a ZEN Master Managed MediaConnect Flow, you have the option of deleting it completely both in ZEN Master and AWS MediaConnect, or disconnecting it from ZEN Master but leaving it in place in AWS. To leave it in place in AWS, after clicking **Delete** you need to select the checkbox in the confirmation dialog before clicking again on **Delete**. In all circumstances, the related Sources and Targets remain in place in ZEN Master unless you delete them directly.

Channel Details

The Details section shows the following information:



Some fields are shown only for specific Channel types.

Parameter	Description
Name	The name of the Channel.
Tags	The Tag/s that is associated with this Source. You can edit the tag/s as follows: click the  icon. Then, delete the current tag by clicking the "X" next to the tag. Add a new tag/s by selecting one or more tags from the drop-down list.
Events Configuration Profile	The Events Configuration Profile that was assigned to this Channel. <i>Events Profiles</i> consist of a series of rules that determine precisely how various types of Events are logged and what results they trigger.
Processing Cluster	The name of the cluster that is used to process the stream.

The Broadcaster that has been defined for the channel. The following options are possible:

Target Broadcaster/s	<ul style="list-style-type: none">• Specific target - a specific target has been selected during configuration.• Any - any target can be used.• Primary Broadcasters only - only targets that have been defined as Primary can be used.• Backup Broadcasters only - only targets that have been defined as Backup can be used.
----------------------	---

Broadcaster	The name of the Broadcaster where the Channel is located.
Play in Browser	Opens a browser to view the stream.
Play in VLC	Opens a VLC player to view the stream.
Mode	<ul style="list-style-type: none">• Existing Sources – uses existing Sources• Transcoding – transcodes the stream
Primary Sources	The list of sources that have been defined as Primary Sources.
Backup Sources	The list of sources that have been defined as Backup Sources.

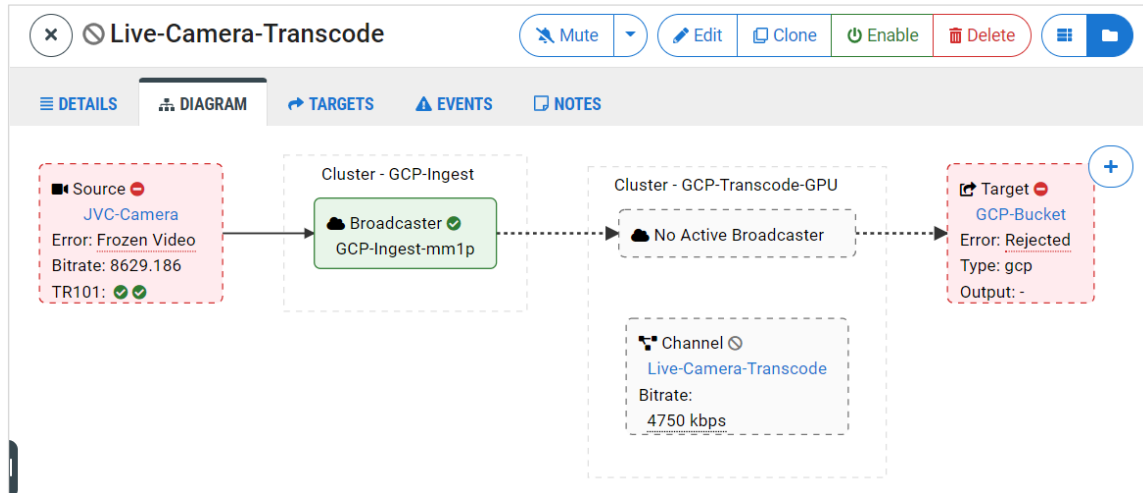
Channel Diagram

This section shows a schematic diagram that displays all resources (Feeders, Broadcasters, and Receivers) and system objects (Sources, Channels, Targets) that relate to this Channel and the relationships between the various elements. The diagram also shows relevant data about each object as well as its current status¹.



Only objects for which you have viewing permission are shown in the diagram. When an object that you are not authorized to view fills an essential role in the flow, then the object is shown with basic info but without detailed data.

¹ Diagram visualizations are supported for Chrome™ and Firefox™ browsers but not for Internet Explorer™ or Edge™.



Click on the +/- button to zoom in/out on the display.



When ZEN Master is displayed in a narrow window the diagram is displayed in a vertical orientation.

Channel Bitrates

This section is shown for Adaptive and Transcoded Channels.

The status of the Channel, possible values are:	
Status	<ul style="list-style-type: none"> • Green – OK • Red – error state • Gray – pending/disabled
Source (for Adaptive)	The full pathway to the Source.
Name (for Transcoded)	The name of the transcoding profile.
Bitrate	The bitrate of the Source/transcoding profile.
Profile (for Transcoded)	The transcoding profile. Hover over the i icon to show detailed information about the profile.

History (for Transcoded)	Shows a graphical representation of the transcoding statistics over time.
Play	Plays the Channel content in the specified bitrate in an HLS player.


Channel Sources

The Sources section shows the thumbnails of the Sources that are associated with the selected Channel. For more information, see [VIEWING THUMBNAIL GRID DISPLAY](#).

Channel Targets

The Targets section shows a list of Targets that are associated with the selected Channel, including data about their status and configuration. You can assign Targets to the selected Channel using the **Assign Target** button. You can also perform various actions on a Target as described below.

The Targets tab shows the following information:

Parameter	Description
Status	<p>The connection status of the Target. Possible values:</p> <ul style="list-style-type: none"> Green – OK (connected and streaming without errors) Red – the Target is in error state Yellow – warning (recovered from error event) Gray – pending/disabled
	<p>The  icon next to a Target indicates that the Target is muted, disabling notifications for error/recovery events.</p>
Name	The name of the Target as configured in ZEN Master.
Type	The type of Target, e.g. S3, MediaStore, Push, Pull, GCP etc.
Target	The URL or identifier of the Target location.
Actions	
Assign Target	Assign an existing Target to this Channel.
Add Target	Create a new Target for this Channel with the parameters automatically populated with this Channel's details.
Play (for Publishing Targets)	Plays the content from the Target.
History	Shows a graphical representation of the connection statistics over time.

Channels

Mute/Unmute	Disables/activates notification for error/recovery events. Set the date and time when the mute will automatically be cleared by clicking on the down arrow and selecting mute until .
Detach	Removes the Target from this Channel.
Disable/Enable	Disabling a Target stops all active streams for that Target without deleting the configuration of the Target.

Channel Events

The Events tab shows all the events that have been generated by the system that relate to the selected Channel (e.g. connections, errors, and disconnections). To learn about the data that is displayed in the Events tab see [EVENTS](#).

Click **Quick Report** to generate a report of events related to this Channel and download the .xls file.

Channel Insights

Insights are a set of graphs in ZEN Master that leverage our Intelligent Data Platform (IDP) to show a visualization that enables you to identify outliers and likely areas of instability in your system.



Insights is an add-on feature that is licensed separately, and it is not shown in standard ZEN Master accounts.

Channel Notes

This tab shows free-form notes with information about the Channel.

Channel SCTE-35

The SCTE-35 tab is only shown for relevant Channels. If an Adaptive or Transcoded Channel has a stream that contains SCTE-35 markers, then information about these markers is shown in the SCTE-35 tab.

Bitrate	Time	Type	Details
ZixL_1080	May 15, 2020, 4:35 AM	Cue-out	PTS: 00:06:16.676 Duration: 00:01:59.986 Program: 100 Auto-return: Yes
ZixL_360	May 15, 2020, 4:35 AM	Cue-out	PTS: 00:06:16.676 Duration: 00:01:59.986 Program: 100 Auto-return: Yes
ZixL_540	May 15, 2020, 4:35 AM	Cue-out	PTS: 00:06:16.676 Duration: 00:01:59.986 Program: 100 Auto-return: Yes
ZixL_720	May 15, 2020, 4:35 AM	Cue-out	PTS: 00:06:16.676 Duration: 00:01:59.986 Program: 100 Auto-return: Yes

The following table describes the information shown for each SCTE-35 marker in the stream.

Parameter	Description
Bitrate	The name of the bitrate profile in which the marker appears.
Time	The date and time that the cue was generated.
Type	The type of cue. Possible types are: <ul style="list-style-type: none"> Cue-out – marks the beginning of the ad insertion opportunity Cue-in – marks the end of the ad insertion opportunity
Details	Shows details about the ad insertion opportunity. For Cue-out events, this includes the duration of the ad break.

Targets

Targets are internal logical entities used by ZEN to simplify management of Zixi resources. A Target represents a destination to which a Channel is sent. The Targets are configured once and assigned to the relevant Channels.

- **HTTP** – the Channel is pushed to any HTTP server via HTTP PUT methods. This option also includes the ability to use secure HTTPS protocol. The HTTP Target channel includes configurations for sending the stream to an HTTP target, a YouTube target, an S3 bucket, MediaStore, GCP, or Azure using HLS or CMaf encapsulation. Supported channels – Adaptive or Transcoded.
- **Zixi** - Push to Zixi Broadcaster or AWS MediaConnect, or configure a Zixi Receiver, Broadcaster or Zixi enabled Decoder/IRD to pull a channel from ZEN Master. Supported channels – Pass-through or MediaConnect Flow.
- **RIST** - Create a RIST output on a Broadcaster or MediaConnect Flow. Supported channels – Pass-through or MediaConnect Flow.
- **UDP/RTP** - Create a UDP/RTP output on a Broadcaster or MediaConnect Flow. Supported channels – Pass-through or MediaConnect Flow.
- **RTMP** – Stream channels to an external RTMP server. Supported channels – Pass-through.
- **SRT** – Create a SRT output on a Broadcaster. Supported channels: Pass-Through, MediaConnect Flow.
- **NDI** – Enable NDI output on a Channel Source. Supported channels: Pass-Through
- **CDI** – Create CDI output on a Mediaconnect Flow. Supported channels – Pass-through.
- **ST 2110 JPEG XS** – Create ST 2110 JPEG XS output on a Mediaconnect Flow. Supported channels: MediaConnect Flow
- **MediaLive HTTP** - Create an AWS MediaLive output to AWS S3 or AWS MediaStore. Supported channels: MediaLive
- **Entitlement** – Create an entitlement on a MediaConnect flow. Supported channels: MediaConnect Flow

Adding HTTP Targets

ZEN Master supports six types of HTTP Targets:

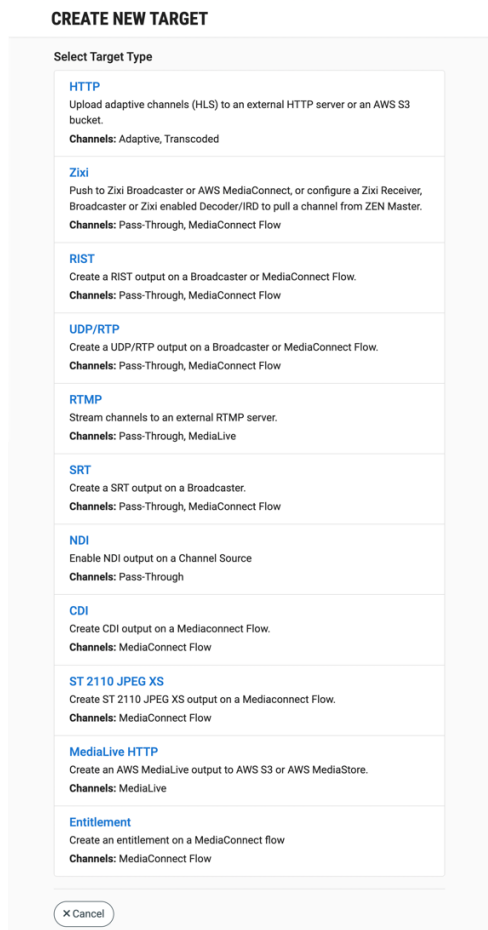
- **HTTP** – the Channel is pushed to any HTTP server via HTTP PUT methods. This option also includes the ability to use secure HTTPS protocol.
- **YouTube** – the channel is pushed to YouTube.
- **S3 Bucket** – the Channel is pushed to an AWS S3 storage service.
- **MediaStore** – the Channel is pushed to an AWS Elemental MediaStore storage service.
- **GCP Storage** – the Channel is pushed to a Google GCP storage service.
- **Azure** – the Channel is pushed to Azure Blob storage.

The following procedure describes how to add an HTTP Target in ZEN Master. In addition, an explanation of each of the configuration parameters is given in the table below.

➔ To add a new HTTP Target:

1. In the main navigation, click **Targets**.
2. Click **+ Add**.

The **Create New Target** window is displayed.



3. Click on **HTTP**.

The **Create New HTTP Target** window is displayed.

CREATE NEW HTTP TARGET

INFO

Name *

Access Tags * ⓘ

Events Configuration Profile

Location ⓘ

CONFIGURATION

Channel ⓘ

Type ⓘ

Encapsulation

Ingest URL *

Playback URL ⓘ

HLS playback/validation URL, output will not be validated if empty

Upload DVR playlist

Delete Outdated

Ignore Certificate

Alert on missing WebVTT captions

INITIAL STATE

Disabled

Muted

ADVANCED +

< Back × Cancel ✓ Save

4. In the **Info** section, in the **Name** field, enter a logical name for the HTTP Target.
5. In the **Tags** field, select one or more of the predefined Tags from the drop-down list. Tags are used for access control. By selecting a Tag, you are relating this Target to that Tag. Tags are associated with certain roles (through the Users & Roles screen), and roles, in turn, are associated with users and user groups. If you would like to create a new Tag, see [CREATING A TAG](#).
6. In the **Events Configuration Profile** field, select from the dropdown list the profile that you would like to apply to this Target. By default, the *Default* profile is applied.



Events Profiles consist of a series of rules that determine precisely how various types of Events are logged and what results they trigger.

7. The Target's location is used to represent it in the proper position in the Map display (see [MAPS](#)). By default, the location is determined automatically based on the Target's IP. If you would like to manually set the location of the Target (Optional), use the following procedure:
 - a. Click on the **Edit** icon next to the **Location** field.
A search box is shown below the **Location** field.
 - b. Enter identifying info for the location (e.g. street address, zip code, coordinates).
Search results are displayed below the search box as you type.
 - c. Click on the desired location.
The selected location populates the **Location** field.
8. In the **Configuration** section, in the **Channel** field, select from the drop-down list the Channel that will be sent to the Target. (Optional field)



The Target will only become functional once a Channel has been assigned to it. However, you can configure the Target settings and then add a Channel to the Target after the initial configuration.

9. In the **Type** field, select one of the following options:
 - HTTP – the Channel is sent to an HTTP server.
 - YouTube – the Channel is sent to YouTube.
 - S3 Bucket – the Channel is sent to an AWS S3 bucket storage service.
 - MediaStore – the Channel is pushed to an AWS Elemental MediaStore storage service.
 - GCP - the Channel is sent to a GCP storage service.
 - Azure – the Channel is pushed to Azure Blob storage.
10. Enter the required information for the selected Target type as follows:
 - For Target type *HTTP* –
 - a. In the **Encapsulation** section, select the type of encapsulation used, options are *HLS* or *CMAF (DASH + fMP4 HLS)*.
 - b. In the **Ingest URL** field, enter the Ingest URL of the HTTP server to which the Channel will be pushed.
 - For Target type YouTube –
 - In the **Encapsulation** section, select *HLS*.
 - In the **Ingest URL** field, enter the Ingest URL provided by YouTube to which the Channel will be pushed.
 - In the **YouTube Stream Key** field, enter the stream key that is provided by YouTube.
 - For Target type *S3 Bucket* –
 - a. In the **Encapsulation** section, select the type of encapsulation used, options are *HLS* or *CMAF (DASH + fMP4 HLS)*.

- b. In the **S3 URI** field, enter the URI of the S3 bucket.
- c. In the **Region** field, select from the drop-down list the AWS Region of the S3 bucket.
- d. In the **Access Key ID** field, enter the Access Key ID used to access your AWS account.
- e. In the **Secret Access Key** field, enter the secret Access Key used to access your AWS account.
- For Target type *MediaStore* –
 - a. In the **Encapsulation** section, select the type of encapsulation used, options are *HLS* or *CMAF (DASH + fMP4 HLS)*.
 - b. In the **MediaStore URI** field, enter the URI of your MediaStore storage service.
 - c. In the **Region** field, select from the drop-down list the AWS region of your storage service.
 - d. In the **Access Key ID** field, enter the access key ID for your MediaStore account.
 - e. In the **Secret Access Key** field, enter the Secret access key ID for your MediaStore account.
- For Target type *GCP* –
 - a. In the **Encapsulation** section, select the type of encapsulation used, options are *HLS* or *CMAF (DASH + fMP4 HLS)*.
 - b. In the **GCP Account** field, select an account from the drop-down list.



To connect a GCP Account to ZEN Master, see [LINKING A GOOGLE GCP ACCOUNT](#).

- c. In the **Ingest URL** field, enter the Ingest URL of the GCP storage service to which the Channel will be pushed.
- For Target type *Azure* –
 - i. In the **Encapsulation** section, select the type of encapsulation used, options are *HLS* or *CMAF (DASH + fMP4 HLS)*.
 - ii. In the **Azure Account** field, select a linked account from the drop-down list.



To connect an Azure Account to ZEN Master, see [LINKING AN AZURE ACCOUNT](#).

- iii. In the **Ingest URL** field, enter the Ingest URL of the Azure storage service to which the Channel will be pushed.

11. In the **Playback URL** field, enter an alternative URL for playback and HLS validation.



For an S3 bucket Target this field is optional, if no URL is entered then ZEN Master will use the URL of the S3 bucket for playback and validation. For an HTTP server Target ZEN Master will not validate the stream or enable playback unless a URL is entered in this field.

12. Select the **Upload DVR playlist** checkbox if you would like to
13. Select the **Delete Outdated** checkbox if you would like ZEN Master to delete any outdated fragments from the server. (Default: selected)
14. In the **Propagate Tags to S3/MediaStore objects**, select this checkbox if you want ZEN Master to create AWS backend tags for the Tags, which were assigned to this HLS target, and propagate them to S3 and/or MediaStore objects. These tags will be applied to the manifest, the chunks, and folders.
15. Select the **Ignore Certificate** checkbox if you are sending the stream to a trusted server which does not have a valid certificate. When this option is selected, the Zixi Broadcaster will ignore TLS certificate errors and send the stream to its destination.
16. If you would like to receive alerts for subtitles missing from the stream, select the **Alert on missing WebVTT captions** checkbox and then in the **Search Window** field, enter the number of seconds of missing subtitles to generate the alert. (Default: 30 seconds)



Even if this checkbox is not selected, ZEN Master will monitor the subtitles and validate them with the stream, but you will not receive notifications for missing subtitles.

17. In the **Initial State** section, select the **Disabled** checkbox if you would like to disable this Target upon initial configuration.
18. Select the **Muted** checkbox if you would like to disable error/recovery notifications for this Target upon initial configuration.



You can Enable/Unmute the Target at any time.

19. If you would like to track usage for this Target, click on **Advanced** and enter your **Billing Code** details, see **BILLING CODES**. (Supported for Broadcasters v14.8+)

The screenshot shows a form titled "ADVANCED" with a minus sign. It contains two input fields: "Billing Code" and "Billing Password". Below these fields is a button labeled "Validate billing code".

20. Click **Save**.

HTTP Target Configuration Parameters Table

Parameter	Description
Info	
Name	Specify a name for the HTTP Target in ZEN Master.
Tags	<p>Select one or more of the predefined Tags from the drop-down list.</p> <p>Tags are used for access control. By selecting a Tag, you are relating this Target to that Tag. Tags are associated with certain roles (through the Users & Roles screen), and roles, in turn, are associated with users and user groups. If you would like to create a new Tag, see CREATING A TAG.</p>
Events Configuration Profile	<p>Select from the dropdown list the profile that you would like to apply to this Target. By default, the <i>Default</i> profile is applied.</p> <p>NOTE: <i>Events Profiles</i> consist of a series of rules that determine precisely how various types of Events are logged and what results they trigger.</p>
Location (Optional)	<p>The Target's location is used to represent it in the proper position in the Map display (see MAPS). By default, the location is determined automatically based on the Target's IP. Enter identifying info for the location (e.g. street address, zip code, coordinates) and select the desired location from the suggestions that are shown.</p>
Configuration	
Channel (Optional)	Select from the drop-down list the Channel that will be sent to the Target.
Type	<p>Select one of the following options:</p> <ol style="list-style-type: none"> 1. HTTP – the Channel is sent to an HTTP server. 2. YouTube - the Channel is sent to YouTube. 3. S3 Bucket – the Channel is sent to an AWS S3 bucket storage service. 4. MediaStore – the Channel is pushed to an AWS Elemental MediaStore storage service. 5. GCP - the Channel is sent to a GCP storage service. 6. Azure – the Channel is pushed to Azure Blob storage.
For HTTP Type	

Targets

Encapsulation	Select the type of encapsulation used. Options are: <i>HLS</i> or <i>CMAF (DASH + fMP4 HLS)</i> .
Ingest URL	Enter the Ingest URL of the HTTP server to which the channel will be pushed.
For YouTube Type	
Encapsulation	Select the type of encapsulation used. Options are <i>HLS only</i> .
Ingest URL	Enter the Ingest URL provided by YouTube to which the Channel will be pushed
YouTube Stream Key	Enter the stream key that is provided by YouTube.
For S3 Bucket Type	
Encapsulation	Select the type of encapsulation used. Options are: <i>HLS</i> or <i>CMAF (DASH + fMP4 HLS)</i> .
S3 URI	Enter the URI of the S3 bucket.
Region	Select from the drop-down list the AWS Region of the S3 bucket.
Access Key ID	Enter the Access Key ID used to access your AWS account.
Secret access Key	Enter the secret Access Key used to access your AWS account.
Propagate Tags to S3/MediaStore objects	Select this checkbox if you want ZEN Master to create AWS backend tags for the Tags, which were assigned to this HLS target, and propagate them to S3 and/or MediaStore objects. These tags will be applied to the manifest, the chunks, and folders.
For MediaStore Type	
Encapsulation	Select the type of encapsulation used. Options are: <i>HLS</i> or <i>CMAF (DASH + fMP4 HLS)</i> .
MediaStore URI	Enter the URI of your MediaStore storage service.
Region	Select from the drop-down list the AWS region of your storage service.
Access Key ID	Enter the Access Key ID for your MediaStore account.
Secret Access Key	Enter the Secret Access Key ID for your MediaStore account.
Propagate Tags to S3/MediaStore objects	Select this checkbox if you want ZEN Master to create AWS backend tags for the Tags, which were assigned to this HLS target, and propagate them to S3 and/or MediaStore objects. These tags will be applied to the manifest, the chunks, and folders.
For GCP Type	

Targets

Encapsulation	Select the type of encapsulation used. Options are: <i>HLS</i> or <i>CMAF (DASH + fMP4 HLS)</i> .
	Select an account from the drop-down list.
GCP Account	NOTE: To connect a GCP Account to ZEN Master, see LINKING A GOOGLE GCP ACCOUNT .
Ingest URL	Enter the Ingest URL of the GCP storage service to which the Channel will be pushed.
For Azure Type	
Encapsulation	Select the type of encapsulation used. Options are: <i>HLS</i> or <i>CMAF (DASH + fMP4 HLS)</i> .
	Select a linked account from the drop-down list.
Azure Account	NOTE: To connect an Azure account to ZEN Master, see LINKING AN AZURE ACCOUNT .
Ingest URL	Enter the Ingest URL of the Azure storage service to which the Channel will be pushed.
For All Types	
	Enter an alternative URL for playback and HLS validation.
Playback URL	NOTE: For an S3 bucket Target this field is optional, if no URL is entered then ZEN Master will use the URL of the S3 bucket for playback and validation. For an HTTP server Target ZEN Master will not validate the stream or enable playback unless a URL is entered in this field.
Upload DVR playlist	
Delete Outdated	Select this checkbox if you would like ZEN Master to delete any outdated fragments from the server. (Default: selected)
Ignore Certificate	Select this checkbox if you are sending the stream to a trusted server which does not have a valid certificate. When this option is selected, the Zixi Broadcaster will ignore TLS certificate errors and send the stream to its destination.
Alert on missing WebVTT captions	If you would like to receive alerts for subtitles missing from the stream, select this checkbox and then in the Search Window field, enter the number of seconds of missing subtitles to generate the alert. (Default: 30 seconds) NOTE: Even if this checkbox is not selected, ZEN Master will monitor the subtitles and validate them with the stream, but you will not receive notifications for missing subtitles.

Targets

Initial State	
Disabled	Select this checkbox if you would like to disable this Target upon initial configuration.
Muted	Select this checkbox if you would like to disable error/recovery notifications for this Target upon initial configuration.
Advanced	
Billing Codes	If you would like to track usage for this Target, enter your Billing Code details, see BILLING CODES . (Supported for Broadcasters v14.8+)

Adding Zixi Pull Targets

ZEN Master enables you to configure Targets to Pull a Channel from a Broadcaster cluster. For resources managed by ZEN Master, the connection configuration is done automatically by ZEN Master. For unmanaged resources you will need to configure the connection manually.

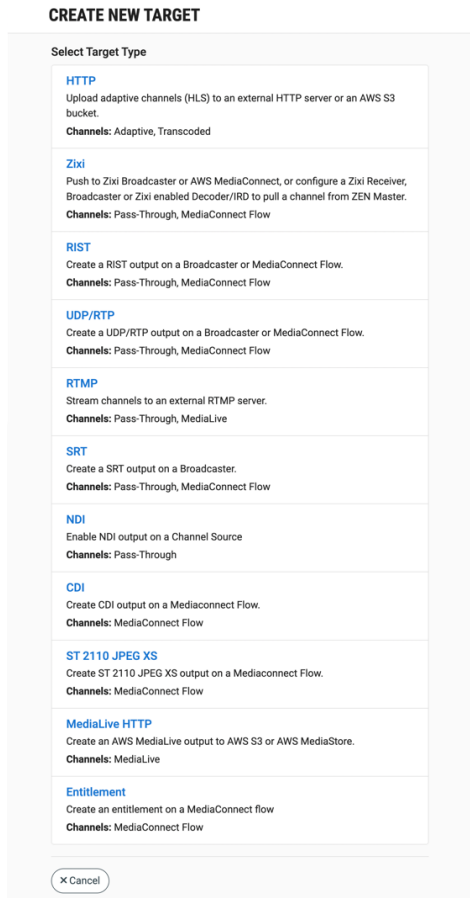
There is an option to create a *Dynamic* Pull Target. This enables you to connect multiple Receivers (or Zixi-enabled decoders) to the same Target. Each Receiver is monitored separately in ZEN Master and is shown as a *Child Target* on the Target page. This provides a MeetMe room type of capability for streaming live events to different organizations on an event by event basis.

The following procedure describes how to add a Zixi Pull Target in ZEN Master. In addition, an explanation of each of the configuration parameters is given in the table below.

➡ To add a new Pull Target:

1. In the main navigation, click **Targets**.

2. Click **+ Add**.
The **Create New Target** window is displayed.



3. Click on **Zixi**.
The **Create New Zixi Target** window is displayed

CREATE NEW ZIXI TARGET

INFO

Name *
dwdw

Access Tags *
12-beta

Events Configuration Profile
Default

Location
Location

CONFIGURATION

Type
Pull Push AWS MediaConnect

Mode
Single Dynamic

Channel Type
ZEN Master Channel AWS MediaConnect Flow

Channel
Matts_Channel_To_MediaConnect @ Matts_AWS_Cluster_03

Source Preference
Any source

Device
 Other Receiver Broadcaster ZEC

Receiver Name/ID *
Receiver Name/ID

Password
Password Random

Latency [ms]
Use Remote Configuration

Encryption
Disabled AES 128 AES 192 AES 256

Prefer Private Broadcaster IP

Failover Mode
 Alternative Hosts - The receiver will pull a single source at a time and will reconnect on error
 Active/Active - The receiver will pull all sources in parallel (hitless when supported)
Not available on all Zixi enabled devices

INITIAL STATE

Disabled
 Muted

ADVANCED

Fallover Latency [ms]
5000
 Use Name as Stream ID

Billing Code
Billing Code

Billing Password
Billing Password
Validate billing code

< Back Cancel Save

4. In the **Info** section, in the **Name** field, enter a logical name for the Pull Target.
5. In the **Tags** field, select one or more of the predefined Tags from the drop-down list.
Tags are used for access control. By selecting a Tag, you are relating this Target to that Tag. Tags are associated with certain roles (through the Users & Roles screen), and roles,

in turn, are associated with users and user groups. If you would like to create a new Tag, see [CREATING A TAG](#).

6. In the **Events Configuration Profile** field, select from the dropdown list the profile that you would like to apply to this Target. By default, the *Default* profile is applied.



Events Profiles consist of a series of rules that determine precisely how various types of Events are logged and what results they trigger.

7. The Target's location is used to represent it in the proper position in the Map display (see [MAPS](#)). By default, the location is determined automatically based on the Target's IP. If you would like to manually set the location of the Target (Optional), use the following procedure:
 - a. Click on the **Edit** icon next to the **Location** field.
A search box is shown below the **Location** field.
 - b. Enter identifying info for the location (e.g. street address, zip code, coordinates).
Search results are displayed below the search box as you type.
 - c. Click on the desired location.
The selected location populates the **Location** field.
8. In the **Type** section, verify that **Pull** is selected (default).
9. In the **Mode** section, select the desired mode. Options are: *Single* or *Dynamic*.



Dynamic Targets enable you to connect multiple Receivers or other Zixi-enabled devices to the same Target.

10. Under **Channel Type**, verify that **ZEN Master Channel** is selected (default).
11. In the **Channel** field, select from the drop-down list the Channel that will be sent to the Target. (Optional field)



The Target will only become functional once a Channel has been assigned to it. However, you can configure the Target settings and then add a Channel to the Target after the initial configuration.

12. In the **Source Preference** field, select one of the following options:
 - **Any Source** – the Target will establish a connection to any available source in the Channel. Upon any disconnects with the current source, the Target will reconnect to another available source in the Channel.
 - **Primary Sources Only** – the Target will establish and maintain connection to a source designated as Primary in the Channel. Upon loss of connection to that source, the Target will establish a connection to another available Primary source in the Channel.
 - **Backup Sources Only** – the Target will establish and maintain connection to a source designated as Backup in the Channel. Upon loss of connection to that source, the Target will establish connection to another available Backup source in the Channel.

- **Prefer Primary Sources** – when this setting is selected, if there is a primary source and a backup source with the same status, ZEN Master will prefer the primary source. However, for example, if the backup source has an OK status and the primary source has a Frozen Video detected error, the backup source will be selected.
- **Prefer Backup Sources** – when this setting is selected, if there is a primary source and a backup source with the same status, ZEN Master will prefer the backup source. However, for example, if the primary source has an OK status and the backup source has a Frozen Video detected error, the backup source will be selected.
- **Specific Source** – select one of the specific sources listed. The Target will only establish a connection to the selected source and will not try to connect to any other source in the Channel.



If it is not possible to select "Prefer Primary Sources" or "Prefer Backup Sources". This means you cannot have a Target failover from a Primary to a Backup source in the Channel unless "Any Source" is selected.

13. In the **Device** section select the device type of the Pull Target. Options are:

- **Other** – a Zixi-enabled device that is not managed in ZEN Master. You will need to manually configure the connection to the device.
- **Receiver** – a Zixi Receiver that is managed in ZEN Master. ZEN will automatically configure the Receiver to pull the Channel.
- **Broadcaster** - a Zixi Broadcaster that is managed in ZEN Master. ZEN will automatically configure the Broadcaster to pull the Channel.
- **ZEC** – a ZEC that is managed in ZEN Master. ZEN ZEN will automatically configure the ZEC to pull the Channel.



This selection as well as the following step are relevant only for *Single* mode. For Dynamic Targets, you will need to connect each Receiver or Zixi-enabled device manually, using the procedure described in [CONNECTING AN UNMANAGED PULL TARGET](#).

14. Enter the required information for the selected device type as follows:

- For device type *Other* –
 - a. In the **Receiver** field, select from the drop-down list a Receiver that is managed by ZEN Master.
 - b. In the **Receiver Name/ID** field, enter the Receiver or Broadcaster name (for a Zixi Receiver/Broadcaster) or Device ID (for other Zixi-enabled device such as IRD or decoder).
 - c. To connect the Zixi-enabled device to ZEN Master follow the procedure described in [CONNECTING AN UNMANAGED PULL TARGET](#).
- For device type *Receiver*–

- a. In the **Receiver** field, select from the drop-down list a Receiver that is managed by ZEN Master.
- b. In the **Receiver Output** field, select one or more of the Receiver's outputs. (Optional field)



If you would like to remove the selected Receiver Output, click on the 'X' in the Receiver Output textbox.

- c. In the **Input NICs** field, if you would like to specify which NICs are used, then select the IPs of one or more NICs from the drop-down list. By default, *Any* is selected.



Multiple NICs are only supported in Active/Active Failover mode.

- For device type *Broadcaster*—
 - a. In the **Broadcaster** field, select from the drop-down list a Broadcaster that is managed by ZEN Master.
 - b. In the **Broadcaster Output** field, select one or more of the Broadcaster's outputs. (Optional field)



If you would like to remove the selected Broadcaster Output, click on the 'X' in the Broadcaster Output textbox.

- c. In the **Input NICs** field, if you would like to specify which NICs are used, then select the IPs of one or more NICs from the drop-down list. By default, *Any* is selected.



Multiple NICs are only supported in Active/Active Failover mode.

- For device type *ZEC*—
 - a. In the **Broadcaster** field, select from the drop-down list a Broadcaster that is managed by ZEN Master.
 - b. In the **ZEC** field, select from the drop-down list a ZEC that is managed by ZEN Master.
 - c. In the **ZEC Output** field, select one or more of the ZEC's outputs. (Optional field)



If you would like to remove the selected ZEC Output, click on the 'X' in the ZEC Output textbox.

- d. In the **Input NICs** field, if you would like to specify which NICs are used, then select the IPs of one or more NICs from the drop-down list. By default, *Any* is selected.



Multiple NICs are only supported in Active/Active Failover mode.

15. In the **Password field**, enter a password for accessing the Channel OR click **Random** to generate a random password. (Optional field)
16. In the **Latency field**, enter the latency in milliseconds OR leave empty to use remote configuration (default).
17. In the **Encryption** section, if you would like to encrypt the stream, select one of the encryption methods. Options are: *Disabled (default)*, *AES 128*, *AES 192* or *AES 256*.
18. If Encryption was selected, in the **Encryption Key** field, enter an encryption key that will be used to encrypt the connection OR click **Random** to generate a random encryption key.
19. Select **Prefer Private Broadcaster IP** if you would like ZEN to configure connections to use private broadcaster IPs when available. The default behavior when this is not selected is to prefer use of public IPs.
20. In the **Failover Mode** section, select the desired mode, options are:
 - **Alternative Hosts** – the receiver pulls a single Source at a time and reconnects when an error occurs. (Default)
 - **Active/Active** - the receiver pulls both Sources together. On v12.2+ Receivers this creates a hitless failover stream. On earlier Receivers it creates two inputs for a single output.



Active/Active mode is only available for outputs that are configured as Hitless Failover.

21. In the **Initial State** section, select the **Disabled** checkbox if you would like to disable this Target upon initial configuration.
22. Select the **Muted** checkbox if you would like to disable error/recovery notifications for this Target upon initial configuration.



You can Enable/Unmute the Target at any time.

23. If you would like to configure Advanced settings, click on **Advanced**. The **Advanced** settings are shown.

ADVANCED —

Failover Latency [ms]
5000

Use Name as Stream ID

Billing Code
Billing Code

Billing Password
Billing Password

Validate billing code

24. In the **Failover Latency [ms]** field, enter the desired latency. Default: 5000 ms.

25. If you would like to use the Target name as the Stream ID, select the **Use Name as Stream ID** checkbox.



The default behavior is that ZEN Master automatically generates the Stream ID. In general, leaving the default behavior is recommended.

26. If you would like to track usage for this Target, enter you **Billing Code** details, see [BILLING CODES](#). (Supported for Broadcasters v14.8+)

27. Click **Save**.

Zixi Pull Target Configuration Parameters Table

Parameter	Description
Info	
Name	Specify a name for the Zixi Pull Target in ZEN Master.
Tags	Select one or more of the predefined Tags from the drop-down list. Tags are used for access control. By selecting a Tag, you are relating this Target to that Tag. Tags are associated with certain roles (through the Users & Roles screen), and roles, in turn, are associated with users and user groups. If you would like to create a new Tag, see CREATING A TAG .
Events Configuration Profile	Select from the dropdown list the profile that you would like to apply to this Target. By default, the <i>Default</i> profile is applied. NOTE: <i>Events Profiles</i> consist of a series of rules that determine precisely how various types of Events are logged and what results they trigger.
Location (Optional)	The Target's location is used to represent it in the proper position in the Map display (see MAPS). By default, the location is determined automatically based on the Target's IP. Enter identifying info for the location (e.g. street address, zip code, coordinates) and select the desired location from the suggestions that are shown.
Configuration	
Type	Verify that Pull is selected (default).

Targets

In the **Mode** section, select the desired mode. Options are:

- | | |
|------|---|
| Mode | <ul style="list-style-type: none">• Single – connect a single Receiver or Zixi-enabled device to this Target.• Dynamic – connect multiple Receiver’s and/or Zixi-enabled devices to this Target. |
|------|---|

Channel Type	Verify that ZEN Master Channel is selected (default).
--------------	--

Channel (Optional)	Select from the drop-down list the Channel that will be sent to the Target. NOTE: The Target will only become functional once a Channel has been assigned to it. However, you can configure the Target settings and then add a Channel to the target after the initial configuration.
-----------------------	---

Select from the drop-down list one of the following:

- **Any Source** – the Target will establish a connection to any available source in the Channel. Upon any disconnects with the current source, the Target will reconnect to another available source in the Channel.
- **Primary Sources Only** – the Target will establish and maintain connection to a source designated as Primary in the Channel. Upon loss of connection to that source, the Target will establish a connection to another available Primary source in the Channel.
- **Backup Sources Only** – the Target will establish and maintain connection to a source designated as Backup in the Channel. Upon loss of connection to that source, the Target will establish connection to another available Backup source in the Channel.
- **Prefer Primary Sources** – when this setting is selected, if there is a primary source and a backup source with the same status, ZEN Master will prefer the primary source. However, for example, if the backup source has an OK status and the primary source has a Frozen Video detected error, the backup source will be selected.
- **Prefer Backup Sources** – when this setting is selected, if there is a primary source and a backup source with the same status, ZEN Master will prefer the backup source. However, for example, if the primary source has an OK status and the backup source has a Frozen Video detected error, the backup source will be selected.
- **Specific Source** – select one of the specific sources listed. The Target will only establish a connection to the selected source and will not try to connect to any other source in the Channel.

Source Preference

Device (for <i>Single</i> mode)	<p>Select the device type of the Pull Target. Options are:</p> <ol style="list-style-type: none"> 1. Other – a Zixi-enabled device that is not managed in ZEN Master. You will need to manually configure the connection to the device. 2. Receiver – a Zixi Receiver that is managed in ZEN Master. ZEN will automatically configure the Receiver to pull the Channel. 3. Broadcaster - a Zixi Broadcaster that is managed in ZEN Master. ZEN will automatically configure the Receiver to pull the Channel. 4. ZEC – a ZEC that is managed in ZEN Master. ZEN will automatically configure the ZEC to pull the Channel.
For Other Device Type	
Receiver Name/ID	<p>Enter the Receiver or Broadcaster name (for a Zixi Receiver/Broadcaster) or Device ID (for other Zixi-enabled device such as IRD or decoder).</p> <p>NOTE: To connect the Zixi-enabled device to ZEN Master follow the procedure described in CONNECTING AN UNMANAGED PULL TARGET.</p>
For Receiver Device Type	
Receiver	Select from the drop-down list a Receiver that is managed by ZEN Master.
Receiver Output (Optional)	<p>Select one or more of the Receiver's outputs.</p> <p>NOTE: If you would like to remove the selected Receiver Output, click on the 'X' in the Receiver Output textbox.</p>
Input NIC	<p>If you would like to specify which NICs are used, then select the IPs of one or more NICs from the drop-down list. By default, <i>Any</i> is selected.</p> <p>NOTE: Multiple NICs are only supported in Active/Active Failover mode.</p>
For Broadcaster Device Type	
Broadcaster	Select from the drop-down list a Broadcaster that is managed by ZEN Master.
Broadcaster Output (Optional)	<p>Select one or more of the Broadcaster's outputs.</p> <p>NOTE: If you would like to remove the selected Broadcaster Output, click on the 'X' in the Broadcaster Output textbox.</p>

Targets

Input NIC	<p>If you would like to specify which NICs are used, then select the IPs of one or more NICs from the drop-down list. By default, <i>Any</i> is selected.</p> <p>NOTE: Multiple NICs are only supported in Active/Active Failover mode.</p>
For ZEC Device Type	
ZEC	Select from the drop-down list a ZEC that is managed by ZEN Master.
ZEC Output	Select one or more of the ZEC's outputs.
(Optional)	<p>NOTE: If you would like to remove the selected ZEC Output, click on the 'X' in the ZEC Output textbox.</p>
Input NIC	<p>If you would like to specify which NICs are used, then select the IPs of one or more NICs from the drop-down list. By default, <i>Any</i> is selected.</p> <p>NOTE: Multiple NICs are only supported in Active/Active Failover mode.</p>
For All Device Types	
Password	Enter a password for accessing the Channel OR click Random to generate a random password.
(Optional)	
Latency [ms]	Enter the latency in milliseconds OR leave empty to use remote configuration (default).
Encryption	If you would like to encrypt the stream, select one of the encryption methods. Options are: <i>Disabled (default)</i> , <i>AES 128</i> , <i>AES 192</i> or <i>AES 256</i> .
Encryption Key	Enter an encryption key that will be used to encrypt the connection OR click Random to generate a random encryption key.
(for Encryption enabled)	
Prefer Private Broadcaster IP	Select this checkbox if you would like ZEN to configure connections to use private broadcaster IPs when available. The default behavior when this is not selected is to prefer use of public IPs.

Targets

Failover Mode	<p>Select the desired mode, options are:</p> <ul style="list-style-type: none">• Alternative Hosts – the receiver pulls a single Source at a time and reconnects when an error occurs. (Default)• Active/Active - the receiver pulls both Sources together. On v12.2+ Receivers this creates a hitless failover stream. On earlier Receivers it creates two inputs for a single output. <p>NOTE: Active/Active mode is only available for outputs that are configured as Hitless Failover.</p>
Initial State	
Disabled	Select this checkbox if you would like to disable this Target upon initial configuration.
Muted	Select this checkbox if you would like to disable error/recovery notifications for this Target upon initial configuration.
Advanced	
Failover Latency [ms]	Specify the desired latency. Default: <i>5000</i> ms.
Use Name as Stream ID	<p>If you would like to use the Target name as the Stream ID, select this checkbox.</p> <p>NOTE: The default behavior is that ZEN Master automatically generates the Stream ID. In general, leaving the default behavior is recommended.</p>
Billing Codes	If you would like to track usage for this Target, enter your Billing Code details, see BILLING CODES . (Supported for Broadcasters v14.8+)

Connecting an Unmanaged Pull Target

If you have added an Unmanaged Pull Target (by selecting *Other* as the device type), then you will need to configure the Zixi-enabled device in order to connect it to ZEN Master. The UI structure varies for different Zixi-enabled devices, however the following settings should be configured to connect to ZEN Master.



For a *Dynamic* Target, you can use the same *Configuration* data for each Receiver (or decoder) that you would like to connect to the Target. Each Receiver must have a unique ID.

➔ To connect a Zixi-enabled device:

1. In **ZEN Master**, in the main navigation, click **Targets**.
2. Select the relevant Target from the list of Targets.
3. In the **Info** pane on the right side of the screen, go to the **Manual Configuration** section.

This tab contains specific configuration settings for the selected Target. Use the values shown for the following parameters to configure the Zixi Enabled device:

Parameter	Description
Host	The IP address/URL of the ZEN Master host.
Port	The port that has been configured in ZEN Master.
Stream ID	The stream name.
Password	The access password that has been configured in ZEN Master.

Adding Zixi Push Targets

ZEN Master enables you to 'push' a Channel to a Zixi Broadcaster. You can configure redundant hosts to ensure consistency. To learn more about redundancy in ZEN Master see [REDUNDANCY IN ZEN MASTER](#).

The following procedure describes how to add a Zixi Push Target in ZEN Master. In addition, an explanation of each of the configuration parameters is given in the table below.

➔ To add a new Push Target:

1. In the main navigation, click **Targets**.

2. Click **+ Add**.
The **Create New Target** window is displayed.

CREATE NEW TARGET

Select Target Type

HTTP Upload adaptive channels (HLS) to an external HTTP server or an AWS S3 bucket. Channels: Adaptive, Transcoded
Zixi Push to Zixi Broadcaster or AWS MediaConnect, or configure a Zixi Receiver, Broadcaster or Zixi enabled Decoder/IRD to pull a channel from ZEN Master. Channels: Pass-Through, MediaConnect Flow
RIST Create a RIST output on a Broadcaster or MediaConnect Flow. Channels: Pass-Through, MediaConnect Flow
UDP/RTP Create a UDP/RTP output on a Broadcaster or MediaConnect Flow. Channels: Pass-Through, MediaConnect Flow
RTMP Stream channels to an external RTMP server. Channels: Pass-Through, MediaLive
SRT Create a SRT output on a Broadcaster. Channels: Pass-Through, MediaConnect Flow
NDI Enable NDI output on a Channel Source Channels: Pass-Through
CDI Create CDI output on a Mediaconnect Flow. Channels: MediaConnect Flow
ST 2110 JPEG XS Create ST 2110 JPEG XS output on a Mediaconnect Flow. Channels: MediaConnect Flow
MediaLive HTTP Create an AWS MediaLive output to AWS S3 or AWS MediaStore. Channels: MediaLive
Entitlement Create an entitlement on a MediaConnect flow Channels: MediaConnect Flow

3. Click on **Zixi**.

The **Create New Zixi Target** configuration window is displayed.

CREATE NEW ZIXI TARGET

INFO

Name *

Access Tags * ⓘ

Events Configuration Profile

Location ⓘ

CONFIGURATION

Type 🔒

Channel Type

Channel ⓘ

Source Preference

Target Host *

Alt. Target Host

Ignore DTLS Certificate

Stream ID *

Password

Latency [ms] *

Encryption

INITIAL STATE

Disabled

Muted

< Back X Cancel ✓ Save

4. In the **Info** section, in the **Name** field, enter a logical name for the Push Target.

5. In the **Tags** field, select one or more of the predefined Tags from the drop-down list. Tags are used for access control. By selecting a Tag, you are relating this Target to that Tag. Tags are associated with certain roles (through the Users & Roles screen), and roles, in turn, are associated with users and user groups. If you would like to create a new Tag, see [CREATING A TAG](#).

6. In the **Events Configuration Profile** field, select from the dropdown list the profile that you would like to apply to this Target. By default, the *Default* profile is applied.



Events Profiles consist of a series of rules that determine precisely how various types of Events are logged and what results they trigger.

7. The Target's location is used to represent it in the proper position in the Map display (see [MAPS](#)). By default, the location is determined automatically based on the Target's IP. If you would like to manually set the location of the Target (Optional), use the following procedure:
 - a. Click on the **Edit** icon next to the **Location** field.
A search box is shown below the **Location** field.
 - b. Enter identifying info for the location (e.g., street address, zip code, coordinates).
Search results are displayed below the search box as you type.
 - c. Click on the desired location.
The selected location populates the **Location** field.
8. In the **Type** section, select **Push**.
The fields relevant for Push Targets are shown.
9. In the **Channel Type** section, verify that the **ZEN Master Channel** is selected (default).
10. In the **Channel** field, select from the drop-down list the Channel that will be sent to the Target. (Optional field)



The Target will only become functional once a Channel has been assigned to it. However, you can configure the Target settings and then add a Channel to the Target after the initial configuration.

11. In the **Source Preference** field, select one of the following options:
 - **Any Source** – the Target will establish a connection to any available source in the Channel. Upon any disconnects with the current source, the Target will reconnect to another available source in the Channel.
 - **Primary Sources Only** – the Target will establish and maintain connection to a source designated as Primary in the Channel. Upon loss of connection to that source, the Target will establish a connection to another available Primary source in the Channel.
 - **Backup Sources Only** – the Target will establish and maintain connection to a source designated as Backup in the Channel. Upon loss of connection to that source, the Target will establish connection to another available Backup source in the Channel.
 - **Specific Source** – the Target will only establish a connection to the source specified by the user and will not try to connect to any other source in the Channel.



It is not possible to select "Prefer Primary Sources" or "Prefer Backup Sources". This means you cannot have a Target failover from a Primary to a Backup source in the Channel unless "Any Source" is selected.

Targets

12. In the **Target Host** field, enter the hostname of the primary Broadcaster.
13. In the **Alt. Target Host** field, enter the hostname of a backup Broadcaster. (Optional field)
14. If you are using DTLS on the server side but don't have access to the certificate, then select the **Ignore DTLS Certificate** checkbox.



Even when this option is selected, the stream is still transmitted in the encrypted format, you are only losing the ability to verify the identity of the source.

15. In the **Stream ID** field, enter the stream ID as defined in the Broadcaster.
16. In the **Password** field, enter a password for accessing the stream. (Optional field)
17. In the **Latency [ms]** field, enter the latency in milliseconds.
18. In the **Encryption** section, if you would like to encrypt the stream, select one of the encryption methods. Options are: *Disabled (default)*, *AES 128*, *AES 192* or *AES 256*.
19. If one of the **Encryption** methods was selected, in the **Encryption Key** field, enter an encryption key that will be used to encrypt the connection OR click **Random** to generate a random encryption key.
20. In the **Initial State** section, select the **Disabled** checkbox if you would like to disable this Target upon initial configuration.
21. Select the **Muted** checkbox if you would like to disable error/recovery notifications for this Target upon initial configuration.



You can Enable/Unmute the Target at any time.

22. If you would like to configure the Maximum Transmission Unit (largest data packet that a network-connected device will accept) for the pulling of the stream, click on **Advanced** and enter the MTU in bytes in the **MTU** field.

ADVANCED —

MTU

< Back

× Cancel

✓ Save

23. Click **Save**.

Zixi Push Target Configuration Parameters Table

Parameter	Description
Info	
Name	Specify a name for the Zixi Push Target in ZEN Master.
Tags	<p>Select one or more of the predefined Tags from the drop-down list.</p> <p>Tags are used for access control. By selecting a Tag, you are relating this Target to that Tag. Tags are associated with certain roles (through the Users & Roles screen), and roles, in turn, are associated with users and user groups. If you would like to create a new Tag, see CREATING A TAG.</p>
Events Configuration Profile	<p>Select from the dropdown list the profile that you would like to apply to this Target. By default, the <i>Default</i> profile is applied.</p> <p>NOTE: <i>Events</i> Profiles consist of a series of rules that determine precisely how various types of Events are logged and what results they trigger.</p>
Location (Optional)	<p>The Target's location is used to represent it in the proper position in the Map display (see MAPS). By default, the location is determined automatically based on the Target's IP. Enter identifying info for the location (e.g., street address, zip code, coordinates) and select the desired location from the suggestions that are shown.</p>
Configuration	
Type	Select Push .
Channel Type	Verify that ZEN Master Channel is selected (default).
Channel (Optional)	<p>Select from the drop-down list the Channel that will be sent to the Target.</p> <p>NOTE: The Target will only become functional once a Channel has been assigned to it. However, you can configure the Target settings and then add a Channel to the target after the initial configuration.</p>

Select from the drop-down list one of the following:

- Source Preference
- **Any Source** – the Target will establish a connection to any available source in the Channel. Upon any disconnects with the current source, the Target will reconnect to another available source in the Channel.
 - **Primary Sources Only** – the Target will establish and maintain connection to a source designated as Primary in the Channel. Upon loss of connection to that source, the Target will establish a connection to another available Primary source in the Channel.
 - **Backup Sources Only** – the Target will establish and maintain connection to a source designated as Backup in the Channel. Upon loss of connection to that source, the Target will establish connection to another available Backup source in the Channel.
 - **Specific Source** – the Target will only establish a connection to the source specified by the user and will not try to connect to any other source in the Channel.

NOTE: It is not possible to select "Prefer Primary Sources" or "Prefer Backup Sources". This means you cannot have a Target failover from a Primary to a Backup source in the Channel unless "Any Source" is selected.

Target Host	Enter the hostname of the primary Broadcaster.
Alt. Target Host (Optional)	Enter the hostname of a backup Broadcaster.
Ignore DTLS Certificate	If you are using DTLS on the server side but don't have access to the certificate, then select this checkbox. NOTE: Even when this option is selected, the stream is still transmitted in the encrypted format, you are only losing the ability to verify the identity of the source.
Stream ID	Enter the Stream ID as defined in the Broadcaster.
Password (Optional)	Enter a password for accessing the stream.
Latency [ms]	Enter the latency in milliseconds.
Encryption	If you would like to encrypt the stream, select one of the encryption methods. Options are: <i>Disabled (default)</i> , <i>AES 128</i> , <i>AES 192</i> or <i>AES 256</i> .

Targets

Encryption Key (for Encryption enabled)	Enter an encryption key that will be used to encrypt the connection OR click Random to generate a random encryption key.
--	---

Initial State

Disabled	Select this checkbox if you would like to disable this Target upon initial configuration.
----------	---

Muted	Select this checkbox if you would like to disable error/recovery notifications for this Target upon initial configuration.
-------	--

Advanced

MTU	Specify the maximum transmission unit (largest data packet that a network-connected device will accept) in bytes for the pulling of the stream.
-----	---

Adding AWS MediaConnect Targets

You can configure an AWS MediaConnect "Flow" that has already been set up in your MediaConnect account to be used as a Target in ZEN Master.



In order to use this feature, you must first link ZEN Master to an AWS account, see [LINKING AN AWS ACCOUNT](#).

The following procedure describes how to add an AWS MediaConnect Target in ZEN Master. In addition, an explanation of each of the configuration parameters is given in the table below.

➔ To add a new MediaConnect Target:

1. In the main navigation, click **Targets**.
2. Click **+ Add**.
The **Create New Target** window is displayed.

CREATE NEW TARGET

Select Target Type

HTTP Upload adaptive channels (HLS) to an external HTTP server or an AWS S3 bucket. Channels: Adaptive, Transcoded
Zixi Push to Zixi Broadcaster or AWS MediaConnect, or configure a Zixi Receiver, Broadcaster or Zixi enabled Decoder/IRD to pull a channel from ZEN Master. Channels: Pass-Through, MediaConnect Flow
RIST Create a RIST output on a Broadcaster or MediaConnect Flow. Channels: Pass-Through, MediaConnect Flow
UDP/RTP Create a UDP/RTP output on a Broadcaster or MediaConnect Flow. Channels: Pass-Through, MediaConnect Flow
RTMP Stream channels to an external RTMP server. Channels: Pass-Through, MediaLive
SRT Create a SRT output on a Broadcaster. Channels: Pass-Through, MediaConnect Flow
NDI Enable NDI output on a Channel Source Channels: Pass-Through
CDI Create CDI output on a Mediaconnect Flow. Channels: MediaConnect Flow
ST 2110 JPEG XS Create ST 2110 JPEG XS output on a Mediaconnect Flow. Channels: MediaConnect Flow
MediaLive HTTP Create an AWS MediaLive output to AWS S3 or AWS MediaStore. Channels: MediaLive
Entitlement Create an entitlement on a MediaConnect flow Channels: MediaConnect Flow

X Cancel

3. Click on **Zixi**.

The **Create New Zixi Target** configuration window is displayed.

CREATE NEW ZIXI TARGET

INFO

Name *

Access Tags * ⓘ

Events Configuration Profile

Location ⓘ

CONFIGURATION

Type 🔒

Channel Type

Channel ⓘ

Source Preference

AWS Account *

Region *

AWS MediaConnect Flow *

Latency [ms] *

INITIAL STATE

Disabled

Muted

< Back ✕ Cancel ✓ Save

4. In the **Info** section, in the **Name** field, enter a logical name for the MediaConnect Target.

5. In the **Tags** field, select one or more of the predefined Tags from the drop-down list.

Tags are used for access control. By selecting a Tag, you are relating this Target to that Tag. Tags are associated with certain roles (through the Users & Roles screen), and roles, in turn, are associated with users and user groups. If you would like to create a new Tag, see [CREATING A TAG](#).

6. In the **Events Configuration Profile** field, select from the dropdown list the profile that you would like to apply to this Target. By default, the *Default* profile is applied.



Events Profiles consist of a series of rules that determine precisely how various types of Events are logged and what results they trigger.

7. The Target's location is used to represent it in the proper position in the Map display (see [MAPS](#)). By default, the location is determined automatically based on the Target's IP. If you would like to manually set the location of the Target (Optional), use the following procedure:
 - a. Click on the **Edit** icon next to the **Location** field.
A search box is shown below the **Location** field.
 - b. Enter identifying info for the location (e.g. street address, zip code, coordinates).
Search results are displayed below the search box as you type.
 - c. Click on the desired location.
The selected location populates the **Location** field.
8. In the **Configuration** section, under **Type**, select **AWS MediaConnect**.
The fields relevant for MediaConnect Targets are shown.



The **Channel Type** is automatically set as *ZEN Master Channel* and can't be changed.

9. In the **Channel** field, select from the drop-down list the Channel that will be sent to the Target. (Optional field)



The Target will only become functional once a Channel has been assigned to it. However, you can configure the Target settings and then add a Channel to the Target after the initial configuration.

10. In the **Source Preference** field, select one of the following options:
 - **Any Source** – the Target will establish a connection to any available source in the Channel. Upon any disconnects with the current source, the Target will reconnect to another available source in the Channel.
 - **Primary Sources Only** – the Target will establish and maintain connection to a source designated as Primary in the Channel. Upon loss of connection to that source, the Target will establish a connection to another available Primary source in the Channel.
 - **Backup Sources Only** – the Target will establish and maintain connection to a source designated as Backup in the Channel. Upon loss of connection to that source, the Target will establish connection to another available Backup source in the Channel.
 - **Specific Source** – the Target will only establish a connection to the source specified by the user and will not try to connect to any other source in the Channel.



It is not possible to select "Prefer Primary Sources" or "Prefer Backup Sources". This means you cannot have a Target failover from a Primary to a Backup source in the Channel unless "Any Source" is selected.

11. In the **AWS Account** field, select from the drop-down list the AWS account that you would like to set as the Target.

Targets

12. In the **Region** field, select from the drop-down list the AWS region of the MediaConnect flow that you would like to set as the Target.
13. In the **AWS MediaConnect Flow** field, select from the drop-down list the MediaConnect Flow that you would like to set as the Target.
14. In the **Latency [ms]** field, enter the latency in milliseconds.
15. In the **Initial State** section, select the **Disabled** checkbox if you would like to disable this Target upon initial configuration.
16. Select the **Muted** checkbox if you would like to disable error/recovery notifications for this Target upon initial configuration.



You can Enable/Unmute the Target at any time.

17. Click **Save**.



You can verify that the new Target was created by viewing the Source tab in the MediaConnect UI.

AWS MediaConnect Target Configuration Parameters Table

Parameter	Description
Info	
Name	Specify a name for the AWS MediaConnect Target in ZEN Master.
	Select one or more of the predefined Tags from the drop-down list.
Tags	Tags are used for access control. By selecting a Tag, you are relating this Target to that Tag. Tags are associated with certain roles (through the Users & Roles screen), and roles, in turn, are associated with users and user groups. If you would like to create a new Tag, see CREATING A TAG .
Events Configuration Profile	Select from the dropdown list the profile that you would like to apply to this Target. By default, the <i>Default</i> profile is applied. NOTE: <i>Events Profiles</i> consist of a series of rules that determine precisely how various types of Events are logged and what results they trigger.

Targets

Location (Optional)	The Target's location is used to represent it in the proper position in the Map display (see MAPS). By default, the location is determined automatically based on the Target's IP. Enter identifying info for the location (e.g. street address, zip code, coordinates) and select the desired location from the suggestions that are shown.
Configuration	
Type	Select AWS MediaConnect .
Channel (Optional)	Select from the drop-down list the Channel that will be sent to the Target. NOTE: The Target will only become functional once a Channel has been assigned to it. However, you can configure the Target settings and then add a Channel to the target after the initial configuration.
Source Preference	Select from the drop-down list one of the following: <ul style="list-style-type: none">• Any Source – the Target will establish a connection to any available source in the Channel. Upon any disconnects with the current source, the Target will reconnect to another available source in the Channel.• Primary Sources Only – the Target will establish and maintain connection to a source designated as Primary in the Channel. Upon loss of connection to that source, the Target will establish a connection to another available Primary source in the Channel.• Backup Sources Only – the Target will establish and maintain connection to a source designated as Backup in the Channel. Upon loss of connection to that source, the Target will establish connection to another available Backup source in the Channel.• Specific Source – the Target will only establish a connection to the source specified by the user and will not try to connect to any other source in the Channel. NOTE: It is not possible to select "Prefer Primary Sources" or "Prefer Backup Sources". This means you cannot have a Target failover from a Primary to a Backup source in the Channel unless "Any Source" is selected.
AWS Account	Select from the drop-down list the AWS account that you would like to set as the Target.

Targets

Region	Select from the drop-down list the AWS region of the MediaConnect flow that you would like to set as the Target.
AWS MediaConnect Flow	Select from the drop-down list the MediaConnect Flow that you would like to set as the Target.
Latency [ms]	Enter the latency in milliseconds.
<i>Initial State</i>	
Disabled	Select this checkbox if you would like to disable this Target upon initial configuration.
Muted	Select this checkbox if you would like to disable error/recovery notifications for this Target upon initial configuration.

Adding RIST Targets

ZEN Master enables you to create a RIST output on a Broadcaster or MediaConnect Flow. You can configure redundant hosts to ensure consistency. To learn more about redundancy in ZEN Master see [REDUNDANCY IN ZEN MASTER](#).

The following procedure describes how to add a RIST Target in ZEN Master. In addition, an explanation of each of the configuration parameters is given in the table below.

➔ To add a new RIST Target:

1. In the main navigation, click **Targets**.

2. Click **+ Add**.
The **Create New Target** window is displayed.

CREATE NEW TARGET

Select Target Type

HTTP Upload adaptive channels (HLS) to an external HTTP server or an AWS S3 bucket. Channels: Adaptive, Transcoded
Zixi Push to Zixi Broadcaster or AWS MediaConnect, or configure a Zixi Receiver, Broadcaster or Zixi enabled Decoder/IRD to pull a channel from ZEN Master. Channels: Pass-Through, MediaConnect Flow
RIST Create a RIST output on a Broadcaster or MediaConnect Flow. Channels: Pass-Through, MediaConnect Flow
UDP/RTP Create a UDP/RTP output on a Broadcaster or MediaConnect Flow. Channels: Pass-Through, MediaConnect Flow
RTMP Stream channels to an external RTMP server. Channels: Pass-Through, MediaLive
SRT Create a SRT output on a Broadcaster. Channels: Pass-Through, MediaConnect Flow
NDI Enable NDI output on a Channel Source Channels: Pass-Through
CDI Create CDI output on a Mediaconnect Flow. Channels: MediaConnect Flow
ST 2110 JPEG XS Create ST 2110 JPEG XS output on a Mediaconnect Flow. Channels: MediaConnect Flow
MediaLive HTTP Create an AWS MediaLive output to AWS S3 or AWS MediaStore. Channels: MediaLive
Entitlement Create an entitlement on a MediaConnect flow Channels: MediaConnect Flow

3. Click on **RIST**.

The **Create New RIST Target** configuration window is displayed.

CREATE NEW RIST TARGET

INFO

Name *

Access Tags * ⓘ

Events Configuration Profile

Location ⓘ

CONFIGURATION

Channel Type

ZEN Master Channel | AWS MediaConnect Flow

Channel ⓘ

Source Preference

Profile

Simple | Main

Host/IP *

Port *

Bind to local NIC by CIDR

SMPTE 2022 FEC

Disabled | 1D | 2D

Remux Bitrate [kbps]

Remux Mode

Pad | Remux

INITIAL STATE

Disabled

Muted

ADVANCED +

< Back | Cancel | Save

4. In the **Info** section, in the **Name** field, enter a logical name for the RIST Target.
5. In the **Tags** field, select one or more of the predefined Tags from the drop-down list. Tags are used for access control. By selecting a Tag, you are relating this Target to that Tag. Tags are associated with certain roles (through the Users & Roles screen), and roles, in turn, are associated with users and user groups. If you would like to create a new Tag, see [CREATING A TAG](#).
6. In the **Events Configuration Profile** field, select from the dropdown list the profile that you would like to apply to this Target. By default, the *Default* profile is applied.



Events Profiles consist of a series of rules that determine precisely how various types of Events are logged and what results they trigger.

7. The Target's location is used to represent it in the proper position in the Map display (see [MAPS](#)). By default, the location is determined automatically based on the Target's IP. If you would like to manually set the location of the Target (Optional), use the following procedure:
 - a. Click on the **Edit** icon next to the **Location** field.
A search box is shown below the **Location** field.
 - b. Enter identifying info for the location (e.g. street address, zip code, coordinates).
Search results are displayed below the search box as you type.
 - c. Click on the desired location.
The selected location populates the **Location** field.
8. In the **Configuration** section, under **Channel Type**, select the type of Channel that the Target will receive. Options are: *ZEN Master Channel* or *MediaConnect Flow*.
9. In the **Channel** field, select from the drop-down list the Channel that will be sent to the Target. (Optional field)



The Target will only become functional once a Channel has been assigned to it. However, you can configure the Target settings and then add a Channel to the Target after the initial configuration.

10. In the **Source Preference** field, select one of the following options:
 - **Any Source** – the Target will establish a connection to any available source in the Channel. Upon any disconnects with the current source, the Target will reconnect to another available source in the Channel.
 - **Primary Sources Only** – the Target will establish and maintain connection to a source designated as Primary in the Channel. Upon loss of connection to that source, the Target will establish a connection to another available Primary source in the Channel.
 - **Backup Sources Only** – the Target will establish and maintain connection to a source designated as Backup in the Channel. Upon loss of connection to that source, the Target will establish connection to another available Backup source in the Channel.
 - **Specific Source** – the Target will only establish a connection to the source specified by the user and will not try to connect to any other source in the Channel.



It is not possible to select "Prefer Primary Sources" or "Prefer Backup Sources". This means you cannot have a Target failover from a Primary to a Backup source in the Channel unless "Any Source" is selected.

11. Under **Profile**, select the RIST profile to be used. Options are *Simple* or *Main*.

12. In the **Host/IP** field, enter the hostname or IP address of the Broadcaster or MediaConnect Flow.
13. In the **Port** field, enter the Target port on the receiving device.
14. In the **Bind to local NIC by CIDR** field, enter the CIDR that represents the IP range where the desired NIC is accessed.
15. Select the **DTLS** checkbox if you would like to encrypt the stream dynamically using DTLS. (This option is only available if you are using Main profile. This feature is only supported for Broadcasters running v12.2+.)
16. In the **SMPTE 2022 FEC** section, select the desired error correction method. Options are: *Disabled (default), 1D or 2D*.
17. If you selected *1D* or *2D* for the FEC, then fill in the desired number of rows and columns. *Default values: 10x10*.
18. In the **Remux Bitrate** field, enter the desired bitrate (in kbps).
19. In the **Initial State** section, select the **Disabled** checkbox if you would like to disable this Target upon initial configuration.
20. Select the **Muted** checkbox if you would like to disable error/recovery notifications for this Target upon initial configuration.



You can Enable/Unmute the Target at any time.

21. If you would like to configure Advanced settings, click on **Advanced**. The **Advanced** settings are shown.

ADVANCED —

Billing Code

Billing Password

Validate billing code

MTU

22. If you would like to track usage for this Target, enter your **Billing Code** details, see [BILLING CODES](#). (Supported for Broadcasters v14.8+)
23. If you would like to configure the Maximum Transmission Unit (largest data packet that a network-connected device will accept) for the pulling of the stream, enter the MTU in bytes in the **MTU** field.
24. Click **Save**.

RIST Target Configuration Parameters Table

Parameter	Description
Info	
Name	Specify a name for the RIST Target in ZEN Master.
Tags	<p>Select one or more of the predefined Tags from the drop-down list.</p> <p>Tags are used for access control. By selecting a Tag, you are relating this Target to that Tag. Tags are associated with certain roles (through the Users & Roles screen), and roles, in turn, are associated with users and user groups. If you would like to create a new Tag, see CREATING A TAG.</p>
Events Configuration Profile	<p>Select from the dropdown list the profile that you would like to apply to this Target. By default, the <i>Default</i> profile is applied.</p> <p>NOTE: <i>Events Profiles</i> consist of a series of rules that determine precisely how various types of Events are logged and what results they trigger.</p>
Location (Optional)	<p>The Target's location is used to represent it in the proper position in the Map display (see MAPS). By default, the location is determined automatically based on the Target's IP. Enter identifying info for the location (e.g. street address, zip code, coordinates) and select the desired location from the suggestions that are shown.</p>
Configuration	
Channel Type	<p>Select the type of Channel that the Target will receive. Options are: <i>ZEN Master Channel</i> or <i>MediaConnect Flow</i>.</p>
Channel (Optional)	<p>Select from the drop-down list the Channel that will be sent to the Target.</p> <p>NOTE: The Target will only become functional once a Channel has been assigned to it. However, you can configure the Target settings and then add a Channel to the target after the initial configuration.</p>

Select from the drop-down list one of the following:

Source Preference

- **Any Source** – the Target will establish a connection to any available source in the Channel. Upon any disconnects with the current source, the Target will reconnect to another available source in the Channel.
- **Primary Sources Only** – the Target will establish and maintain connection to a source designated as Primary in the Channel. Upon loss of connection to that source, the Target will establish a connection to another available Primary source in the Channel.
- **Backup Sources Only** – the Target will establish and maintain connection to a source designated as Backup in the Channel. Upon loss of connection to that source, the Target will establish connection to another available Backup source in the Channel.
- **Specific Source** – the Target will only establish a connection to the source specified by the user and will not try to connect to any other source in the Channel.

NOTE: It is not possible to select "Prefer Primary Sources" or "Prefer Backup Sources". This means you cannot have a Target failover from a Primary to a Backup source in the Channel unless "Any Source" is selected.

Profile	Select the RIST profile to be used. Options are <i>Simple</i> or <i>Main</i> .
Host/IP	Enter the hostname or IP address of the Broadcaster or MediaConnect Flow.
Port	Enter the Target port on the receiving device.
Bind to local NIC by CIDR	Enter the CIDR that represents the IP range where the desired NIC is accessed.
DTLS (for Main)	Select this checkbox if you would like to encrypt the stream dynamically using DTLS. (This feature is only supported for Broadcasters running v12.2+.)
SMPTE 2022 FEC	Select the desired error correction method. Options are: <i>Disabled (default)</i> , <i>1D</i> or <i>2D</i> . If you selected <i>1D</i> or <i>2D</i> for the FEC, then fill in the desired number of rows and columns. <i>Default values: 10x10</i> .
Remux Bitrate [kbps]	Specify the desired bitrate (in kbps)
Initial State	

Targets

Disabled	Select this checkbox if you would like to disable this Target upon initial configuration.
Muted	Select this checkbox if you would like to disable error/recovery notifications for this Target upon initial configuration.
<i>Advanced</i>	
Billing Codes	If you would like to track usage for this Target, enter your Billing Code details, see BILLING CODES . (Supported for Broadcasters v14.8+)
MTU	Specify the maximum transmission unit (largest data packet that a network-connected device will accept) in bytes for the pulling of the stream.

Adding UDP/RTP Targets

ZEN Master enables you to configure a UDP/RTP output on a Broadcaster or MediaConnect Flow. You can configure redundant hosts to ensure consistency. To learn more about redundancy in ZEN Master see [REDUNDANCY IN ZEN MASTER](#).

The following procedure describes how to add a UDP/RTP Target in ZEN Master. In addition, an explanation of each of the configuration parameters is given in the table below.

➔ To add a new UDP/RTP Target:

1. In the main navigation, click **Targets**.
2. Click **+ Add**.

The **Create New Target** window is displayed.

CREATE NEW TARGET

Select Target Type

HTTP Upload adaptive channels (HLS) to an external HTTP server or an AWS S3 bucket. Channels: Adaptive, Transcoded
Zixi Push to Zixi Broadcaster or AWS MediaConnect, or configure a Zixi Receiver, Broadcaster or Zixi enabled Decoder/IRD to pull a channel from ZEN Master. Channels: Pass-Through, MediaConnect Flow
RIST Create a RIST output on a Broadcaster or MediaConnect Flow. Channels: Pass-Through, MediaConnect Flow
UDP/RTP Create a UDP/RTP output on a Broadcaster or MediaConnect Flow. Channels: Pass-Through, MediaConnect Flow
RTMP Stream channels to an external RTMP server. Channels: Pass-Through, MediaLive
SRT Create a SRT output on a Broadcaster. Channels: Pass-Through, MediaConnect Flow
NDI Enable NDI output on a Channel Source Channels: Pass-Through
CDI Create CDI output on a Mediaconnect Flow. Channels: MediaConnect Flow
ST 2110 JPEG XS Create ST 2110 JPEG XS output on a Mediaconnect Flow. Channels: MediaConnect Flow
MediaLive HTTP Create an AWS MediaLive output to AWS S3 or AWS MediaStore. Channels: MediaLive
Entitlement Create an entitlement on a MediaConnect flow Channels: MediaConnect Flow

- Click on **UDP/RTP**.
The **Create New UDP/RTP Target** configuration window is displayed.

CREATE NEW UDP/RTP TARGET

INFO

Name *

Tags * ⓘ

Events Configuration Profile

Location ⓘ

 ✎

CONFIGURATION

Channel Type

ZEN Master Channel
AWS MediaConnect Flow
MediaLive Channel

Channel ⓘ

Source Preference

Host/IP * **Port ***

Bind to local NIC by CIDR **TTL**

RTP

Remux Bitrate [kbps]

Remux Mode

Pad
Remux

INITIAL STATE

Disabled

Muted

ADVANCED +

< Back
✕ Cancel
✔ Save

- In the **Info** section, in the **Name** field, enter a logical name for the UDP/RTP Push Target.
- In the **Tags** field, select one or more of the predefined Tags from the drop-down list. Tags are used for access control. By selecting a Tag, you are relating this Target to that Tag. Tags are associated with certain roles (through the Users & Roles screen), and roles, in turn, are associated with users and user groups. If you would like to create a new Tag, see [CREATING A TAG](#).

6. In the **Events Configuration Profile** field, select from the dropdown list the profile that you would like to apply to this Target. By default, the *Default* profile is applied.



Events Profiles consist of a series of rules that determine precisely how various types of Events are logged and what results they trigger.

7. The Target's location is used to represent it in the proper position in the Map display (see [MAPS](#)). By default, the location is determined automatically based on the Target's IP. If you would like to manually set the location of the Target (Optional), use the following procedure:
 - a. Click on the **Edit** icon next to the **Location** field.
A search box is shown below the **Location** field.
 - b. Enter identifying info for the location (e.g. street address, zip code, coordinates).
Search results are displayed below the search box as you type.
 - c. Click on the desired location.
The selected location populates the **Location** field.
8. In the **Configuration** section, under **Channel Type**, select the type of Channel that the Target will receive. Options are: *ZEN Master Channel* or *MediaConnect Flow*.
9. In the **Channel** field, select from the drop-down list the Channel that will be sent to the Target. (Optional field)



The Target will only become functional once a Channel has been assigned to it. However, you can configure the Target settings and then add a Channel to the Target after the initial configuration.

10. In the **Source Preference** field, select one of the following options:
 - **Any Source** – the Target will establish a connection to any available source in the Channel. Upon any disconnects with the current source, the Target will reconnect to another available source in the Channel.
 - **Primary Sources Only** – the Target will establish and maintain connection to a source designated as Primary in the Channel. Upon loss of connection to that source, the Target will establish a connection to another available Primary source in the Channel.
 - **Backup Sources Only** – the Target will establish and maintain connection to a source designated as Backup in the Channel. Upon loss of connection to that source, the Target will establish connection to another available Backup source in the Channel.
 - **Specific Source** – the Target will only establish a connection to the source specified by the user and will not try to connect to any other source in the Channel.



It is not possible to select "Prefer Primary Sources" or "Prefer Backup Sources". This means you cannot have a Target failover from a Primary to a Backup source in the Channel unless "Any Source" is selected.

11. In the **Host/IP** field, enter the hostname or IP address of the Broadcaster or MediaConnect Flow.
12. In the **Port** field, enter the Target port on the receiving device.
13. In the **Bind to local NIC by CIDR** field, enter the CIDR that represents the IP range where the desired NIC is accessed.
14. In the **TTL** field, specify the desired TTL value.
15. If your receiving device is configured for RTP, then select the **RTP** checkbox.
16. If you selected **RTP**, then in the **SMPTE 2022 FEC** section, select the desired error correction method. Options are: *Disabled (default), 1D or 2D*.
17. If you selected *1D* or *2D* for the FEC, then fill in the desired number of rows and columns. *Default values: 10x10*.
18. In the **Transcoding Profile** field (MediaLive Channel option), select a transcoding profile from the drop-down menu.
19. In the **Remux Bitrate** field, enter the desired bitrate (in kbps).
20. In the **Initial State** section, select the **Disabled** checkbox if you would like to disable this Target upon initial configuration.
21. Select the **Muted** checkbox if you would like to disable error/recovery notifications for this Target upon initial configuration.



You can Enable/Unmute the Target at any time.

22. If you would like to configure Advanced settings, click on **Advanced**. The **Advanced** settings are shown.

ADVANCED —

Billing Code

Billing Password

Validate billing code

MTU

23. If you would like to track usage for this Target, enter your **Billing Code** details, see [BILLING CODES](#). (Supported for Broadcasters v14.8+)
24. If you would like to configure the Maximum Transmission Unit (largest data packet that a network-connected device will accept) for the pulling of the stream, enter the MTU in bytes in the **MTU** field.
25. Click **Save**.

UDP/RTP Target Configuration Parameters Table

Parameter	Description
Info	
Name	Specify a name for the UDP/RTP Target in ZEN Master.
Tags	<p>Select one or more of the predefined Tags from the drop-down list.</p> <p>Tags are used for access control. By selecting a Tag, you are relating this Target to that Tag. Tags are associated with certain roles (through the Users & Roles screen), and roles, in turn, are associated with users and user groups. If you would like to create a new Tag, see CREATING A TAG.</p>
Events Configuration Profile	<p>Select from the dropdown list the profile that you would like to apply to this Target. By default, the <i>Default</i> profile is applied.</p> <p>NOTE: <i>Events Profiles</i> consist of a series of rules that determine precisely how various types of Events are logged and what results they trigger.</p>
Location (Optional)	<p>The Target's location is used to represent it in the proper position in the Map display (see MAPS). By default, the location is determined automatically based on the Target's IP. Enter identifying info for the location (e.g. street address, zip code, coordinates) and select the desired location from the suggestions that are shown.</p>
Configuration	
Channel Type	<p>Select the type of Channel that the Target will receive. Options are: <i>ZEN Master Channel</i>, <i>MediaConnect Flow</i>, or <i>MediaLive Channel</i>.</p>

Select from the drop-down list one of the following:

- Source Preference
- **Any Source** – the Target will establish a connection to any available source in the Channel. Upon any disconnects with the current source, the Target will reconnect to another available source in the Channel.
 - **Primary Sources Only** – the Target will establish and maintain connection to a source designated as Primary in the Channel. Upon loss of connection to that source, the Target will establish a connection to another available Primary source in the Channel.
 - **Backup Sources Only** – the Target will establish and maintain connection to a source designated as Backup in the Channel. Upon loss of connection to that source, the Target will establish connection to another available Backup source in the Channel.
 - **Specific Source** – the Target will only establish a connection to the source specified by the user and will not try to connect to any other source in the Channel.

NOTE: It is not possible to select "Prefer Primary Sources" or "Prefer Backup Sources". This means you cannot have a Target failover from a Primary to a Backup source in the Channel unless "Any Source" is selected.

Channel

Select from the drop-down list the Channel that will be sent to the Target.

(Optional)

NOTE: The Target will only become functional once a Channel has been assigned to it. However, you can configure the Target settings and then add a Channel to the target after the initial configuration.

Host/IP	Enter the hostname or IP address of the Broadcaster or MediaConnect Flow.
Port	Enter the Target port on the receiving device.
Bind to local NIC by CIDR	Enter the CIDR that represents the IP range where the desired NIC is accessed.
TTL	Specify the desired TTL value.
RTP	If your receiving device is configured for RTP, select this checkbox.

Targets

SMPTE 2022 FEC (for RTP selected)	Select the desired error correction method. Options are: <i>Disabled (default), 1D or 2D.</i> If you selected <i>1D</i> or <i>2D</i> for the FEC, then fill in the desired number of rows and columns. <i>Default values: 10x10.</i>
Transcoding Profile (MediaLive Channel option)	Select the desired transcoding profile from the drop-down menu.
Remux Bitrate [kbps]	Specify the desired bitrate (in kbps)
Initial State	
Disabled	Select this checkbox if you would like to disable this Target upon initial configuration.
Muted	Select this checkbox if you would like to disable error/recovery notifications for this Target upon initial configuration.
Advanced	
Billing Codes	If you would like to track usage for this Target, enter your Billing Code details, see BILLING CODES . (Supported for Broadcasters v14.8+)
MTU	Specify the maximum transmission unit (largest data packet that a network-connected device will accept) in bytes for the pulling of the stream.

Adding RTMP Targets

ZEN Master enables you to ‘Push’ a Channel to an RTMP server. You can configure redundant RTMP hosts to ensure consistency. To learn more about redundancy in ZEN Master see [REDUNDANCY IN ZEN MASTER](#).

The following procedure describes how to add an RTMP Target in ZEN Master. In addition, an explanation of each of the configuration parameters is given in the table below.

➔ To add a new RTMP Target:

1. In the main navigation, click **Targets**.
2. Click **+ Add**.
The **Create New Target** window is displayed.

CREATE NEW TARGET

Select Target Type

HTTP Upload adaptive channels (HLS) to an external HTTP server or an AWS S3 bucket. Channels: Adaptive, Transcoded
Zixi Push to Zixi Broadcaster or AWS MediaConnect, or configure a Zixi Receiver, Broadcaster or Zixi enabled Decoder/IRD to pull a channel from ZEN Master. Channels: Pass-Through, MediaConnect Flow
RIST Create a RIST output on a Broadcaster or MediaConnect Flow. Channels: Pass-Through, MediaConnect Flow
UDP/RTP Create a UDP/RTP output on a Broadcaster or MediaConnect Flow. Channels: Pass-Through, MediaConnect Flow
RTMP Stream channels to an external RTMP server. Channels: Pass-Through, MediaLive
SRT Create a SRT output on a Broadcaster. Channels: Pass-Through, MediaConnect Flow
NDI Enable NDI output on a Channel Source Channels: Pass-Through
CDI Create CDI output on a Mediaconnect Flow. Channels: MediaConnect Flow
ST 2110 JPEG XS Create ST 2110 JPEG XS output on a Mediaconnect Flow. Channels: MediaConnect Flow
MediaLive HTTP Create an AWS MediaLive output to AWS S3 or AWS MediaStore. Channels: MediaLive
Entitlement Create an entitlement on a MediaConnect flow Channels: MediaConnect Flow

- Click on **RTMP**.
The **Create New RTMP Target** configuration window is displayed.

CREATE NEW RTMP TARGET

INFO

Name *

Access Tags *

Events Configuration Profile

Location

CONFIGURATION

Channel Type

Channel

Source Preference

Single Output
Single Output mode provides less redundancy but is required for servers that do not properly support concurrent connections

Target *

Alt. Target

Stream Name *

Username

Password

INITIAL STATE

Disabled

Muted

ADVANCED

Billing Code

Billing Password

Validate billing code

< Back X Cancel Save

- In the **Info** section, in the **Name** field, enter a logical name for the RTMP Target.
- In the **Tags** field, select one or more of the predefined Tags from the drop-down list. Tags are used for access control. By selecting a Tag, you are relating this Target to that Tag. Tags are associated with certain roles (through the Users & Roles screen), and roles, in turn, are associated with users and user groups. If you would like to create a new Tag, see [CREATING A TAG](#).
- In the **Events Configuration Profile** field, select from the dropdown list the profile that you would like to apply to this Target. By default, the *Default* profile is applied.



Events Profiles consist of a series of rules that determine precisely how various types of Events are logged and what results they trigger.

7. The Target's location is used to represent it in the proper position in the Map display (see [MAPS](#)). By default, the location is determined automatically based on the Target's IP. If you would like to manually set the location of the Target (Optional), use the following procedure:
 - a. Click on the **Edit** icon next to the **Location** field.
A search box is shown below the **Location** field.
 - b. Enter identifying info for the location (e.g. street address, zip code, coordinates).
Search results are displayed below the search box as you type.
 - c. Click on the desired location.
The selected location populates the **Location** field.
8. In the **Configuration** section, under **Channel Type**, select the type of Channel that the Target will receive. Options are: *ZEN Master Channel* or *MediaConnect Flow*.
9. In the **Channel** field, select from the drop-down list the Channel that will be sent to the Target. (optional field)



The Target will only become functional once a Channel has been assigned to it. However, you can configure the Target settings and then add a Channel to the Target after the initial configuration.

10. In the **Source Preference** field, select one of the following options:
 - **Any Source** – the Target will establish a connection to any available source in the Channel. Upon any disconnects with the current source, the Target will reconnect to another available source in the Channel.
 - **Primary Sources Only** – the Target will establish and maintain connection to a source designated as Primary in the Channel. Upon loss of connection to that source, the Target will establish a connection to another available Primary source in the Channel.
 - **Backup Sources Only** – the Target will establish and maintain connection to a source designated as Backup in the Channel. Upon loss of connection to that source, the Target will establish connection to another available Backup source in the Channel.
 - **Specific Source** – the Target will only establish a connection to the source specified by the user and will not try to connect to any other source in the Channel.



It is not possible to select "Prefer Primary Sources" or "Prefer Backup Sources". This means you cannot have a Target failover from a Primary to a Backup source in the Channel unless "Any Source" is selected.

11. In the **Single Output** checkbox, select the Single Output mode if you want there to be a single output. This option provides less redundancy but is required for servers that do not properly support concurrent connections.
12. If you have selected the *AWS MediaLive Channel* as the channel type option, in the **Transcoding Profile** field, select the desired transcoding profile.
13. In the **Target** field, enter the URL of the primary RTMP server.
14. In the **Alt. Target** field, enter the URL of a backup RTMP server. (Optional field)
15. In the **Stream Name** field, enter the RTMP stream name as defined in the RTMP server (Target).
16. In the **Username** field, enter the RTMP stream access credentials – User name.
17. In the **Password** field, enter the RTMP stream access credentials – Password. Click **show** to display the password.
18. In the **Initial State** section, select the **Disabled** checkbox if you would like to disable this Target upon initial configuration.
19. Select the **Muted** checkbox if you would like to disable error/recovery notifications for this Target upon initial configuration.



You can Enable/Unmute the Target at any time.

20. If you would like to track usage for this Target, click on **Advanced** and enter your **Billing Code** details, see [BILLING CODES](#). (Supported for Broadcasters v14.8+)

ADVANCED –

Billing Code

Billing Password

21. Click **Save**.

RTMP Target Configuration Parameters Table

Parameter	Description
Info	
Name	Specify a name for the RTMP Target in ZEN Master.

Targets

Tags	<p>Select one or more of the predefined Tags from the drop-down list.</p> <p>Tags are used for access control. By selecting a Tag, you are relating this Target to that Tag. Tags are associated with certain roles (through the Users & Roles screen), and roles, in turn, are associated with users and user groups. If you would like to create a new Tag, see CREATING A TAG.</p>
Events Configuration Profile	<p>Select from the dropdown list the profile that you would like to apply to this Target. By default, the <i>Default</i> profile is applied.</p> <p>NOTE: <i>Events Profiles</i> consist of a series of rules that determine precisely how various types of Events are logged and what results they trigger.</p>
Location (Optional)	<p>The Target's location is used to represent it in the proper position in the Map display (see MAPS). By default, the location is determined automatically based on the Target's IP. Enter identifying info for the location (e.g. street address, zip code, coordinates) and select the desired location from the suggestions that are shown.</p>
Configuration	
Channel Type	<p>Select the type of Channel that the Target will receive. Options are: <i>ZEN Master Channel</i> or <i>AWS MediaLive Channel</i>.</p>
Channel (Optional)	<p>Select from the drop-down list the Channel that will be sent to the Target.</p> <p>NOTE: The Target will only become functional once a Channel has been assigned to it. However, you can configure the Target settings and then add a Channel to the target after the initial configuration.</p>

Targets

Select from the drop-down list one of the following:

- Source Preference
- **Any Source** – the Target will establish a connection to any available source in the Channel. Upon any disconnects with the current source, the Target will reconnect to another available source in the Channel.
 - **Primary Sources Only** – the Target will establish and maintain connection to a source designated as Primary in the Channel. Upon loss of connection to that source, the Target will establish a connection to another available Primary source in the Channel.
 - **Backup Sources Only** – the Target will establish and maintain connection to a source designated as Backup in the Channel. Upon loss of connection to that source, the Target will establish connection to another available Backup source in the Channel.
 - **Specific Source** – the Target will only establish a connection to the source specified by the user and will not try to connect to any other source in the Channel.

NOTE: It is not possible to select "Prefer Primary Sources" or "Prefer Backup Sources". This means you cannot have a Target failover from a Primary to a Backup source in the Channel unless "Any Source" is selected.

Single Output

Select the Single Output mode if you want there to be a single output. This option provides less redundancy but is required for servers that do not properly support concurrent connections

Transcoding Profile (AWS MediaLive Channel)

Select the desired transcoding profile.

Target

Enter the URL of the primary RTMP server.

Alt. Target
(Optional)

Enter the URL of a backup RTMP server.

Stream Name

Enter the RTMP stream name as defined in the RTMP server (Target).

Username

Enter the RTMP stream access credentials – User name.

Password

Enter the RTMP stream access credentials – Password. Click **show** to display the password.

Initial State

Targets

Disabled	Select this checkbox if you would like to disable this Target upon initial configuration.
Muted	Select this checkbox if you would like to disable error/recovery notifications for this Target upon initial configuration.
<i>Advanced</i>	
Billing Codes	If you would like to track usage for this Target, enter your Billing Code details, see BILLING CODES . (Supported for Broadcasters v14.8+)

Adding SRT Targets

ZEN Master can send a Source directly to an SRT Pull Target.



When this method is used, the stream is not protected by the Zixi protocol.

The following procedure describes how to add an SRT Target in ZEN Master. In addition, an explanation of each of the configuration parameters is given in the table below.

➔ To add a new SRT Target:

1. In the main navigation, click **Targets**.
2. Click **+ Add**.

The **Create New Target** window is displayed.

CREATE NEW TARGET

Select Target Type

HTTP Upload adaptive channels (HLS) to an external HTTP server or an AWS S3 bucket. Channels: Adaptive, Transcoded
Zixi Push to Zixi Broadcaster or AWS MediaConnect, or configure a Zixi Receiver, Broadcaster or Zixi enabled Decoder/IRD to pull a channel from ZEN Master. Channels: Pass-Through, MediaConnect Flow
RIST Create a RIST output on a Broadcaster or MediaConnect Flow. Channels: Pass-Through, MediaConnect Flow
UDP/RTP Create a UDP/RTP output on a Broadcaster or MediaConnect Flow. Channels: Pass-Through, MediaConnect Flow
RTMP Stream channels to an external RTMP server. Channels: Pass-Through, MediaLive
SRT Create a SRT output on a Broadcaster. Channels: Pass-Through, MediaConnect Flow
NDI Enable NDI output on a Channel Source Channels: Pass-Through
CDI Create CDI output on a Mediaconnect Flow. Channels: MediaConnect Flow
ST 2110 JPEG XS Create ST 2110 JPEG XS output on a Mediaconnect Flow. Channels: MediaConnect Flow
MediaLive HTTP Create an AWS MediaLive output to AWS S3 or AWS MediaStore. Channels: MediaLive
Entitlement Create an entitlement on a MediaConnect flow Channels: MediaConnect Flow

- Click on **SRT**.
The **Create New SRT Target** configuration window is displayed.

CREATE NEW SRT TARGET

INFO

Name *

Access Tags * ⓘ

Events Configuration Profile

Location ⓘ

CONFIGURATION

Channel Type

Channel ⓘ

Source Preference

Type 🔒

Port * Bind to local NIC by CIDR

Latency [ms] *

Password

Encryption

Prefer Private Broadcaster IP

INITIAL STATE

ADVANCED +

< Back × Cancel ✓ Save

- In the **Info** section, in the **Name** field, enter a logical name for the SRT Target.
- In the **Tags** field, select one or more of the predefined Tags from the drop-down list. Tags are used for access control. By selecting a Tag, you are relating this Target to that Tag. Tags are associated with certain roles (through the Users & Roles screen), and roles,

in turn, are associated with users and user groups. If you would like to create a new Tag, see [CREATING A TAG](#).

6. In the **Events Configuration Profile** field, select from the dropdown list the profile that you would like to apply to this Target. By default, the *Default* profile is applied.



Events Profiles consist of a series of rules that determine precisely how various types of Events are logged and what results they trigger.

7. The Target's location is used to represent it in the proper position in the Map display (see [MAPS](#)). By default, the location is determined automatically based on the Target's IP. If you would like to manually set the location of the Target (Optional), use the following procedure:
 - a. Click on the **Edit** icon next to the **Location** field.
A search box is shown below the **Location** field.
 - b. Enter identifying info for the location (e.g. street address, zip code, coordinates).
Search results are displayed below the search box as you type.
 - c. Click on the desired location.
The selected location populates the **Location** field.
8. In the **Configuration** section, under **Channel Type**, select the type of Channel that the Target will receive. Options are: *ZEN Master Channel* or *AWS MediaConnect Flow*.



The Target will only become functional once a Channel has been assigned to it. However, you can configure the Target settings and then add a Channel to the Target after the initial configuration.

9. If you selected *Zen Master Channel*, skip to step 14.
If you selected *AWS MediaConnect Flow*, follow steps 9-13, then skip to step 23.
10. For a *MediaConnect Flow*, under **AWS MediaConnect Flow**, select a flow from the dropdown list.
11. For a *MediaConnect Flow* in the **Port** field, enter the port number of the receiving end.
12. For a *MediaConnect Flow*, in the **CIDR Allow List** field, enter the range of IP addresses that should be allowed to contribute content to your source.



The whitelist CIDR block is a range of IP addresses that should be allowed to contribute content to your source. These IP addresses must be in the form of a Classless Inter-Domain Routing (CIDR) block; for example, 10.0.0.0/16. The source needs to be in the range covered by this CIDR block. Any IP address within this range is allowed to send content to this flow.

13. For a *MediaConnect Flow*, in the **Latency [ms]** field, enter the latency in milliseconds.
14. For a *Zen Master Channel*, in the **Channel** field, select from the drop-down list the Channel that will be sent to the Target. (Optional field)
15. For a *Zen Master Channel*, in the **Source Preference** field, select one of the following options:

- **Any Source** – the Target will establish a connection to any available source in the Channel. Upon any disconnects with the current source, the Target will reconnect to another available source in the Channel.
- **Primary Sources Only** – the Target will establish and maintain connection to a source designated as Primary in the Channel. Upon loss of connection to that source, the Target will establish a connection to another available Primary source in the Channel.
- **Backup Sources Only** – the Target will establish and maintain connection to a source designated as Backup in the Channel. Upon loss of connection to that source, the Target will establish connection to another available Backup source in the Channel.
- **Specific Source** – the Target will only establish a connection to the source specified by the user and will not try to connect to any other source in the Channel.



It is not possible to select "Prefer Primary Sources" or "Prefer Backup Sources". This means you cannot have a Target failover from a Primary to a Backup source in the Channel unless "Any Source" is selected.

16. For a *Zen Master Channel*, under **Type**, select the method for sending the stream. Options are: *Push (Caller)* or *Pull (Listener)*.
17. For a *Zen Master Channel*, if you selected *Pull (Listener)* method, then do the following
 - a. In the **Port** field, enter the port that the server will listen on.
 - b. In the **Bind to local NIC by CIDR** field, you can enter the CIDR that represents the IP range where the desired NIC is accessed. (Optional)
18. For a *Zen Master Channel*, if you selected *Push (Caller)* method, then do the following:
 - a. In the **Host** field, enter the hostname or IP address of the receiving device.
 - b. In the **Port** field, enter the target port on the receiving device.
19. For a *Zen Master Channel*, in the **Latency [ms]** field, enter the latency in milliseconds.
20. For a *Zen Master Channel*, in the **Password** field, enter the SRT stream access credentials – Password. Click **show** to display the password.
21. For a *Zen Master Channel*, under **Encryption**, if you would like to encrypt the stream, select one of the encryption methods. Options are: *Disabled (default)*, *AES 128*, *AES 192* or *AES 256*.



The encryption and decryption for SRT Targets is done automatically based on the password string, there is no need to enter a decryption key on the Target input.

Targets

22. For a *Zen Master Channel*, if *Pull (Listener)* method was selected, select the **Prefer Private Broadcaster IP** checkbox if you would like ZEN to configure connections to use private broadcaster IPs when available. The default behavior when this is not selected is to prefer the use of public IPs.
23. For a *Zen Master Channel*, if *Push (Caller)* method was selected, select the **Single Output** checkbox if you would like to limit the output to a single stream.



This setting is required for servers that do not properly support concurrent connections.



By selecting **Single Output** you will be losing Failover functionality.

24. In the **Initial State** section, select the **Disabled** checkbox if you would like to disable this Target upon initial configuration.
25. Select the **Muted** checkbox if you would like to disable error/recovery notifications for this Target upon initial configuration.



You can Enable/Unmute the Target at any time.

26. If you would like to track usage for this Target, click on **Advanced** and enter your **Billing Code** details, see [BILLING CODES](#). (Supported for Broadcasters v14.8+)

ADVANCED —

Billing Code

Billing Password

27. Click **Save**.

SRT Target Configuration Parameters Table

Parameter	Description
Info	
Name	Specify a name for the SRT Target in ZEN Master.
Tags	Select one or more of the predefined Tags from the drop-down list. Tags are used for access control. By selecting a Tag, you are relating this Target to that Tag. Tags are associated with certain roles (through the Users & Roles screen), and roles, in turn, are associated with users and user groups. If you would like to create a new Tag, see CREATING A TAG .
Events Configuration Profile	Select from the dropdown list the profile that you would like to apply to this Target. By default, the <i>Default</i> profile is applied. NOTE: <i>Events Profiles</i> consist of a series of rules that determine precisely how various types of Events are logged and what results they trigger.
Location (Optional)	The Target's location is used to represent it in the proper position in the Map display (see MAPS). By default, the location is determined automatically based on the Target's IP. Enter identifying info for the location (e.g. street address, zip code, coordinates) and select the desired location from the suggestions that are shown.
Configuration	
Channel Type	Select the type of Channel that the Target will receive. Options are: <i>ZEN Master Channel</i> or <i>AWS MediaConnect Flow</i> .
For <i>AWS MediaConnect Flow</i> :	
AWS MediaConnect	Select an AWS MediaConnect Flow from the drop-down list.
Port	Enter the number of the port on the receiving end
CIDR Allow List	Enter the range of IP addresses that should be allowed to contribute content to your source. NOTE: These IP addresses must be in the form of a Classless Inter-Domain Routing (CIDR) block; for example, 10.0.0.0/16. The source needs to be in the range covered by this CIDR block. Any IP address within this range is allowed to send content to this flow.
For <i>Zen Master Channel</i> :	

Targets


Type	Select the method for receiving the stream. Options are: <i>Push (Caller)</i> or <i>Pull (Listener)</i> .
Channel (Optional)	Select from the drop-down list the Channel that will be sent to the Target. NOTE: The Target will only become functional once a Channel has been assigned to it. However, you can configure the Target settings and then add a Channel to the target after the initial configuration.
Source Preference	Select from the drop-down list one of the following: <ul style="list-style-type: none">• Any Source – the Target will establish a connection to any available source in the Channel. Upon any disconnects with the current source, the Target will reconnect to another available source in the Channel.• Primary Sources Only – the Target will establish and maintain connection to a source designated as Primary in the Channel. Upon loss of connection to that source, the Target will establish a connection to another available Primary source in the Channel.• Backup Sources Only – the Target will establish and maintain connection to a source designated as Backup in the Channel. Upon loss of connection to that source, the Target will establish connection to another available Backup source in the Channel.• Specific Source – the Target will only establish a connection to the source specified by the user and will not try to connect to any other source in the Channel. NOTE: It is not possible to select "Prefer Primary Sources" or "Prefer Backup Sources". This means you cannot have a Target failover from a Primary to a Backup source in the Channel unless "Any Source" is selected.
For Pull (Listener) Method (Zen Master Channel Only):	
Port	Enter the Target port on the receiving device.
Bind to local NIC by CIDR	Enter the CIDR that represents the IP range where the desired NIC is accessed.
For Push (Caller) Method (Zen Master Channel Only):	
Host	Enter the hostname or IP address of the receiving device.
Port	Enter the Target port on the receiving device.
For All Methods:	

Targets


Latency [ms] (<i>Zen Master Channel Only</i>)	Enter the latency in milliseconds.
Password (<i>Zen Master Channel Only</i>)	Enter the SRT stream access credentials – Password. Click show to display the password.
Encryption (<i>Zen Master Channel Only</i>)	If you would like to encrypt the stream, select one of the encryption methods. Options are: <i>Disabled (default)</i> , <i>AES 128</i> , <i>AES 192</i> or <i>AES 256</i> . NOTE: The encryption and decryption for SRT Targets is done automatically based on the password string, there is no need to enter a decryption key on the Target input.
Prefer Private Broadcaster IP (for <i>Pull (Listener) method</i>)	Select this checkbox if you would like ZEN to configure connections to use private broadcaster IPs when available. The default behavior when this is not selected is to prefer use of public IPs.
Initial State	
Disabled	Select this checkbox if you would like to disable this Target upon initial configuration.
Muted	Select this checkbox if you would like to disable error/recovery notifications for this Target upon initial configuration.
Advanced	
Billing Codes	If you would like to track usage for this Target, enter your Billing Code details, see BILLING CODES . (Supported for Broadcasters v14.8+)

Adding NDI Targets

You can enable NDI output on a Pass-Through Channel Source.



NDI Targets are only supported on v14+ broadcasters



NDI Targets us only the primary Source of a Channel.

The following procedure describes how to add an NDI Target in ZEN Master. In addition, an explanation of each of the configuration parameters is given in the table below.

➔ To add a new NDI Target:

1. In the main navigation, click **Targets**.

2. Click **+ Add**.
The **Create New Target** window is displayed.

CREATE NEW TARGET

Select Target Type

HTTP Upload adaptive channels (HLS) to an external HTTP server or an AWS S3 bucket. Channels: Adaptive, Transcoded
Zixi Push to Zixi Broadcaster or AWS MediaConnect, or configure a Zixi Receiver, Broadcaster or Zixi enabled Decoder/IRD to pull a channel from ZEN Master. Channels: Pass-Through, MediaConnect Flow
RIST Create a RIST output on a Broadcaster or MediaConnect Flow. Channels: Pass-Through, MediaConnect Flow
UDP/RTP Create a UDP/RTP output on a Broadcaster or MediaConnect Flow. Channels: Pass-Through, MediaConnect Flow
RTMP Stream channels to an external RTMP server. Channels: Pass-Through, MediaLive
SRT Create a SRT output on a Broadcaster. Channels: Pass-Through, MediaConnect Flow
NDI Enable NDI output on a Channel Source Channels: Pass-Through
CDI Create CDI output on a Mediaconnect Flow. Channels: MediaConnect Flow
ST 2110 JPEG XS Create ST 2110 JPEG XS output on a Mediaconnect Flow. Channels: MediaConnect Flow
MediaLive HTTP Create an AWS MediaLive output to AWS S3 or AWS MediaStore. Channels: MediaLive
Entitlement Create an entitlement on a MediaConnect flow Channels: MediaConnect Flow

- Click on **NDI**.
The **Create New NDI Target** window is displayed.

CREATE NEW NDI TARGET

INFO

Name *

Access Tags * ⓘ

Events Configuration Profile

Location ⓘ

CONFIGURATION

Channel ⓘ

Source Preference

INITIAL STATE

Disabled

Muted

- In the **Info** section, in the **Name** field, enter a logical name for the NDI Target.
- In the **Tags** field, select one or more of the predefined Tags from the drop-down list. Tags are used for access control. By selecting a Tag, you are relating this Target to that Tag. Tags are associated with certain roles (through the Users & Roles screen), and roles, in turn, are associated with users and user groups. If you would like to create a new Tag, see [CREATING A TAG](#).
- In the **Events Configuration Profile** field, select from the dropdown list the profile that you would like to apply to this Target. By default, the *Default* profile is applied.



Events Profiles consist of a series of rules that determine precisely how various types of Events are logged and what results they trigger.

- The Target's location is used to represent it in the proper position in the Map display (see [MAPS](#)). By default, the location is determined automatically based on the Target's IP. If you would like to manually set the location of the Target (Optional), use the following procedure:
 - Click on the **Edit** icon next to the **Location** field.
A search box is shown below the **Location** field.
 - Enter identifying info for the location (e.g. street address, zip code, coordinates).
Search results are displayed below the search box as you type.

- c. Click on the desired location.
The selected location populates the **Location** field.
8. In the **Configuration** section, in the **Channel** field, select from the drop-down list the Channel that will be sent to the Target. (Optional field)



The Target will only become functional once a Channel has been assigned to it. However, you can configure the Target settings and then add a Channel to the Target after the initial configuration.

9. In the **Source Preference** field, select one of the following options:
 - **Any Source** – the Target will establish a connection to any available source in the Channel. Upon any disconnects with the current source, the Target will reconnect to another available source in the Channel.
 - **Primary Sources Only** – the Target will establish and maintain connection to a source designated as Primary in the Channel. Upon loss of connection to that source, the Target will establish a connection to another available Primary source in the Channel.
 - **Backup Sources Only** – the Target will establish and maintain connection to a source designated as Backup in the Channel. Upon loss of connection to that source, the Target will establish connection to another available Backup source in the Channel.
 - **Specific Source** – the Target will only establish a connection to the source specified by the user and will not try to connect to any other source in the Channel.



It is not possible to select "Prefer Primary Sources" or "Prefer Backup Sources". This means you cannot have a Target failover from a Primary to a Backup source in the Channel unless "Any Source" is selected.

10. In the **Initial State** section, select the **Disabled** checkbox if you would like to disable this Target upon initial configuration.
11. Select the **Muted** checkbox if you would like to disable error/recovery notifications for this Target upon initial configuration.



You can Enable/Unmute the Target at any time.

12. Click **Save**.

NDI Target Configuration Parameters Table

Parameter	Description
Info	
Name	Specify a name for the NDI Target in ZEN Master.
Tags	<p>Select one or more of the predefined Tags from the drop-down list.</p> <p>Tags are used for access control. By selecting a Tag, you are relating this Target to that Tag. Tags are associated with certain roles (through the Users & Roles screen), and roles, in turn, are associated with users and user groups. If you would like to create a new Tag, see CREATING A TAG.</p>
Events Configuration Profile	<p>Select from the dropdown list the profile that you would like to apply to this Target. By default, the <i>Default</i> profile is applied.</p> <p>NOTE: <i>Events Profiles</i> consist of a series of rules that determine precisely how various types of Events are logged and what results they trigger.</p>
Location (Optional)	<p>The Target's location is used to represent it in the proper position in the Map display (see MAPS). By default, the location is determined automatically based on the Target's IP. Enter identifying info for the location (e.g. street address, zip code, coordinates) and select the desired location from the suggestions that are shown.</p>
Configuration	
Channel (Optional)	<p>Select from the drop-down list the Channel that will be sent to the Target.</p> <p>NOTE: The Target will only become functional once a Channel has been assigned to it. However, you can configure the Target settings and then add a Channel to the target after the initial configuration.</p>

Select from the drop-down list one of the following:

- Source Preference
- **Any Source** – the Target will establish a connection to any available source in the Channel. Upon any disconnects with the current source, the Target will reconnect to another available source in the Channel.
 - **Primary Sources Only** – the Target will establish and maintain connection to a source designated as Primary in the Channel. Upon loss of connection to that source, the Target will establish a connection to another available Primary source in the Channel.
 - **Backup Sources Only** – the Target will establish and maintain connection to a source designated as Backup in the Channel. Upon loss of connection to that source, the Target will establish connection to another available Backup source in the Channel.
 - **Specific Source** – the Target will only establish a connection to the source specified by the user and will not try to connect to any other source in the Channel.

NOTE: It is not possible to select "Prefer Primary Sources" or "Prefer Backup Sources". This means you cannot have a Target failover from a Primary to a Backup source in the Channel unless "Any Source" is selected.

Initial State	
Disabled	Select this checkbox if you would like to disable this Target upon initial configuration.
Muted	Select this checkbox if you would like to disable error/recovery notifications for this Target upon initial configuration.

Adding CDI Targets

CDI targets are supported only on Flows that have an EFA VPC interface with a CDI or JPEG XS Source. You can configure an AWS MediaConnect "Flow" that has already been set up in your MediaConnect account to be used in the CDI Target in ZEN Master.



In order to use this feature, you must first link ZEN Master to an AWS account, see [LINKING AN AWS ACCOUNT](#).

The following procedure describes how to add an CDI Target in ZEN Master. In addition, an explanation of each of the configuration parameters is given in the table below.

➔ **To add a new CDI Target:**

1. In the main navigation, click **Targets**.

2. Click **+ Add**.
The **Create New Target** window is displayed.

CREATE NEW TARGET

Select Target Type

HTTP Upload adaptive channels (HLS) to an external HTTP server or an AWS S3 bucket. Channels: Adaptive, Transcoded
Zixi Push to Zixi Broadcaster or AWS MediaConnect, or configure a Zixi Receiver, Broadcaster or Zixi enabled Decoder/IRD to pull a channel from ZEN Master. Channels: Pass-Through, MediaConnect Flow
RIST Create a RIST output on a Broadcaster or MediaConnect Flow. Channels: Pass-Through, MediaConnect Flow
UDP/RTP Create a UDP/RTP output on a Broadcaster or MediaConnect Flow. Channels: Pass-Through, MediaConnect Flow
RTMP Stream channels to an external RTMP server. Channels: Pass-Through, MediaLive
SRT Create a SRT output on a Broadcaster. Channels: Pass-Through, MediaConnect Flow
NDI Enable NDI output on a Channel Source Channels: Pass-Through
CDI Create CDI output on a Mediaconnect Flow. Channels: MediaConnect Flow
ST 2110 JPEG XS Create ST 2110 JPEG XS output on a Mediaconnect Flow. Channels: MediaConnect Flow
MediaLive HTTP Create an AWS MediaLive output to AWS S3 or AWS MediaStore. Channels: MediaLive
Entitlement Create an entitlement on a MediaConnect flow Channels: MediaConnect Flow

- Click on **Zixi**.

The **Create New CDI Target** configuration window is displayed.

CREATE NEW CDI TARGET

INFO

Name *

Access Tags * ⓘ

Events Configuration Profile

CONFIGURATION

MediaConnect Flow ⓘ

CDI targets are supported only on Flows that have an EFA VPC interface with a CDI or JPEG XS Source.

IP * Port *

INITIAL STATE

Disabled

Muted

- In the **Info** section, in the **Name** field, enter a logical name for the CDI Target.
- In the **Tags** field, select one or more of the predefined Tags from the drop-down list. Tags are used for access control. By selecting a Tag, you are relating this Target to that Tag. Tags are associated with certain roles (through the Users & Roles screen), and roles, in turn, are associated with users and user groups. If you would like to create a new Tag, see [CREATING A TAG](#).
- In the **Events Configuration Profile** field, select from the dropdown list the profile that you would like to apply to this Target. By default, the *Default* profile is applied.



Events Profiles consist of a series of rules that determine precisely how various types of Events are logged and what results they trigger.

- Under the **Configuration** section, in the **AWS MediaConnect Flow** field, select from the drop-down list a MediaConnect Flow that have an EFA VPC interface with a CDI or JPEG XS Source.
- In the **IP** and **Port** fields, specify the connection details to the CDI target.
- In the **Initial State** section, select the **Disabled** checkbox if you would like to disable this Target upon initial configuration.

Targets

10. Select the **Muted** checkbox if you would like to disable error/recovery notifications for this Target upon initial configuration.



You can Enable/Unmute the Target at any time.

11. Click **Save**.



You can verify that the new Target was created by viewing the Source tab in the MediaConnect UI.

CDI Target Configuration Parameters Table

Parameter	Description
Info	
Name	Specify a name for the CDI Target in ZEN Master.
Tags	Select one or more of the predefined Tags from the drop-down list. Tags are used for access control. By selecting a Tag, you are relating this Target to that Tag. Tags are associated with certain roles (through the Users & Roles screen), and roles, in turn, are associated with users and user groups. If you would like to create a new Tag, see CREATING A TAG .
Events Configuration Profile	Select from the dropdown list the profile that you would like to apply to this Target. By default, the <i>Default</i> profile is applied. NOTE: <i>Events Profiles</i> consist of a series of rules that determine precisely how various types of Events are logged and what results they trigger.
Configuration	
MediaConnect Flow	Select from the drop-down list a MediaConnect Flow that have an EFA VPC interface with a CDI or JPEG XS Source.
IP	Enter the IP address of the Target
Port	Enter the port that will be used to connect to the Target.
Initial State	
Disabled	Select this checkbox if you would like to disable this Target upon initial configuration.
Muted	Select this checkbox if you would like to disable error/recovery notifications for this Target upon initial configuration.

Adding ST 2110 JPEG XS Targets

JPEG XS targets are supported only on Flows that have a CDI or JPEG XS Source. You can configure an AWS MediaConnect "Flow" that has already been set up in your MediaConnect account to be used in the JPEG XS Target in ZEN Master.



In order to use this feature, you must first link ZEN Master to an AWS account, see [LINKING AN AWS ACCOUNT](#).

The following procedure describes how to add an JPEG XS Target in ZEN Master. In addition, an explanation of each of the configuration parameters is given in the table below.

➔ **To add a new JPEG XS Target:**

1. In the main navigation, click **Targets**.

2. Click **+ Add**.
The **Create New Target** window is displayed.

CREATE NEW TARGET

Select Target Type

HTTP Upload adaptive channels (HLS) to an external HTTP server or an AWS S3 bucket. Channels: Adaptive, Transcoded
Zixi Push to Zixi Broadcaster or AWS MediaConnect, or configure a Zixi Receiver, Broadcaster or Zixi enabled Decoder/IRD to pull a channel from ZEN Master. Channels: Pass-Through, MediaConnect Flow
RIST Create a RIST output on a Broadcaster or MediaConnect Flow. Channels: Pass-Through, MediaConnect Flow
UDP/RTP Create a UDP/RTP output on a Broadcaster or MediaConnect Flow. Channels: Pass-Through, MediaConnect Flow
RTMP Stream channels to an external RTMP server. Channels: Pass-Through, MediaLive
SRT Create a SRT output on a Broadcaster. Channels: Pass-Through, MediaConnect Flow
NDI Enable NDI output on a Channel Source Channels: Pass-Through
CDI Create CDI output on a Mediaconnect Flow. Channels: MediaConnect Flow
ST 2110 JPEG XS Create ST 2110 JPEG XS output on a Mediaconnect Flow. Channels: MediaConnect Flow
MediaLive HTTP Create an AWS MediaLive output to AWS S3 or AWS MediaStore. Channels: MediaLive
Entitlement Create an entitlement on a MediaConnect flow Channels: MediaConnect Flow

X Cancel

- Click on **ST 2110 JPEG XS**.

The **Create New JPEG XS Target** configuration window is displayed.

CREATE NEW ST 2110 JPEG XS TARGET

INFO

Name *

Access Tags * ⓘ

Events Configuration Profile

CONFIGURATION

AWS MediaConnect Flow

JPEG XS targets are supported only on Flows that have a CDI or JPEG XS Source.

INITIAL STATE

Disabled

Muted

- In the **Info** section, in the **Name** field, enter a logical name for the JPEG XS Target.
- In the **Tags** field, select one or more of the predefined Tags from the drop-down list. Tags are used for access control. By selecting a Tag, you are relating this Target to that Tag. Tags are associated with certain roles (through the Users & Roles screen), and roles, in turn, are associated with users and user groups. If you would like to create a new Tag, see [CREATING A TAG](#).
- In the **Events Configuration Profile** field, select from the dropdown list the profile that you would like to apply to this Target. By default, the *Default* profile is applied.



Events Profiles consist of a series of rules that determine precisely how various types of Events are logged and what results they trigger.

- Under the **Configuration** section, in the **AWS MediaConnect Flow** field, select from the drop-down list a MediaConnect Flow that has a CDI or JPEG XS Source.
- In the **IP** and **Port** fields, specify the connection details to the JPEG XS target.
- In the **Initial State** section, select the **Disabled** checkbox if you would like to disable this Target upon initial configuration.
- Select the **Muted** checkbox if you would like to disable error/recovery notifications for this Target upon initial configuration.



You can Enable/Unmute the Target at any time.

11. Click **Save**.



You can verify that the new Target was created by viewing the Source tab in the MediaConnect UI.

JPEG XS Target Configuration Parameters Table

Parameter	Description
Info	
Name	Specify a name for the JPEG XS Target in ZEN Master.
Tags	<p>Select one or more of the predefined Tags from the drop-down list.</p> <p>Tags are used for access control. By selecting a Tag, you are relating this Target to that Tag. Tags are associated with certain roles (through the Users & Roles screen), and roles, in turn, are associated with users and user groups. If you would like to create a new Tag, see CREATING A TAG.</p>
Events Configuration Profile	<p>Select from the dropdown list the profile that you would like to apply to this Target. By default, the <i>Default</i> profile is applied.</p> <p>NOTE: <i>Events Profiles</i> consist of a series of rules that determine precisely how various types of Events are logged and what results they trigger.</p>
Configuration	
MediaConnect Flow	Select from the drop-down list a MediaConnect Flow that have a CDI or JPEG XS Source.
IP	Enter the IP address of the Target
Port	Enter the port that will be used to connect to the Target.
Initial State	
Disabled	Select this checkbox if you would like to disable this Target upon initial configuration.
Muted	Select this checkbox if you would like to disable error/recovery notifications for this Target upon initial configuration.

Adding MediaLive HTTP Targets

The MediaLive HTTP Target can be used to create AWS MediaLive transcoding channels which can be targeted to a S3 Bucket, MediaStore or HTTP Server.

The following procedure describes how to add an AWS MediaLive HTTP Target in ZEN Master. In addition, an explanation of each of the configuration parameters is given in the table below.

➔ To add a new MediaLive HTTP Target:

1. In the main navigation, click **Targets**.
2. Click **+ Add**.
The **Create New Target** window is displayed.

CREATE NEW TARGET

Select Target Type

HTTP Upload adaptive channels (HLS) to an external HTTP server or an AWS S3 bucket. Channels: Adaptive, Transcoded
Zixi Push to Zixi Broadcaster or AWS MediaConnect, or configure a Zixi Receiver, Broadcaster or Zixi enabled Decoder/IRD to pull a channel from ZEN Master. Channels: Pass-Through, MediaConnect Flow
RIST Create a RIST output on a Broadcaster or MediaConnect Flow. Channels: Pass-Through, MediaConnect Flow
UDP/RTP Create a UDP/RTP output on a Broadcaster or MediaConnect Flow. Channels: Pass-Through, MediaConnect Flow
RTMP Stream channels to an external RTMP server. Channels: Pass-Through, MediaLive
SRT Create a SRT output on a Broadcaster. Channels: Pass-Through, MediaConnect Flow
NDI Enable NDI output on a Channel Source Channels: Pass-Through
CDI Create CDI output on a Mediaconnect Flow. Channels: MediaConnect Flow
ST 2110 JPEG XS Create ST 2110 JPEG XS output on a Mediaconnect Flow. Channels: MediaConnect Flow
MediaLive HTTP Create an AWS MediaLive output to AWS S3 or AWS MediaStore. Channels: MediaLive
Entitlement Create an entitlement on a MediaConnect flow Channels: MediaConnect Flow

- Click on **MediaLive HTTP**.

The **Create New MediaLive HTTP Target** configuration window is displayed.

CREATE NEW MEDIALIVE HTTP TARGET

INFO

Name *

Access Tags * ⓘ

Events Configuration Profile

CONFIGURATION

Channel ⓘ

Type 🔒

S3 Bucket MediaStore HTTP Server

S3 URI *

e.g. s3://mybucketname/my/path/manifest

Renditions *

Transcoding Profile	Video	Audio	ⓘ
1080p	1920x1080	Original	+
320p	480x320	Original	+
480p	720x480	Original	+
720p	1280x720	Original	+
720x480	720x480 @ 3,000 kbps	128 kbps	+
Ben Test	Original	Original	+
H264_2997_0540p	960x540 @ 2,000 kbps	128 kbps	+
H264_2997_0720p	1280x720 @ 2,400 kbps	160 kbps	+
H264_2997_720_576	720x576 @ 1,200 kbps	128 kbps	+
H265_2997_0360p	640x360 @ 145 kbps	64 kbps	+

« 1 2 3 4 »

INITIAL STATE

Disabled

Muted

- In the **Info** section, in the **Name** field, enter a logical name for the MediaLive Target.

- In the **Tags** field, select one or more of the predefined Tags from the drop-down list.

Tags are used for access control. By selecting a Tag, you are relating this Target to that Tag. Tags are associated with certain roles (through the Users & Roles screen), and roles, in turn, are associated with users and user groups. If you would like to create a new Tag, see [CREATING A TAG](#).

- In the **Events Configuration Profile** field, select from the dropdown list the profile that you would like to apply to this Target. By default, the *Default* profile is applied.



Events Profiles consist of a series of rules that determine precisely how various types of Events are logged and what results they trigger.


- In the **Configuration** section, under **Channel**, select from the drop-down list an AWS MediaLive Channel that will be sent to the Target. (Optional field)













The Channel Type is automatically set as *ZEN Master Channel* and can't be changed.




The Target will only become functional once a Channel has been assigned to it. However, you can configure the Target settings and then add a Channel to the Target after the initial configuration.

- Under **Type**, select the type of AWS MediaLive Target- *S3 Bucket*, *MediaStore* or *HTTP Server*.
- In the **URI** field, enter the Uniform Resource Identifier for the Target.
- Under **Renditions**, select one or more Transcoding Profiles by clicking the  button for the desired Source.

Renditions *

Transcoding Profile	Video	Audio	
Filter: <input type="text"/>			
1080p	1920x1080	Original	
1080p_8Mbps_H264_AAC - Vod...	1920x1080 @ 7,50...	192 kbps	
320p	480x320	Original	
320p_test	480x320 @ 500 kb...	128 kbps	
480p	720x480	Original	
480P_test	720x480 @ 650 kb...	128 kbps	
702p_5Mbps_H62_AAC - Vodafo...	1280x720 @ 4,500...	192 kbps	
720p	1280x720	Original	
Profile50fps	1920x1080 @ 10,0...	80 kbps	

Selected Transcoding Profiles are shown above the Filter box (You can remove a Transcoding Profile by clicking the  button).

- In the **Initial State** section, select the **Disabled** checkbox if you would like to disable this Target upon initial configuration.

Targets

12. Select the **Muted** checkbox if you would like to disable error/recovery notifications for this Target upon initial configuration.



You can Enable/Unmute the Target at any time.

13. Click **Save**.





You can verify that the new Target was created by viewing the Source tab in the MediaConnect UI.

AWS MediaConnect Target Configuration Parameters Table

Parameter	Description
Info	
Name	Specify a name for the AWS MediaConnect Target in ZEN Master.
Tags	Select one or more of the predefined Tags from the drop-down list. Tags are used for access control. By selecting a Tag, you are relating this Target to that Tag. Tags are associated with certain roles (through the Users & Roles screen), and roles, in turn, are associated with users and user groups. If you would like to create a new Tag, see CREATING A TAG .
Events Configuration Profile	Select from the dropdown list the profile that you would like to apply to this Target. By default, the <i>Default</i> profile is applied. NOTE: <i>Events Profiles</i> consist of a series of rules that determine precisely how various types of Events are logged and what results they trigger.
Location (Optional)	The Target's location is used to represent it in the proper position in the Map display (see MAPS). By default, the location is determined automatically based on the Target's IP. Enter identifying info for the location (e.g. street address, zip code, coordinates) and select the desired location from the suggestions that are shown.
Configuration	

Targets

Channel (Optional)	Select from the drop-down list an AWS MediaLive Channel that will be sent to the Target. NOTE: The Target will only become functional once a Channel has been assigned to it. However, you can configure the Target settings and then add a Channel to the target after the initial configuration.
Type	Select the type of AWS MediaLive Target: <ul style="list-style-type: none">• S3 Bucket• MediaStore• HTTP Server
URI	Enter the Uniform Resource Identifier for the Target.
Renditions	Select one or more Transcoding Profiles by clicking the  button for the desired Source. Selected Transcoding Profiles are shown above the Filter box (You can remove a Transcoding Profile by clicking the  button).
Initial State	
Disabled	Select this checkbox if you would like to disable this Target upon initial configuration.
Muted	Select this checkbox if you would like to disable error/recovery notifications for this Target upon initial configuration.

Adding Entitlement Targets

Entitlement is way for content originators to grant entitlements to share their content with other AWS accounts (subscriber accounts). Subscribers can then set up their own AWS Elemental MediaConnect flows using the originator's flow as their source.

When the subscriber sets up a flow based on the entitlement, the service generates an output on your flow to represent the stream from your flow to the subscriber's flow. This output is counted as part of the 50 maximum outputs that you can have on your flow.

The following procedure describes how to add an Entitlement Target in ZEN Master. In addition, an explanation of each of the configuration parameters is given in the table below. For more information about Entitlement, see -

<https://docs.aws.amazon.com/mediacconnect/latest/ug/entitlements-originator.html>



Due to an AWS limitation, once the Entitlement target is created it cannot be moved to a different AWS MediaConnect Flow.

➔ To add a new Entitlement Target:

1. In the main navigation, click **Targets**.

2. Click **+ Add**.
The **Create New Target** window is displayed.

CREATE NEW TARGET

Select Target Type

HTTP Upload adaptive channels (HLS) to an external HTTP server or an AWS S3 bucket. Channels: Adaptive, Transcoded
Zixi Push to Zixi Broadcaster or AWS MediaConnect, or configure a Zixi Receiver, Broadcaster or Zixi enabled Decoder/IRD to pull a channel from ZEN Master. Channels: Pass-Through, MediaConnect Flow
RIST Create a RIST output on a Broadcaster or MediaConnect Flow. Channels: Pass-Through, MediaConnect Flow
UDP/RTP Create a UDP/RTP output on a Broadcaster or MediaConnect Flow. Channels: Pass-Through, MediaConnect Flow
RTMP Stream channels to an external RTMP server. Channels: Pass-Through, MediaLive
SRT Create a SRT output on a Broadcaster. Channels: Pass-Through, MediaConnect Flow
NDI Enable NDI output on a Channel Source Channels: Pass-Through
CDI Create CDI output on a Mediaconnect Flow. Channels: MediaConnect Flow
ST 2110 JPEG XS Create ST 2110 JPEG XS output on a Mediaconnect Flow. Channels: MediaConnect Flow
MediaLive HTTP Create an AWS MediaLive output to AWS S3 or AWS MediaStore. Channels: MediaLive
Entitlement Create an entitlement on a MediaConnect flow Channels: MediaConnect Flow

3. Click on **Entitlement**.

The **Create New Entitlement Target** configuration window is displayed.

INFO

Name *

Access Tags * ⓘ

Events Configuration Profile

CONFIGURATION

AWS MediaConnect Flow

Data transfer subscriber fee percent * ⓘ

Subscriber account ID *

INITIAL STATE

Disabled

Muted

< Back X Cancel ✓ Save

4. In the **Info** section, in the **Name** field, enter a logical name for the Entitlement Target.
5. In the **Tags** field, select one or more of the predefined Tags from the drop-down list. Tags are used for access control. By selecting a Tag, you are relating this Target to that Tag. Tags are associated with certain roles (through the Users & Roles screen), and roles, in turn, are associated with users and user groups. If you would like to create a new Tag, see [CREATING A TAG](#).
6. In the **Events Configuration Profile** field, select from the dropdown list the profile that you would like to apply to this Target. By default, the *Default* profile is applied.



Events Profiles consist of a series of rules that determine precisely how various types of Events are logged and what results they trigger.

7. In the **Configuration** section, in the **AWS MediaConnect Flow** field, select the relevant MediaConnect Flow from the drop-down menu.
8. In the **Data transfer subscriber fee percent** field, enter the percentage of the entitlement data transfer fee that AWS should bill to the subscriber's account. AWS will bill your account for the remainder. For example, if you specify 15, AWS bills the

subscriber's account for 15% of the entitlement data transfer fee and your account for the remaining 85%.

9. In the **Subscriber account ID** field, specify the subscriber's 12-digit AWS account ID. Don't include hyphens in the ID. This is the account ID of the receiving subscriber to which the stream will be sent to.
10. In the **Initial State** section, select the **Disabled** checkbox if you would like to disable this Target upon initial configuration.
11. Select the **Muted** checkbox if you would like to disable error/recovery notifications for this Target upon initial configuration.



You can Enable/Unmute the Target at any time.

12. Click **Save**.



You can verify that the new Target was created by viewing the Source tab in the MediaConnect UI.

Entitlement Target Configuration Parameters Table

Parameter	Description
Info	
Name	Specify a name for the AWS MediaConnect Target in ZEN Master.
Tags	Select one or more of the predefined Tags from the drop-down list. Tags are used for access control. By selecting a Tag, you are relating this Target to that Tag. Tags are associated with certain roles (through the Users & Roles screen), and roles, in turn, are associated with users and user groups. If you would like to create a new Tag, see CREATING A TAG .
Events Configuration Profile	Select from the dropdown list the profile that you would like to apply to this Target. By default, the <i>Default</i> profile is applied. NOTE: <i>Events Profiles</i> consist of a series of rules that determine precisely how various types of Events are logged and what results they trigger.

Targets

Location (Optional)	The Target's location is used to represent it in the proper position in the Map display (see MAPS). By default, the location is determined automatically based on the Target's IP. Enter identifying info for the location (e.g. street address, zip code, coordinates) and select the desired location from the suggestions that are shown.
Configuration	
AWS MediaConnect Flow	Select from the drop-down list the MediaConnect Flow that you would like to use for the entitlement.
Data transfer subscriber fee percent	Enter the percentage of the entitlement data transfer fee that AWS should bill to the subscriber's account. AWS will bill your account for the remainder. For example, if you specify 15, AWS bills the subscriber's account for 15% of the entitlement data transfer fee and your account for the remaining 85%.
Subscriber account ID	Specify the subscriber's 12-digit AWS account ID. Don't include hyphens in the ID. This is the account ID of the receiving subscriber to which the stream will be sent to.
Latency [ms]	Enter the latency in milliseconds.
Initial State	
Disabled	Select this checkbox if you would like to disable this Target upon initial configuration.
Muted	Select this checkbox if you would like to disable error/recovery notifications for this Target upon initial configuration.

Viewing Existing Targets


The Targets screen displays all existing Targets, and information about the status and configuration of each Target.

TARGETS
+ Add
Refresh

Report

<input type="checkbox"/>	Name	Status	Broadcaster	Type	Target	Channel
<input type="checkbox"/>	RIST-PULL	Ok	-	RIST	23.96.49.216:7010	Distribution @ Azure-Transc...
<input type="checkbox"/>	Cradlepoint_Rx	Not Assigned	-	Pull	Cradlepoint_Receiver	
<input type="checkbox"/>	demo_tgt_clocks_dynamic	Ok	-	Pull		clocks @ ZIXI_DEMOHD
<input type="checkbox"/>	Dynamic	Ok	-	Pull		clocks @ ZIXI_DEMOHD
<input type="checkbox"/>	HitlessDemoTarget	Ok	EU-DEMO-CLSTR-3w52	Pull	Demo_ZEN_RX01	RedundancyDemoChann...
<input type="checkbox"/>	Hitless_Pull	Ok	LINEAR_DISTRIBUTION-9lpd	Pull	LabMiniReceiver	HPVZ-HITLESS-CHANNEL-0...
<input type="checkbox"/>	HPVZ-EDGE-DMZ-EU-ASIA-X	Ok	EU-DEMO-CLSTR-3w52	Pull	EDGE-DMZ-ASIA @ EGDE-DEVICE...	HPVZFX-HITLESS-01-02_EU ...
<input type="checkbox"/>	HPVZ-EDGE-DMZ-US-ASIA-Y	Ok	US-DEMO-CLSTR-ny6q	Pull	EDGE-DMZ-ASIA @ EGDE-DEVICE...	HPVZFX-HITLESS-01-02_US ...
<input type="checkbox"/>	HPVZFX-HITLESS-01-02_EU-ASIA	Ok	EU-DEMO-CLSTR-3w52	Pull	ASIA-CLUSTER-0y90 @ ASIA-CLUS...	HPVZFX-HITLESS-01-02_EU ...
<input type="checkbox"/>	HPVZFX-HITLESS-01-02_USW-ASIA	Ok	US-DEMO-CLSTR-ny6q	Pull	ASIA-CLUSTER-0y90 @ ASIA-CLUS...	HPVZFX-HITLESS-01-02_US ...

< 1 2 ... 6 >
Showing: 1 - 10 of 58
Rows 10

 It is possible to add more columns to the list, see [Show/Hide Columns](#). If you want to view resources that were marked as **Priority**, add the **Priority** column and sort by it.

Targets

When a Target is selected, the list pane is minimized and detailed info about the selected Target is shown on the right side of the screen. The info can be shown in *Tab* view or *Accordion* view, see [INFO PAGES](#).

The screenshot shows a configuration window for a target named 'LIVE_EVENT_TARGET_06_YOUTUBE'. At the top, there are several action buttons: Mute, Channel, Edit, Clone, Enable, Delete, and a window management icon. Below these are four tabs: DETAILS (selected), HISTORY, EVENTS, and NOTES. The main content area displays the following configuration details:

- Name: LIVE_EVENT_TARGET_06_YOUTUBE
- Access Tags: live_event, Exhibition
- Type: RTMP
- Channel: LIVE_EVENT_CHANNEL @ LIVE_EVENT_CLOUD_DISTRIBUTION
- Target: rtmp://a.rtmp.youtube.com/live2
- Alt. Target: rtmp://b.rtmp.youtube.com/live2?backup=1
- Stream Name: r43e-x4md-f57y-5193
- Username: -
- Password: -
- Bitrate [kbps]: Auto Detect

When a Target is selected, the following tabs are shown at the right side of the screen:


- **Details** – configuration details of the selected Target.
- **Diagram** –
- **History** – a graphical display of the stream’s performance over time.
- **Insights** –
- **Events** - all the related events that have been generated by the system, such as connections, errors, warnings and disconnections. To learn about the data that is displayed in the Events tab see [EVENTS](#). Click **Quick Report** to generate a report of events related to this Channel and download the .xls file.
- **Configuration (for Pull Targets)**– configuration settings for connecting unmanaged resources to be used as Pull Targets.
- **Notes** – free-form text can be added with pertinent information about this Target.
- **Traceroute** – shows the traceroutes used by the stream.

The main display includes the following data for each Target:

Parameter	Description
Selection Checkbox	Select one or more Targets and perform actions on all selected Targets. Available actions are:

Targets

- **Switch Channel** – switch the Channel that is assigned to the selected Targets. If no Channel has been assigned yet, then this button is used to assign a Channel.
- **Mute All** - disables notification for error/recovery events for the selected Targets.
- **Unmute All** – enables notification for error/recovery events for the selected Targets.
- **Enable All** – re-activates all active streams for the selected Targets.
- **Disable All** - stops all active streams to that Target without deleting the configuration of the Target.
- **Delete All** – deletes the Target configuration for the selected Target.

Name	The name of the Target as configured in ZEN Master.
Status	<p>The status of the Target. Possible values:</p> <ul style="list-style-type: none">• Green – OK• Red – error state• Pink (shown together with a checkmark) – acknowledged error state• Yellow – Warning (recovered from error event)• Gray – pending/disabled <p>The  icon next to a Target indicates that the Target is muted, disabling notifications for error/recovery events.</p>
Broadcaster	The name of the Broadcaster that is used for the Target.
Type	The Target type. Possible types are: Push, Pull, RTMP, S3, HTTP or UDP/RTP.
Target	The location of the Target (i.e. URL or Target device ID).
Channel	The name of the Channel that uses this Target as a destination for the stream.

Actions on a Target

When one of the Targets in the list is selected, information about the Target is shown in the Info pane.

The **Info** pane has buttons for taking the following actions for the selected Target.

Targets


- **Acknowledge/Clear Acknowledgment** (for Targets in disconnected status) – mark/clear the status of this Target as acknowledged.
- **Mute/Unmute** – disables/activates notification for error/recovery events. Set the date and time when the mute will automatically be cleared by clicking on the down arrow and selecting **mute until**.
- **Edit** – enables you to edit the Target configuration.
- **Clone** - create an additional Target based on the settings of the selected Target.
- **Disable/Enable** – Disabling a Target stops all active streams for that Target without deleting the configuration of the Target.
- **Delete** – deletes the Target configuration.

Target Details

The Details section shows the following information:



In addition to the parameters described below there are several parameters that are specific to each Target type that are displayed for a Target of that particular type.

Parameter	Description
Name	The name of the Target.
Tags	The Tag/s that is associated with this Target. You can edit the tag/s as follows: click the  icon. Then, delete the current tag by clicking the "X" next to the tag. Add a new tag/s by selecting one or more tags from the drop-down list.
Type	The type of Target. Possible types are: Push, Pull, RTMP, S3, HTTP or UDP/RTP.
Play Target	Play the Target content (for configurations that support this feature).

Child Targets (for Dynamic Targets)

Dynamic Pull Targets enable you to connect multiple Receivers (or Zixi-enabled decoders) to the same Target. For Dynamic Targets, the Child Targets tab shows all devices that have been connected to the Target. The name of each Child Target consists of the name of the parent Target followed by the device ID.

You can click on a Child Target to show additional info for that specific Target. While viewing the details of a Child Target, you can click on the **Convert** button to convert it into an independent Pull Target.



You can't edit the configuration of a Child Target. If you would like to change the configuration for a specific Child Target, you need to first convert it to an independent Pull Target. You can then edit the configuration of that Target.



If the Channel of a parent Target is changed, this will only affect new Child Targets that are connected **after** the change was made. The existing Child Targets will remain connected to the original Channel. To change the Channel for existing Child Targets, change the Channel of the parent and then select the desired child Targets in the Target list and **delete** them. Each Target will then reconnect and obtain the new Channel configuration from the parent Target.



When you delete a parent Dynamic Target, all Child Targets under that parent are automatically converted to independent Pull Targets.

Target History

The History tab shows a graphic display of the Target connection activity over time. Data is shown on separate line graphs for each topic that is relevant for the selected Target. Click on the section headings to expand/collapse the graph display.

Each graph shows color coded lines indicating the events that occurred over time. A key indicating the colors used to represent various types of data is shown below each graph.

You can create an Incident to see an incident view of what happened during a specific time by selecting an area on a graph and clicking the **Add Incident** button. For more information about Incidents, see [INCIDENTS](#).

The graphs have the following functionality:

- Set the time range of the display either by selecting one of the preset time ranges or by entering a custom time range. (Default: *Last 24 hr*)



One year of history is saved in the ZEN Master database even though the graphs show larger timeframes. Contact Zixi if you require more than one year of history.

- Manually refresh graph data or set the automatic refresh frequency.
- Hover over a point on the graph to show the total values for that time.
- Click and drag the cursor over a time range to zoom in on that time range.

Targets

- Double click on the graph to zoom out on the graph (i.e. expand the time range).
- Click on the title of a data element in the key to display only that element.



ZEN Master treats all graphs as a single component so that the zoom time range set for one graph is automatically applied to all graphs on that screen. Similarly, when you hover over a point on one graph, the tool-tip values are shown for the same point in time on all of the graphs.

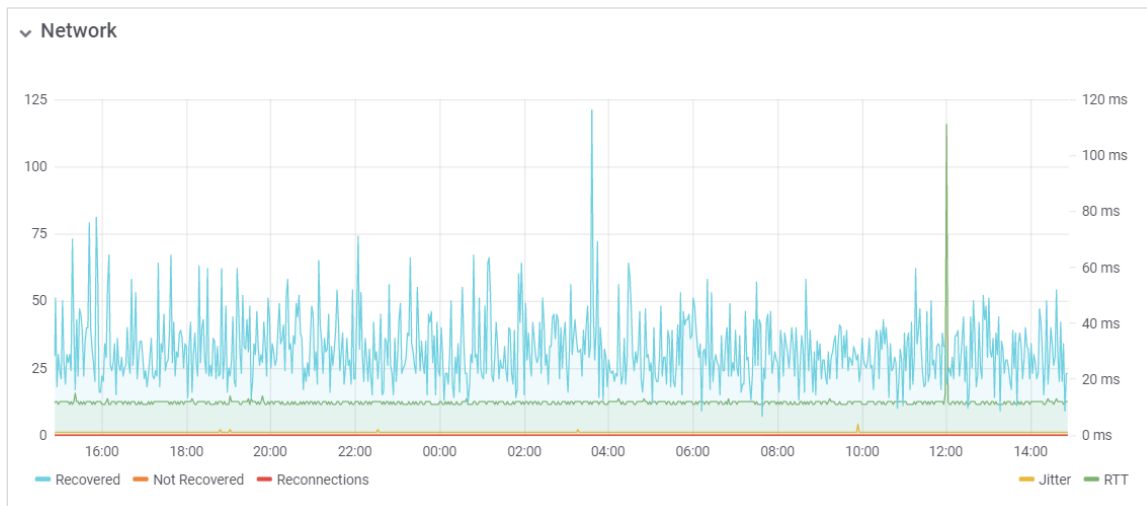


The granularity of the graph depends on the zoom level. Most graphs can zoom in to a resolution of one datapoint per minute.

The following sections describe the various graphs that are shown in the History tab. Click on the section header to show/hide the graph.

Target History Network

This graph shows network activity (recovered and not recovered packets, reconnections, RTT and Jitter) over time.



Targets

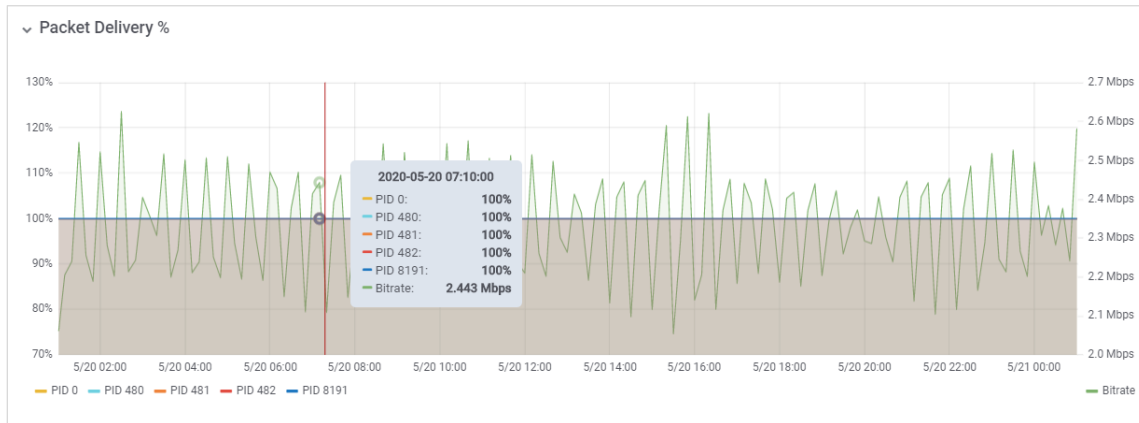
Target History Packet Delivery %

For streams sent from a Zixi Broadcaster (v13 and up) to a Zixi Receiver (v13 and up), this graph shows the percentage of successfully delivered packets for each PID over time.



Dropped packets for video or audio PIDs degrade the video or audio stream. Dropped packets for Ad markers (SCTE-35) interfere with proper loading and display of the ads.

The graph also shows the percentage of delivered packets over time for each PID.



Targets

Target History Traceroute

For streams sent from a Zixi Feeder to a Zixi Broadcaster (v13 or above) or from a Broadcaster to a Receiver, this tab shows historical traceroutes that have been used for this stream. The graph shows RTTs for each server used by the stream over time.

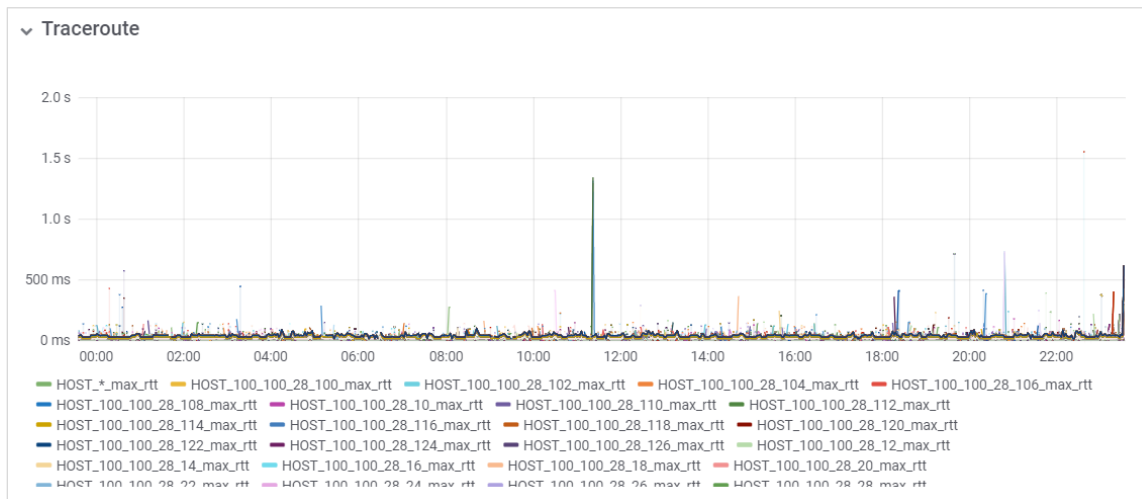
If there are persistent large round trip times through particular servers, a network reconfiguration may be necessary to alleviate the issue.



When routing through fixed fiber or MPLS connections, the RTT history may prove useful in debugging and resolving network bottlenecks. If there are persistent large round trip times through particular servers, a network reconfiguration may be necessary to alleviate the issue.



When configuring a Source in ZEN Master, the *Traceroute History* feature is **not** activated by default. If you would like to activate Traceroute History for a particular Source you can do so by selecting the **Traceroute History** checkbox in the advanced configuration options. This can be done during the initial configuration or you can edit an existing Source.



Target Events

The Events tab shows all the events that have been generated by the system that relate to the selected Target (e.g. connections, errors, and disconnections). To learn about the data that is displayed in the Events tab see [EVENTS](#).

Click **Quick Report** to generate a report of events related to this Target and download the .xls file.

Target Configuration

This tab contains specific configuration settings for the selected Target. When configuring a Target for a resource that is not managed in ZEN Master, you will need to use these settings to enable the Target to connect to ZEN Master (see [CONNECTING AN UNMANAGED PULL TARGET](#)).

Target Notes

This tab shows free-form notes with information about the Target.

Target Traceroute

For streams sent from a Zixi Feeder to a Zixi Broadcaster (v13 or above) or from a Broadcaster to a Receiver, this tab shows the traceroutes currently being used by the stream.



You can view historical traceroutes data, including RTT for each traceroute, in the Traceroute graph under the History tab, see [TARGET HISTORY TRACEROUTE](#).

Remote Access

In addition to the Zixi resources that are fully supported in ZEN Master (i.e. Feeders, Broadcasters and Receivers), you can connect other devices (that support reverse SSH tunnels) such as encoders and IRDs. You can establish a connection via SSH Tunnel which enables you to access the device's UI through ZEN Master and to configure the device to interact with ZEN Master.

Adding a Remote Access Profile

First, you need to create a remote access profile in ZEN Master. Then, you can use the configuration settings shown in ZEN Master to connect the device to ZEN Master using the device's UI. See the following section, [CONNECTING DEVICE USING REMOTE ACCESS](#).

➔ To add a remote access profile:

13. In the main navigation, click **Remote Access**.
14. Click **+ Add**.

The **Create New Remote Access** window is displayed.

CREATE NEW REMOTE ACCESS

INFO

Name *

Access Tags * ⓘ

Events Configuration Profile

CONFIGURATION

SSH Key * ⓘ

HTTP/HTTPS

Auto Detect / HTTPS HTTP

Cancel Save

15. In the **Info** section, in the **Name** field, type a logical name for the Zixi enabled device.
16. In the **Tags** field, select one or more of the predefined Tags from the drop-down list.
Tags are used for access control. By selecting a Tag, you are relating this Remote Access to that Tag. Tags are associated with certain roles (through the Users & Roles screen), and roles, in turn, are associated with users and user groups. If you would like to create a new Tag, see [CREATING A TAG](#).
17. In the **Events Configuration Profile** field, select from the dropdown list the profile that you would like to apply to this Remote Access. By default, the *Default* profile is applied.



Events Profiles consist of a series of rules that determine precisely how various types of Events are logged and what results they trigger.

18. In the **Configuration** section, in the **SSH Key** field, select from the drop-down list one of the existing remote access keys to be used for SSH tunneling between the Zixi Broadcaster and ZEN Master.



If you would like to configure a new SSH Key, see [CONFIGURING SSH KEYS](#).

19. Select a radio button to designate the manner in which ZEN Master accesses the remote device. Options are:
 - **Auto Detect/HTTPS** (default) – ZEN Master automatically detects whether the remote device uses HTTP or HTTPS.
 - **HTTP** – ZEN Master will always use HTTP.
20. Click **Save**.

Connecting Device Using Remote Access

Once you have created a remote access profile in ZEN Master you can use the configuration settings shown in ZEN Master to connect the device to ZEN Master using the device's UI. The UI structure varies for different devices, however the following settings should be configured to connect to ZEN Master.

➔ To connect a Zixi-enabled device:

21. In **ZEN Master**, in the main navigation, click **Remote Access**.
22. Select the relevant Remote Access from the list of Remote Access profiles.
23. The **Details** pane at the right of the screen contains specific configuration settings for connecting the Zixi-enabled device.

Use the values shown for the following parameters to configure the Zixi-enabled device:

Parameter	Description
SSH Key	Enables you to download the SSH Key that was generated in ZEN Master for this connection.
Host	The IP address/URL of the ZEN Master host.
Username	The username assigned for this device in ZEN Master.
Tunnel Port	The port on the ZEN Master server assigned for communication with the Zixi-enabled device.

Viewing Existing Remote Access Profiles

The Remote Access screen displays all of the existing remote access profiles and information about the profile.

The screenshot shows the 'REMOTE ACCESS' screen with a list of profiles. At the top right, there are '+ Add' and 'Refresh' buttons. Below the header is a 'Filter' input field. The main area contains a table with columns for Name, Status, and IP. The table lists three profiles: 'Demo-tunnel' (Status: Ok), 'test' (Status: Ok), and 'test2' (Status: Disabled). Each row has an 'Open' link. At the bottom, there is a pagination control showing 'Showing: 1 - 3 of 3' and a 'Rows' dropdown set to 'Auto'.

Name	Status	IP
Demo-tunnel	Ok	-
test	Ok	-
test2	Disabled	-

When a Remote Access instance is selected, the list pane is minimized and detailed info about the selected instance is shown on the right side of the screen. The info can be shown in *Tab* view or *Accordion* view, see [INFO PAGES](#).

The screenshot shows the 'REMOTE ACCESS' screen with the 'Demo-tunnel' profile selected. The interface is split into three main sections: a minimized list pane on the left, an 'EVENTS' pane in the center, and a 'DETAILS' pane on the right. The 'DETAILS' pane shows configuration information for the 'Demo-tunnel' profile, including Name, Access Tags, SSH Key, Host, Username, Tunnel Port, and Open link. The 'EVENTS' pane shows a table with columns for Object, Date/Time, and Message, and a 'Quick Report' button. The list pane on the left shows the selected profile and other profiles in the background.

When a Remote Access instance is selected, the following sections are shown in the Info pane at the right side of the screen:


- **Details** – configuration details of the remote access profile.
- **Events** - all the related events that have been generated by the system, such as connections, errors, and disconnections. To learn about the data that is displayed in the Events tab see [EVENTS](#). Click **Quick Report** to generate a report of events related to this Channel and download the .xls file.
- **Notes** – free-form text can be added with pertinent information about this remote access profile.

Remote Access

When a Remote Access instance is selected, the top of the **Info** pane includes buttons for taking the following actions on the selected instance:

- **Acknowledge/Clear Acknowledgment** (for instances in error state) – mark/clear the status of this Source as acknowledged.
- **Mute/Clear Mute** – disables/activates notification for error/recovery events. Set the date and time when the mute will automatically be cleared by clicking on the down arrow and selecting **mute until**.
- **Edit** – enables you to edit the Zixi Receiver configuration.
- **Clone** – create an additional Remote Access based on the settings of the selected Remote Access.
- **Disable/Enable** – disabling a Remote Access stops all activity for that device without deleting the configuration of the device.
- **Delete** – deletes the Remote Access configuration.


The main display shows following data:

Parameter	Description
Status	<p>The connection status of the remote access profile. Possible values:</p> <ul style="list-style-type: none">• Green – OK• Red – error state• Pink (shown together with a checkmark) – acknowledged error state• Gray – pending/disabled (waiting for initial connection) <p>The  icon next to a remote access connection indicates that the object is muted, disabling notifications for error/recovery events.</p>
Name	The name of the remote access profile as configured in ZEN Master.
IP	The IP of the remote device as seen by ZEN Master.
Actions	
Open	A link to the device UI.

When one of the Remote Access instances is selected, the **Info** pane, divided into sections, appears at the right side of the screen. The following info is shown:

Parameter	Description
Details	
SSH Key	The name of the SSH key file. Click on the link to download the SSH key.
Name	The name of the remote access profile as configured in ZEN Master.

Remote Access

Tag	The Tag/s that is associated with this remote access profile. You can edit the tag/s as follows: click the  icon. Then, delete the current tag by clicking the "X" next to the tag and/or add a new tag/s by selecting one or more tags from the dropdown list.
Host	The IP address/URL of the ZEN Master host.
Username	The username assigned for this device in ZEN Master.
Tunnel Port	The port on the ZEN Master server assigned for communication with the Zixi-enabled device.
Open	A link to the device's console.
Events	A log of the events that were generated in ZEN Master in relation to the selected remote access profile. To learn about viewing event logs in ZEN Master, see EVENTS . Click Quick Report to generate a report of events related to this device and download the .xls file.
Notes	Shows free-form notes relevant to the Remote Access instance.

Live Events

Zen Master Live Events feature provides users with the ability to schedule, run, and manage, workflows for occasional-use deliveries such as sporting events, press conference, news events, live production, and other real-time events.

Users can create and schedule streaming events with defined start and duration times, control redundant pre-configured failover channels, and define slate sources for slating content in pre-live, live, and post-live phases of the event life cycle. It is also possible to monitor multiple autonomous live or upcoming events in parallel, or view individual events via the live event screen. This screen also provides manual override controls for full control over phase transitions.

The Live Events feature supports the typical live event workflow, which may include the following phases:

1. **Planning and scheduling** – in this phase, which occurs before the event (typically weeks before the event), the event is planned and scheduled. When creating a Live Event in Zen Master, you set when the event begins, its duration, and the duration of pre/post live stages.
2. **Pre live** – in this phase the systems are deployed in the venue. The cameras and microphones could be on and could potentially stream video and audio, but you may not want viewers to be able to view what is going on. To avoid this, Live Events allows you to configure a Failover Channel that includes a Slate source, which will be streamed during this phase. The event starts by entering the Pre-Live stage. In this stage the channel is activated, and the event dashboard will update to report status and thumbnails of the underlying channels and streaming components. Sources are expected to be active, but the channel will output slate to the corresponding targets.
3. **Live** – this is the live event phase, the match itself, the speech, etc. The live event can begin automatically according to the set schedule. At this point the Failover channel will automatically failover to the Preferred source, which streams the live event. If the event begins before schedule or is prolonged after the set duration, it is possible to take over manual control and begin earlier or extend the duration. When the event advances to the live stage, slate is dropped automatically and the channel, or redundant channels, controlled by the event manager will output live content to the attached targets.
4. **Post live** – When the live stage ends, the event advances to the post-live stage. the event controller updates the channel/s and once again outputs slate. This allows systems to continue to deliver a video feed while post event checks or archival workflows are completed. The post live stage can be a live stream coming from the studio (e.g., after game commentary), a pre-recorded stream with credits, a slate, etc. It is possible to configure Live Events to failover to another specific source at the post live phase or manually enable the source.

5. **Completed** - finally the event advances to completed, the channel is disabled, targets are no longer delivering streams, and the event is over.

Pre-requisites

To create a ZEN Master live event, one or more pre-configured failover channels is required. While a ZEN Master Live Event has a predefined start time and duration, the failover channel is persistent, and can be re-used for multiple events, such as a weekly sporting event, or remote news segment.

A Failover Channel consists of:

1. **Sources** – One or more (i.e., redundant) content sources, such as the from-venue game feeds, or the package sports game playout, etc.
2. **Slate** - A slate source consisting of either a local or remote transport stream file, or live zixi source.
3. **Targets** – One or more pass-through channel supported targets

To learn more, see [ADDING FAILOVER CHANNELS](#)

Adding a Live Event

You can add a Live Event and schedule it to begin at a certain period of time.

➔ To add a Live Event:

1. In the main navigation, click **Live Events**.

2. Click + Add.

The **Create New Live Events** screen is displayed:

CREATE NEW LIVE EVENTS


INFO

Name *

Access Tags * ⓘ

Channel *

Start Time Asia/Jerusalem *

Pre Live Duration [minutes] *

Live Duration [minutes] *

Post Live Duration [minutes] *

Staging Mode

3. In the **Name** field, enter a name for the Live Event.

4. In the **Tags** field, select one or more of the predefined Tags from the drop-down list. Tags are used for access control. By selecting a Tag, you are relating this Live Event to that Tag. Tags are associated with certain roles (through the Users & Roles screen), and roles, in turn, are associated with users and user groups. If you would like to create a new Tag, see [CREATING A TAG](#).

5. In the **Channel** field, select a **Failover Channel** from the the drop-down list. The Failover Channel should include all the sources you will need for the live event, typically this will include a Slate source, a primary source (Preferred) and a backup source. It is possible to select multiple channels. It is recommended to have multiple redundant channels with matching content and slate. In this case, the event phase transitions, and slating will be applied on all selected channels in parallel.

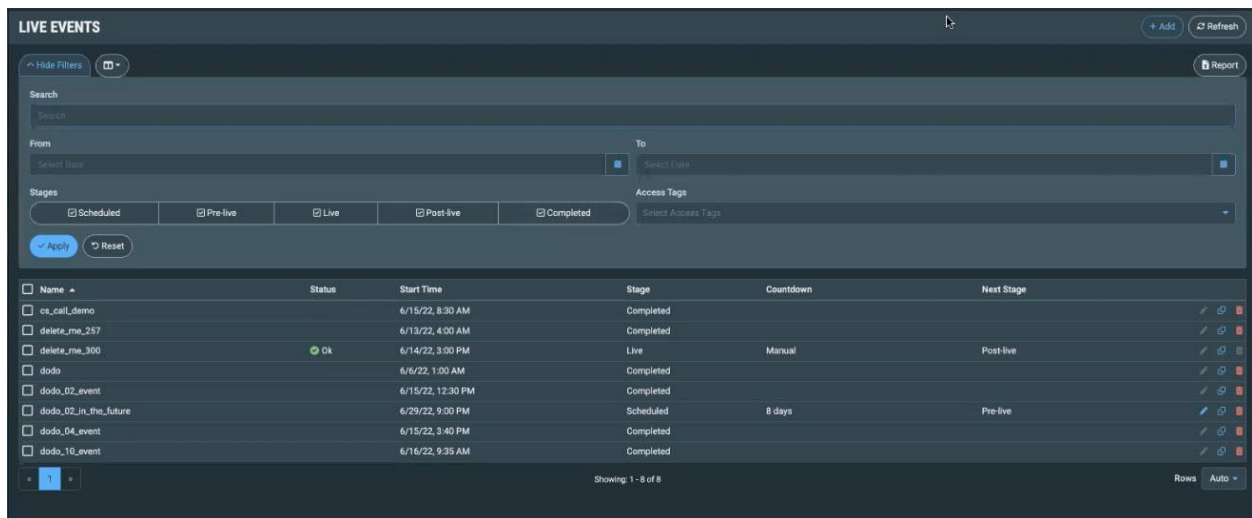
6. In the **Start Time** field, click to open the calendar and select the date and then the time in which the event pre-live phase will begin.

Live Events

- In the **Pre-Live Duration** field, enter the number of minutes of the Pre-Live phase (minimum 5 minutes). The duration can be modified at any point including while it is taking place.
- In the **Live Duration** field, enter the number of minutes of the Live phase. The defined duration can be edited and modified at any point until the events has started.
- In the **Post Live Duration** field, enter the number of minutes of the Post Live phase. The duration can be modified at any point including while it is taking place.
- In the **Staging Mode** field, select one of the following:
 - Auto** – in this option the system will automatically move between the various stages.
 - Manual** – in this mode, the times are a guideline only, and you will have to manually move between the various stages.
- Click **Save**.

Viewing Existing Events

The Live Event screen lists of the Live Events and details about their configuration, including events that occurred in the past, ones that are currently occurring, and events that will occur in the future.



The screenshot shows the 'LIVE EVENTS' interface. At the top, there are buttons for '+ Add', 'Refresh', and 'Report'. Below that is a search bar and a date range selector with 'From' and 'To' fields. There are also 'Stages' and 'Access Tags' filters. The main part of the screen is a table with the following columns: Name, Status, Start Time, Stage, Countdown, and Next Stage. The table contains 8 rows of event data.

Name	Status	Start Time	Stage	Countdown	Next Stage
os_call_demo		6/15/22, 8:30 AM	Completed		
delete_ma_257		6/13/22, 4:00 AM	Completed		
delete_ma_300	Ok	6/14/22, 3:00 PM	Live	Manual	Post-live
dodo		6/6/22, 1:00 AM	Completed		
dodo_02_event		6/15/22, 12:30 PM	Completed		
dodo_02_in_the_future		6/29/22, 9:00 PM	Scheduled	8 days	Pre live
dodo_04_event		6/15/22, 3:40 PM	Completed		
dodo_10_event		6/16/22, 9:35 AM	Completed		

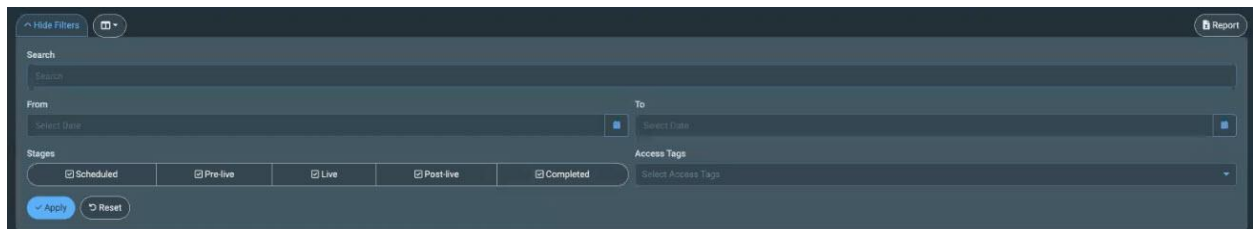
The screen displays a filter at the top (see [USING THE LIVE EVENTS FILTER](#) below) and then a list of Live Events.

Parameter	Description
Name	The name of the Live Event.

Live Events

Status	<p>Since the event can control multiple redundant paths simultaneously, the event status is derived from the collective statuses of the controlled channels:</p> <ol style="list-style-type: none">OK – the channel is good. In the case of redundant paths, at least one of the controlled channels is providing a good delivery.Warn - the channel is in a warning state. If more than one channel is controlled by the event, non of the other channels is in a better than warning state.Error - all controlled channels are in an error state.
Start Time	The time the event began, or will begin entering the pre-live state.
Stage	<p>The current stage of the live event:</p> <ul style="list-style-type: none">ScheduledPre-LiveLivePost-LiveCompleted
Countdown	A countdown to the next stage or " Manual " if the live event was configured in Manual Staging Mode .
Next Stage	The upcoming stage in the process.
Actions	<ol style="list-style-type: none">Click the left icon to edit - events that have not yet started can be edited. Changes to in-progress events must be made via the event dashboard manual override controls.Click the middle icon to cloneClick the right icon to delete

Using the Live Events filter



At the top of the Live Events screen you can use a combination of the following filters and then click **Apply**:

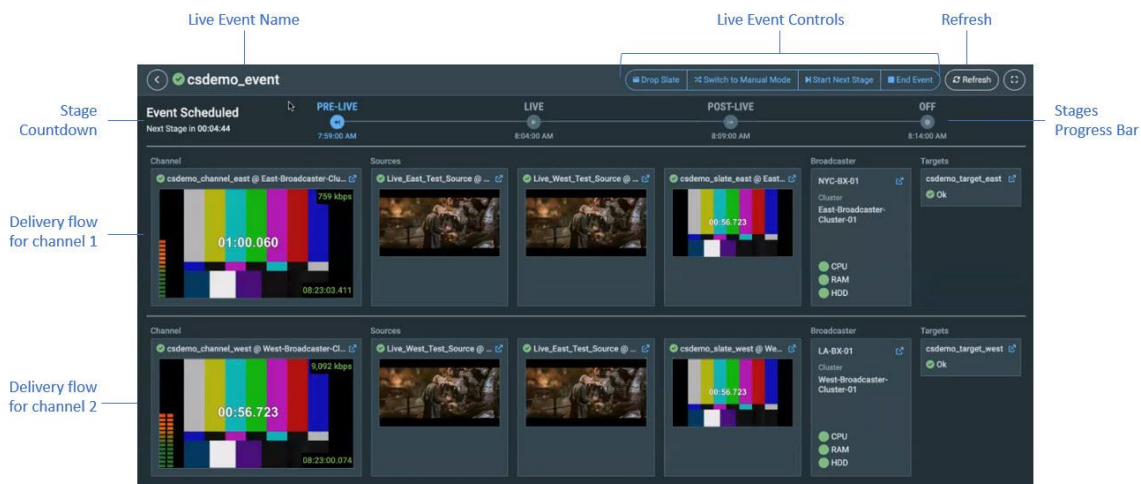
- **Search** – searches the name of the live event. Start typing the name of the live event to filter the list accordingly.

Live Events

- **From** – click to select the date and time in which the event starts.
- **To** – click to select the date and time in which the event ends.
- **Tags** – click to select by tags. For more information, see [CONFIGURING TAGS](#)
- **Stages** – filter by the current stage of the live event. Deselect the checkboxes to exclude live events, whose current stage matches the deselected checkbox. For example, to exclude all the Completed events, deselect the Completed checkbox.

The filtered list is displayed at the bottom. Click the name of the Live Event to view its details. Click **Report** to generate a spreadsheet report of the filtered results.

Viewing Event Details



The Live Event details screen displays the following main elements:

- **Stages progress bar** – the progress bar displays the various stages of the live event and their scheduled times. The current stage is marked in blue.
- **Stage Countdown** - displays a count-down to the next stage.
- **Delivery Flow** – displays all the ZM objects that are assigned to the delivery flow per channel. If more than one channel was selected for the Live Event, each channel will have its own delivery flow. Each delivery flow includes the following elements (from left to right):
 - **Channel** – displays a preview of what is currently being delivered as the output of the channel. The header displays the channel status, name, and processing cluster. The status icon indicates the channel state and the name of the source that is currently streaming. Click the Expand icon to view the Channel details.

- **Sources** – displays previews of the sources in the controlled channel and their status. Click the Expand icon to view the Source details. The header displays the source status, name, and processing cluster.
- **Broadcaster** – displays the status of the active broadcaster that is processing the channel, including the name of the Broadcaster and the status of its components (CPU, RAM, HDD). Click the Expand icon to view the Broadcaster details.
- **Targets** – displays the status of the target that was assigned to this channel. Click the Expand icon to view the Target details.
- **Refresh** – click this button to refresh the entire screen.
- **Live Event Controls** – offers a variety of buttons to manually control the event. For more information, see [LIVE EVENT MANUAL CONTROLS](#).

Live Event Manual Controls

A Live Event in Auto Mode will automatically start, and then proceed through the pre-defined stages, based upon the configured start time and starget durations. If at any time you need to override the pre-configure changes, the event screen provides action controls to drop or go back to slate, and to immediately advance or delay the next stage transition. This is useful for unforeseen changes to schedules such game delays, or event extensions, etc.

For Events set to Manual the times are guidelines only, and the event must be started, and the stages advanced, manually via the action controls. This mode is ideal for predefined occasional-use workflows with approximate or even unknown start times, such as breaking news.

- **Go to Slate / Drop Slate** – this slate switching control will update the controlled channels to either drop, or go to slate, accordingly. The event, however, will remain in the current stage.
- **Switch to Manual Mode** – switches from auto mode to manual mode. During an active Auto Mode event, at any time the event can be switched to manual and will obey only manual actions for the rest of the event. Once an event has switched to Manual Mode this action is final and the stages must be advanced manually for the event to complete.
- **Start Next Stage** – advances the event to the next stage. If the event is in Auto Mode, the following transition will occur automatically per the pre-configured stage duration.
- **End Event** - This action immediately moves the event to the completed stage, bypassing any intermediate stage and slating configurations.

Transformations

While passing streams through the Zixi platform you can apply transformations to the source streams. There are two types of transformations that can be applied, Transcoding and PID Mapping. You can create profiles for each type of transformation and then apply those profiles to specific streams in your system.

Transcoding profiles

Transcoding profiles are configuration settings for the transcoding of streams. They are used in the configuration of Transcoded Channels. ZEN Master supports H.264 (AVC) and H.265 (HEVC) transcoding formats.

ZEN Master comes with the following pre-set common video profiles:

- 1080p@5000kbps
- 720p@3000kbps
- 480p@1500kbps
- 320p@1000kbps

Adding Transcoding Profiles

You can add your own custom profiles at any time. You can also *Clone* an existing profile to create a new profile with a similar configuration.

➔ To add a Transoding Profile:

1. In the main navigation, click **Transformations > Transcoding Profiles**.

2. Click **+ Add**.

The **Create New Transcoding Profile** screen is displayed:

CREATE NEW TRANSCODING PROFILE

Name *

VIDEO

Transcode Use Original Remove

Codec

H.264 H.265

Encoding Profile

Main

Resolution

Use source resolution

Maintain source aspect ratio ⓘ

Width Height

FPS

Original

Video Bitrate

Average Max

Performance ⓘ

4 - Fast

ADVANCED VIDEO +

AUDIO

Transcode Use Original Remove

Audio Profile

AAC Low Complexity

Audio Bitrate

80

Audio Sampling Rate

Original

3. In the **Name** field, enter a name for the transcoding profile.
4. In the **Video** section, select one of the following:
 - **Transcode** (default) – transcodes the video stream according to the settings of the transcoding profile.
 - **Use Original** – does not transcodes the video stream. This setting is used when you want to transcode the audio only.
 - **Remove** – removes the video track completely.

5. If you selected *Transcode*, then continue with the following procedure. If you selected *Use Original* or *Remove* then proceed to the Audio configuration in step 14.
6. Under **Codec**, select the radio button for the desired codec. Options are *H.264 (AVC)* or *H.265 (HEVC)*.
7. In the **Encoding Profile** field, select from the drop-down menu the desired encoding profile. For H.264 the options are: *Main*, *Baseline* or *High*. For H.265 the options are: *Main* or *Main 10*.
8. In the **Resolution** section, do one of the following:
 - Select the **Use Source Resolution** checkbox to maintain the Source resolution, OR
 - Resize the video by entering the desired width and height in pixels.
9. If you resized the video and you would like to maintain the original aspect ratio then select the **Maintain Source Aspect Ratio** checkbox.



When this option is selected the unused space is filled in with black bars.

10. In the **FPS** (frames per second) field, select one of the following options from the drop-down list:
 - Select **Original** to use the original frame rate of the stream, OR
 - Select a new frame rate from the list of frame rates.



If you select an FPS that is different from the frame rate of the source video, "smooth frame rate conversion" is applied.



For Zixi Broadcasters v13 and up, the captions in the elementary stream are preserved when the framerate is converted.

11. In the **Video Bitrate** section, enter the **Average** and **Max** video bitrate that the transcoder will output for this profile.
12. In the **Performance** field, select the performance of the transcoding with options ranging from 0 (Ultra Fast) to 8 (Very Slow). (Default value: 4 (Fast))



The higher the performance quality selected the greater the CPU usage. Selection of *Best Quality* in a system that doesn't have sufficient available CPU will generate errors.

13. If you would like to adjust the advanced video settings, click on **Advanced Video**. The **Advanced Video** settings are displayed:

ADVANCED VIDEO —

GOP

Source 30 Closed Fixed

B Frames

3

Interlaced

Reference Frames

2

HRD Buffer

2

14. You can adjust the following settings:

- **GOP** – specify the number of frames in a **GOP** (Group of Pictures) or select the **Source** checkbox to use the GOP setting of the Source. Default value: 30.
 - **Closed** – for a GOP in which the previous pictures do not need data from the subsequent GOP for bidirectional coding, select the **Closed** checkbox (default).
 - **Fixed** – to always use the specified number of frames in the GOP (as opposed to allowing the encoder to override), select the **Fixed** checkbox (default).
- **B Frames** – specifies the maximal number of consecutive B frames in the **GOP**.



If you are using a player that doesn't support B Frames then you must set the B Frame value as 0.

- **Interlaced** – select the checkbox if you would like to create interlaced video.
 - **Reference Frames** – specify the number of frames that can be referenced for each frame (default 2).
 - **HRD Buffer** – specify the length of the HRD buffer in MPEG-2 (default 2).
15. In the **Audio** section, select one of the following options:
- *Transcode* – select this option to perform transcoding on the audio.
 - *Use original* – select this option to use the original audio settings. This setting is used when you want to transcode the video only.
 - *Remove* – removes the audio track completely.
16. When *Transcode* is selected, the following audio settings can be specified:
- a. In the **Audio Profile** field, select the profile to be used. Options are: *AAC Low Complexity* (default), *AAC High Efficiency*, *AAC High Efficiency v2* (for use with Broadcasters v13 and up).

Transformations

- b. In the **Audio Bitrate** field, select from the drop-down list the audio bitrate in Kbps for this profile. (Default value: 80)
- c. In the **Audio Sampling Rate** field, select *Original* in the drop-down to apply the Original sampling rate OR select the desired resampling rate (*44.1kHz* or *48kHz*).



Resampling is supported for Zixi Broadcasters v13 and up.

17. Click **Save**.

The transcoding profile is added to the list of profiles available in the **Transcoding Profiles** screen.

Cloning a Transcoding Profile

If you would like to create a new Transcoding Profile with properties similar to those of an existing profile, you can use the *Clone* feature to simplify the process.

To Clone a Transcoding Profile:

1. In the main navigation, click **Transformations > Transcoding Profiles**.
2. Select the profile that you would like to Clone (i.e. the profile that is already configured in ZEN Master which has settings similar to those that you would like to set for the new profile that you are creating).
3. Click **Clone**.
The **Clone Transcoding Profile** window is displayed with all fields other than **Name** populated with the configuration data of the original profile.
4. In the **Name** field, enter the name of the new profile.
5. Change any of the fields that you would like to configure differently than the original profile, see [ADDING TRANSCODING PROFILES](#).
6. Click **Save**.
The new profile is created.

Viewing Existing Transcoding Profiles

The Transcoding Profiles screen displays all existing transcoding profiles and details about their configuration. When a profile is selected, the details of that profile are shown on the right side of the screen.

TRANSCODING PROFILES			+ Add	Refresh
<input type="text" value="Filter"/>				
<input type="checkbox"/>	Name	Video	Audio	
<input type="checkbox"/>	1280x720	1280x720 @ 2000 kbps	128 kbps	
<input type="checkbox"/>	1920x1080	1920x1080 @ 2000 kbps	Original	
<input type="checkbox"/>	1920x1080 Original	Original	128 kbps	

The main display includes the following data for each Transcoding Profile:

Parameter	Description
-----------	-------------

Transformations

Name	The name of the transcoding profile as configured in ZEN Master.
-------------	--

The main video transcoding settings:

Video	d. Resolution e. Bitrate
--------------	-----------------------------

The main audio transcoding settings:

Audio	• Bitrate
--------------	-----------

When you select a transcoding profile the details of the selected profile are shown on the right side of the screen.

The screenshot shows a window titled '1280x720' with 'Edit', 'Clone', and 'Delete' buttons. Below the title bar is a 'DETAILS' section with a scrollable list of parameters and their values:

Name	1280x720	B Frames	3
Codec	H.264	Reference Frames	2
Encoding Profile	Main	HRD Buffer	2
Resolution	1280x720	Audio Profile	AAC Low Complexity
FPS	Original	Audio Bitrate	128 kbps
GOP	30	Audio Sampling Rate	Original
Closed GOP	Yes		
Fixed GOP	Yes		
Avg. Video Bitrate	2,000 kbps		
Max. Video Bitrate	3,000 kbps		
Performance	1 - Super Fast		

The Details pane includes the following data for the selected profile:

Parameter	Description
Name	The name of the transcoding profile.
Codec	The codec that is used, e.g. H.264/AVC or H.265/HEVC.
Encoding profile	The encoding configuration type, options are: <ul style="list-style-type: none">• Main• Baseline• High
Resolution	The video resolution settings.
FPS	The frame rate. Frames per second.

Transformations

GOP	The number of frames in a GOP (Group of Pictures)
Closed GOP	Indicates whether or not the GOP is closed.
Fixed GOP	Indicates whether or not the GOP is fixed.
Avg. Video Bitrate	The Average bitrate for the profile.
Max. Video Bitrate	The Maximum bitrate for the profile.
Performance	The performance of the transcoding ranging from 1 (Super Fast) to 8 (Very Slow).
B Frames	The maximal number of consecutive B frames in the GOP.
Reference Frames	The number of frames that can be referenced for each frame.
HRD Buffer	The length of the HRD buffer in MPEG-2.
Audio	<p>The audio transcoding settings.</p> <p>For profiles that include audio transcoding, the following parameters are shown.</p> <ul style="list-style-type: none">• Audio Profile• Audio Bitrate• Audio Sampling

PID Mapping Profiles

You can apply PID mapping to Sources in ZEN Master (for v14+ Broadcasters). This enables you to ensure that the PIDs will have the desired values when they arrive downstream at the Target. This is done by first creating a PID Mapping profile which specifies which PIDs will be processed and defining how they will be handled.

PIDs can be specified for processing by specific PID numbers or they can be identified by category or type (i.e. codec). You can also designate specific PIDS to be nulled or removed completely from the stream.

For PMTs (Program Map Table), in addition to mapping the PIDs, you can also map the Program Numbers.



Mapping Program Numbers is supported for Zixi Broadcaster version 14.0.40996+.

Once you have created a PID Mapping profile you can apply it to a standard Source in ZEN Master (Zixi, UDP/RTP, SRT or RIST) by selecting the PID Mapping profile during the Source

configuration. This causes the same mapped stream to be sent to all Targets that receive that Source.

Alternatively, you can create a new PID Mapping Source from an existing Source. This enables you to maintain the original Source with the original PID values. You can then set up multiple Sources with different PID mappings so that you can send differently mapped streams to different Targets.

Adding PID Mapping Profiles

➔ To add a PID Mapping profile:

1. In the main navigation, click **Transformations > PID Mapping Profiles**.
2. Click **+ Add**.

The **Create New PID Mapping Profile** screen is displayed.

CREATE NEW PID MAPPING PROFILE

Name *

Access Tags * ⓘ

Default Action

Type

Mapping Mode

PMT Rules

Action	New PID (decimal)	New Program Number

Elementary Stream Rules *

Action	Original PID (decimal)	New PID (decimal)
Pass		

Match PCR to Video PID

Cancel Save

3. In the **Name** field, enter a name for the PID Mapping profile.
4. In the **Tags** field, select one or more of the predefined Tags from the drop-down list. Tags are used for access control. By selecting a Tag, you are relating this PID Mapping profile to that Tag. Tags are associated with certain roles (through the Users & Roles screen), and roles, in turn, are associated with users and user groups. If you would like to create a new Tag, see [CREATING A TAG](#).

5. Under **Default Action**, select the default action that you would like to apply to all PIDs for which a specific Rule **does not** apply. Select one of the following actions:
 - **Pass** – passes the PIDs through unchanged, with the existing PID numbers.
 - **Set Null** – sets the PID value as null. This is useful for maintaining the integrity of CBR streams.
 - **Remove** – removes the PIDs from the stream
6. Under **SPTS/MPTS**, select the type of stream to which the profile will be applied. Options are: *SPTS* (default) or *MPTS*.



If you apply an SPTS profile to an MPTS stream, it will fail.

7. Under **Mapping Mode**, select the type of rules that you would like to apply (i.e. the way the PIDs will be selected for processing). Select one of the following types:
 - **Elementary PID#** - the number of the incoming PID
 - **PID Category** – the general category of the PID (e.g. audio, video, SCTE-35 etc.).



If the stream has multiple PIDs of the specified category, then the rule is applied to the first PID and all others are treated with the default process.

- **PID Type** – the specific type of codec (e.g. MPEG1 Video, AVCH/.264, HEVC etc.)
8. In the **PMT Rules** section, you can specify rules for mapping PMTs (optional). If you would like to map the PMTs, use the following procedure, for each rule that you would like to create:
 - a. Click on the **+** button.
 - b. Under **Action**, select from the drop-down list the action you would like to apply for this rule. Options are: *Pass*, *Set Null*, *Remove* or *Map*. (*Set Null* and *Remove* are only relevant for MPTS)
 - c. For **MPTS** profiles, in the **Program Number** field, enter the program number for which the rule applies.
 - d. In the **New PID** field, for rules with the Map action selected, enter the new PID that will be applied.
 - e. In the **New Program Number** field, you can enter a new Program Number that you would like to assign to this PMT (optional). If this field is left empty, the original Program Number is retained.
 9. In the **Elementary Stream Rules** section, for each rule fill in the following details:
 - a. Under **Action**, select from the drop-down list the action you would like to apply for this rule. Options are: *Pass*, *Set Null*, *Remove* or *Map*.
 - b. For **MPTS** profiles, in the **Program Number** field, enter the program number for which the rule applies.
 - c. In the PID selection section, specify which PID/s the rule applies to, as follows (depending on the selected Rule Type):
 - For *Elementary PID #* - specify a specific incoming PID number
 - For *Stream Category* – select the desired Category from the dropdown list
 - For *Stream Type* – select the desired Type from the dropdown list

- d. In the **New PID** field, for rules with the Map action selected, enter the new PID that will be applied.
10. If you would like to add additional rules, click on the **+** button and fill in the fields for the new rule in the same manner as described above.
11. If you would like to remove a rule, click on the **-** button.
12. Select the **Match PCR to Video PID** checkbox if you would like to force the mapper to put the PCR on the video PID without having to know the PCR PID number in advance.
13. Click **Save**.

The PID Mapping profile is added to the list of available profiles.

PID Mapping Configuration Parameters Table

Parameter	Description
Name	Specify the name of the PID Mapping profile in ZEN Master.
Tags	<p>Select one or more of the predefined Tags from the drop-down list.</p> <p>Tags are used for access control. By selecting a Tag, you are relating this PID Mapping profile to that Tag. Tags are associated with certain roles (through the Users & Roles screen), and roles, in turn, are associated with users and user groups. If you would like to create a new Tag, see CREATING A TAG.</p>
Default Action	<p>Select the default action you would like to apply for PIDs that don't match a specific rule. Options are:</p> <ol style="list-style-type: none"> 1. Pass – passes the PIDs through unchanged, with the existing PID numbers. 2. Set Null – sets the PID value as null. This is useful for maintaining the integrity of CBR streams. 3. Remove – removes the PIDs from the stream.
SPTS/MPTS	<p>Select the type of stream to which this policy will be applied. Options are:</p> <ul style="list-style-type: none"> • SPTS – Single Program Transport Stream • MPTS – Multiple Program Transport Stream

Transformations

Rule Type	Select the method used for specifying which PIDs the rule applies to. Options are: <ul style="list-style-type: none">• Elementary PID# - the number of the incoming PID• PID Category – the general category of the PID (e.g. audio, video, SCTE-35 etc.). If the stream has multiple PIDs of the specified category, then the rule is applied to the first PID and all others are treated with the default process.• PID Type – the specific type codec (e.g. MPEG1 Video, AVCH/.264, HEVC etc.)
PMT Rules	
Action	Select from the drop-down list the action you would like to take. <ul style="list-style-type: none">• Pass – maintain the original PID value• Set Null – set the PID value as null• Remove – remove the PID from the stream• Map – assign a new value to the PID <p>Note: <i>Set Null</i> and <i>Remove</i> are only relevant for MPTS</p>
Program Number (for MPTS)	Enter the program number for which this rule applies.
New PID/(decimal)	Enter the new value you would like to assign to the PID designated by this rule.
New Program Number	You can enter a new Program Number that you would like to assign to this PMT (optional). If this field is left empty, the original Program Number is retained.
Elementary Stream Rules	
Action	Select from the drop-down list the action you would like to take. <ul style="list-style-type: none">• Pass – maintain the original PID value• Set Null – set the PID value as null• Remove – remove the PID from the stream• Map – assign a new value to the PID
Program Number (for MPTS)	Enter the program number for which this rule applies.
Original PID (decimal)/ Category/Type	Specify which PID the rule applies to. Specify either the PID number, Category or Type (depending on which Rule Type that you selected).
New PID/(decimal)	Enter the new value you would like to assign to the PID designated by this rule.

Match PCR to Video PID	Select this checkbox if you would like to force the mapper to put the PCR on the video PID without having to know the PCR PID number in advance.
------------------------	--

Cloning PID Mapping Profiles

➔ To Clone a PID Mapping Profile:

- In the main navigation, click on **Transformations > PID Mapping Profiles**.
- Select the profile that you would like to Clone (i.e. the profile that is already configured in ZEN Master which has settings similar to those that you would like to set for the new profile that you are creating).
- Click **Clone**.
The **Clone PID Mapping Profile** window is displayed with all fields other than **Name** populated with the configuration data of the original profile.
- In the **Name** field, enter the name of the new profile.
- Change any of the fields that you would like to configure differently than the original profile, see [ADDING PID MAPPING PROFILES](#).
- Click **Save**.
The new profile is created.

Viewing Existing PID Mapping Profiles

The PID Mapping Profiles screen displays all existing PID Mapping profiles, and information about the configuration of each profile.

Name	Default Action	Type	Rules
curtis_test	Remove	Pid	2

When a PID Mapping profile is selected, the list pane is minimized and detailed info about the selected profile, divided into sections, is shown on the right side of the screen.

Details
Name: curtis_test
Access Tags: Default
Default Action: Remove
Type: Pid

Rules			
Action	Program Number	Original PID (decimal)	New PID (decimal)
Remove	1	82	-
Remove	1	100	-

Sources		
Name	Status	Type
MPTS	⊖ PID mapping Error	Other

When a profile is selected, the following sections are shown in the Info pane:

- **Details** – configuration details of the PID Mapping profile.
- **Rules** – the rules that apply to the selected profile.
- **Sources** – the Sources

Transformations

The main display includes the following data and actions for each profile:

Parameter	Description
Selection Checkbox	Select one or more profiles and perform batch actions on all selected profiles. Available actions are: <ul style="list-style-type: none">• Delete All – deletes the profile configuration for the selected profile.
Name	The name of the PID Mapping profile as configured in ZEN Master.
Default Action	The default action that is applied to PIDs that are not included in a specific rule. <ul style="list-style-type: none">• Pass – passes the PIDs through unchanged, with the existing PID numbers.• Set Null – sets the PID value as null. This is useful for maintaining the integrity of CBR streams.• Remove – removes the PIDs from the stream.
Type	The method used for specifying which PIDs the rules apply to. Options are: <ul style="list-style-type: none">• PID - the number of the incoming PID• Category – the general category of the PID (e.g. audio, video, SCTE-35 etc.). If the stream has multiple PIDs of the specified category, then the rule is applied to the first PID and all others are treated with the default process.• Type – the specific type codec (e.g. MPEG1 Video, AVCH/.264, HEVC etc.)
Rules	The number of rules configured in the profile.

Actions on a PID Mapping Profile

Click on one of the PID Mapping profiles to display information about the profile in the Info pane on the right side of the screen.

The **Info** pane contains buttons for taking the following actions on the selected profile:

- **Edit** – enables you to edit the PID Mapping profile configuration.
- **Clone** – create an additional PID Mapping profile based on the settings of the selected profile.
- **Delete** – deletes the PID Mapping profile configuration.

Transformations

PID Mapping Profile Details

The **Details** section shows the following information:

Parameter	Description
Name	The name of the PID Mapping profile.
Default Action	<p>The default action that is applied to PIDs that are not included in a specific rule.</p> <ol style="list-style-type: none">1. Pass – passes the PIDs through unchanged, with the existing PID numbers.2. Set Null – sets the PID value as null. This is useful for maintaining the integrity of CBR streams.3. Remove – removes the PIDs from the stream.
Type	<p>The method used for specifying which PIDs the rules apply to. Options are:</p> <ul style="list-style-type: none">• PID - the number of the incoming PID.• Category – the general category of the PID (e.g. audio, video, SCTE-35 etc.). If the stream has multiple PIDs of the specified category, then the rule is applied to the first PID and all others are treated with the default process.• Type – the specific type codec (e.g. MPEG1 Video, AVCH/.264, HEVC etc.).

PID Mapping Profile Rules

The **Rules** section shows the following information:

Parameter	Description
Action	<p>The action taken for this rule.</p> <ul style="list-style-type: none">• Pass – passes the PID through unchanged, with the existing PID numbers.• Set Null – sets the PID value as null.• Remove – removes the PIDs from the stream.• Map – change the PID value to a specified value
Program Number (for MTPS)	The number of the program for which the rule applies.
Original PID (decimal)	The original PID value.

Transformations

New PID (decimal)	The new PID value. This parameter is only relevant for rules with <i>Map</i> actions.
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PID Mapping Profile Sources

The **Sources** section shows a list of Sources to which this PID Mapping profile has been applied. The following information is shown for each Source:

Parameter	Description
Name	The name of the Source.
Status	The status of the Source.
Type	The type of the Source.

Logs

ZEN Master stores logs of important events that occur in your system. Logs are shown on two screens:

- **Events** - includes all alerts and events that may require your attention. (This includes alerts generated for problematic sequences of SCTE-35 markers.)
- **SCTE-35** – shows a complete log of recent SCTE-35 markers from Sources that have SCTE-35 logging enabled.

The logs can be sent to a Kafka server for long term storage and additional processing.

Events

Zen Master maintains a log of all events such as connections, errors, disconnections etc. Events for a specific resource (i.e., ZEC, Feeder, Broadcaster or Receiver) or ZEN Master entity (i.e. Source, Channel or Target) can be viewed in the Events tab of the relevant entity. The complete list of events can be viewed on the **Logs > Events** screen. You can filter the results by several different parameters.

EVENTS

^ Hide Filters
[-]

Search

From

Object

To

Types

Error
Warning
Info
OK

Tags

Object	Date/Time	Message	Rule
Source - src_ic_impairment-cpu_04	May 3, 2023, 5:10:54 PM	Not recovered packets	Status - Not Recovered Packets
Broadcaster - aws_virginia_impairment-j04e2	May 3, 2023, 5:10:19 PM	Broadcaster authorization plugin error: Unknown	Status - Error
Source - src_ic_impairment-cpu_04	May 3, 2023, 5:08:03 PM	Not recovered packets	Status - Not Recovered Packets
Broadcaster - aws_virginia_impairment-j04e2	May 3, 2023, 5:07:28 PM	OK	-
Broadcaster - aws_virginia_impairment-j04e2	May 3, 2023, 5:06:54 PM	Broadcaster authorization plugin error: Unknown	Status - Error
Broadcaster - aws_virginia_impairment-o549k	May 3, 2023, 5:06:39 PM	OK	-
Broadcaster - aws_virginia_impairment-o549k	May 3, 2023, 5:05:58 PM	Broadcaster authorization plugin error: Unknown	Status - Error
Source - src_ic_impairment-cpu_05	May 3, 2023, 5:05:11 PM	Not recovered packets	Status - Not Recovered Packets
Live Events - LiveEventsDemo11	May 3, 2023, 5:05:03 PM	Stage off Channel LiveEventsDemo11Secondary Disable Failover Channel OK	-
Live Events - LiveEventsDemo11	May 3, 2023, 5:05:01 PM	Stage off Channel LiveEventsDemo11Secondary Drop Slate OK	-
Live Events - LiveEventsDemo11	May 3, 2023, 5:05:01 PM	Stage off Channel LiveEventsDemo11Primary Disable Failover Channel OK	-
Live Events - LiveEventsDemo11	May 3, 2023, 5:05:00 PM	Stage off Channel LiveEventsDemo11Primary Drop Slate OK	-

The event descriptions include the following details:

Parameter	Description
Event types are:	
Event Type Indicator	<ul style="list-style-type: none"> • Red (Error) – an error in the system. • Yellow (Warning) – an event that raises concern about the performance of the system.

	<ul style="list-style-type: none">• Blue (Info) – a change in the system that does not raise concern and user actions.• Green (OK) - a procedure was implemented effectively.• Gray (System activity) – an activity was done in the system, such as creating or deleting a system entity.
Object	Shows the type of object (e.g. Broadcaster Cluster, Adaptive Channel, Source, etc.) followed by the name of the specific instance of the relevant object.
Date/Time	The date and time of the event.
Message	A brief description of the event. For error events, specifies the cause of the error and suggests corrective actions.
Rule	The name of the event profile rule that generated this event, see CONFIGURING EVENTS PROFILES .

For events that are not an OK state, display the following actions:

- **Open Incident** - creates an Incident, see [Creating an Incident](#).
- **Configure** - opens the Edit Rule screen for the Events Profile that generated the event. From this panel, you can optionally modify the Event Profile. You can overwrite the existing Events Profile (which will apply to to all objects using the profile) or save the changes as a new Events Profile:
 - **To overwrite the existing profile** - perform the modifications (see [CONFIGURING EVENTS PROFILES](#) for more details), under **Update Current Profile**, select **Overwrite**, click **Update Current Profile**.
 - **To create a new profile** - perform the modifications (see [CONFIGURING EVENTS PROFILES](#) for more details), under **Update Current Profile**, select **Create New**, click **Update Current Profile**.

Filtering Events

You can optionally filter the events according to one or more conditions. All conditions are optional and cumulative.

EVENTS

Message Search

Object

Any

From

Select Date

To

Select Date

Types

Error Warning Info Ok

Access Tags

Select Access Tags

➔ To filter events:

1. In the **Message Search** field, enter a string of characters. If this condition is enabled, only events that match this string will be displayed.
2. In the **Object** field, select from the drop-down list the type of object. If this condition is enabled, only events related to this type of object will be displayed.
3. In the **From** and **To** fields, select the date range. If this condition is enabled, only events within this date range will be displayed.
4. In the event **Types** selection, click on an event type to select/deselect that type.
5. In the **Tags** field, select one or more Tags from the drop-down list. If this condition is enabled, only events related to one of the selected Tags will be displayed.
6. Click **Apply**.
All filters that have been set are applied to the display.

Log Events

The following table describes the types of events that are logged for each type of system object and shows the severity level of each event.

All events are logged. In addition, Error events generate email notifications. You can customize the notification settings, see [NOTIFICATIONS](#).

Object	Event	Level
Feeder	Connection issues	Error
	API error	Warning
	CPU/Mem above 90%	Error
	Expired/missing license	Error

Logs

Broadcaster	Connection issues	Error
	API error	Warning
	CPU/GPU/Mem/HDD above broadcaster configured limits	Error
	GPU decoder/encoder usage above configured limits	Warning
	Input/Output bandwidth above limits configured in Zen	Error
	Expired/missing license	Error
	Version not supported for various Zen features	Error
	Configuration doesn't match Zen requirements (e.g. ports/dtls)	Error
Broadcaster Cluster		
Receivers	Connection issues	Error
	API error	Warning
	CPU above 90%	Error
	Expired/missing license	Error
Source	Missing implementation (e.g. feeder output is not on the feeder)	Error
	Connection issues	Error
	TR101 Priority 1 and CQA	Warning
	Low bitrate	Warning
	Bitrate above max bitrate	Warning
	Unrecovered packets	Warning
	Content Analysis errors (if enabled in ZEN)	Error
Channel	Missing implementation	Error
	Missing inputs that are required for the Channel	Error
	Transcoding errors	Error
Target	Missing implementation	Error
	Connection issues (e.g. GCP authorization errors, RTMP authorization errors etc.)	Error
	HLS verification for adaptive Targets (playlists are downloadable and chunks respond to http HEAD)	Warning
Remote Access	Checks if tunnel is alive	Error
License	Checks if expired or expiring soon	Error
Live Event		

Automation

User Events

Account Management	Logs updates and changes to security objects, including Users, Groups and Roles.
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SCTE-35

ZEN Master enables you to monitor in real time SCTE-35 markers (including metadata) that are sent through ZEN Master for live video streams (for v13.1.40262 Broadcasters). This enables the user to remediate problems that occur in real-time and also to provide their customers with proof that the SCTE-35 markers triggering advertisements insertion were transmitted successfully to their destination.

ZEN Master monitors SCTE-35 markers on any inputs that natively use TS (e.g. Zixi TS, TS over RTP/UDP, RIST, SRT, and HLS with TS segments). The SCTE-35 markers are captured both on the ZEN Master Sources and ZEN Master Targets (for Zixi receiving devices e.g. Zixi Receiver, Zixi Receiver SDK, and Zixi Broadcaster).

The logs are stored in ZEN Master for one month. They can also be sent to a Kafka server for further processing and long-term storage, see [SENDING NOTIFICATIONS TO A KAFKA SERVER](#).

SCTE-35

Message Search: Search

From: Select Date

To: Select Date

Access Tags: Select Access Tags

Sources: Select Sources

Apply Reset

Source Name	Date/Time	Message	
QA-Gil-TechWriter-SCTE35-01	Jul 14, 2020, 11:59:15 AM	Into network - Event ID 0x00000000 Program ID 0x0000 PTS ...	Details
SCTE2	Jul 14, 2020, 11:58:26 AM	Break Start - Segmentation event id: 0x00000001 Not restrict...	Details
SCTE2	Jul 14, 2020, 11:57:24 AM	Break End - Segmentation event id: 0x00000001 Not restrict...	Details
QA-Gil-TechWriter-SCTE35-01	Jul 14, 2020, 11:57:10 AM	Into network - Event ID 0x00000000 Program ID 0x0000 PTS ...	Details
QA-Gil-TechWriter-SCTE35-01	Jul 14, 2020, 11:56:50 AM	Out of network - Event ID 0x00000000 Program ID 0x00de D...	Details
QA-Gil-TechWriter-SCTE35-01	Jul 14, 2020, 11:56:35 AM	Into network - Event ID 0x00000000 Program ID 0x0000 PTS ...	Details
QA-Gil-TechWriter-SCTE35-01	Jul 14, 2020, 11:56:05 AM	Out of network - Event ID 0x00000000 Program ID 0x00de D...	Details
QA-Gil-TechWriter-SCTE35-01	Jul 14, 2020, 11:55:05 AM	Into network - Event ID 0x00000000 Program ID 0x0000 PTS ...	Details
SCTE2	Jul 14, 2020, 11:53:54 AM	Break Start - Segmentation event id: 0x00000001 Not restrict...	Details
QA-Gil-TechWriter-SCTE35-01	Jul 14, 2020, 11:53:01 AM	Into network - Event ID 0x00000000 Program ID 0x0000 PTS ...	Details

Rows: 10

The SCTE-35 marker descriptions include the following details:

Parameter	Description
Source Name	The name of the Source on which the SCTE-35 was logged.
Date/Time	The date and time that the marker was detected.
Message	A brief description of the SCTE-35 message.
Details	Click Details on the right of a message to view a JSON containing the raw message and a parsing of the message content.

Activating SCTE-35 Logging

Because SCTE-35 logging utilizes extensive resources, the default behavior is **not** to log SCTE-35 markers. If you would like to log SCTE-35 markers for a particular Source you need to activate SCTE-35 logging in the Source configuration and **also** in the Broadcaster cluster configuration of the Ingest Cluster that is being used.

If you also enabled receiving alerts for SCTE-35, alerts will be generated whenever ZEN Master identifies a problematic sequence of cues. The alerts will be shown in the **Logs > Events** screen.

➔ **To activate SCTE-35 logging:**

1. In the main navigation, go to **Broadcasters**.
2. Select the desired Broadcaster you would like to start logging SCTE-35 markers and click **Edit**, or to create a new Broadcaster, click **+ Add**.
3. Fill in the configuration details as needed (see
4. Click **Save**.
5. In the main navigation, go to **Sources**.
6. Select the desired Source you would like to start logging SCTE-35 markers and click **Edit**, or to create a new Source, click **+ Add**.
7. Fill in the configuration details as needed, and select the **Log SCTE-35** checkbox.
8. If you would like to receive alerts for SCTE-35 events, select the **Enable SCTE-35 Alerts** checkbox.
9. Click **Save**.

The SCTE-35 markers will be logged, and can be viewed in the Logs > SCTE-35 screen.


Filtering SCTE-35 Logs

You can filter the logs according to one or more conditions. All conditions are optional and cumulative.


SCTE-35

Message Search


From


To

Access Tags

Sources

➔ To filter SCTE-35 logs:

1. In the **Message Search** field, enter a string of characters. If this condition is enabled, only logs that match this string will be displayed.
2. In the **From** and **To** fields, select the date range. If this condition is enabled, only logs within this date range will be displayed.
3. In the **Tags** field, select one or more Tags from the drop-down list. If this condition is enabled, only logs related to one of the selected Tags will be displayed.
4. In the **Sources** field, select one or more Sources from the drop-down list. If this condition is enabled, only logs related to one of the selected Sources will be displayed.
5. Click **Apply**.
All filters that have been set are applied to the display.

Dashboard

The ZEN Master dashboard provides an overview of the status of your ZEN resources as well as a summary of recent activities and events in your ZEN system.























There are three widgets displayed in the dashboard:

- **STATUS** – shows the status of each entity managed in ZEN Master.
- **OPEN ISSUES** – shows errors and warnings that need to be dealt with.
- **RECENT EVENTS LOG** – shows recent events that occurred in the system.

You can expand/collapse each of the sections by clicking on the section headings.


Status

The account status section shows a color-coded status indicator for each of the resources and ZEN entities managed through ZEN Master.

STATUS 	
Feeders	 1  2  9
Broadcaster Clusters	 36  8  14
Receivers	 2  7
Sources	 6  5  3  210
Channels	 32  12  1  25
Targets	 4  4  52
Remote Access	 2  1

For each object type, the number next to the status indicator shows how many entities are currently in that status.

The following is an explanation of the status indicators:

- Green – OK (i.e. connected and functioning without errors)
- Red – error state/disconnected
- Pink – acknowledged error state
- Yellow – warning state
- Gray – standby (i.e. pending, disabled or not assigned)
-  - muted (i.e. notification for error/recovery events have been disabled)



The meaning of the status indicators differs slightly for each object type.

Open Issues

This pane centralizes the errors or warnings that need immediate attention.

OPEN ISSUES 47	
Broadcaster: Gil-QA-12-AWS-Virginia-5pvx - Error: CPU Critical	View
Broadcaster: QA-Max-General-Servers-weo9 - Error: API	View
Broadcaster: QA-Max-General-Servers-n2ox - Error: API	View
Broadcaster: QA-Max-General-Servers-lge5 - Error: API	View
Broadcaster: QA-Max-General-Servers-qg46 - Error: Disconnected	View
Broadcaster: QA-Max-General-Servers-rqp5 - Error: Disconnected	View
Broadcaster: QA-Max-General-Servers-og4n - Error: Disconnected	View
Broadcaster: QA-Max-General-Servers-lg61 - Error: Disconnected	View
Broadcaster: QA-Max-General-Servers-9x3d - Error: Disconnected	View
Broadcaster: QA-Max-General-Servers-y0e1 - Error: API	View

« 1 2 ... 5 »

The number shown next to the header indicates the number of open issues. Each listing shows the affected entity and a description of the error/warning. Click **View** to open the management screen for the affected entity.

Recent Events Log

This pane shows the event logs for the 20 most recent events/alerts that were generated from all the various resources, including connections/disconnection, errors, etc.

RECENT EVENTS LOG			
Types Error Warning Info Ok			
Object	Date/Time	Message	
● Task Sets - gil-qa-au-32-Activate-Diactivate-Content-Analy...	May 18, 2020, 3:41 PM	Task set is already active. Schedule Run every 3 mins aborted.	Manage
● Task Sets - gil-qa-au-31-2-bonding-enable-disable-3-minut...	May 18, 2020, 3:41 PM	Task set is already active. Schedule Run every 3 minutes abor...	Manage
● Task Sets - QA-Gil-Enable-Disable-Failover-Platform-662-02	May 18, 2020, 3:40 PM	Task set is already active. Schedule Run aborted.	Manage
● Source - chub-484-01	May 18, 2020, 3:39 PM	Incorrect continuity-count on PID 1002 (expected: 6, found: 2)	Manage
● Broadcaster - QA-Gil-Bx4x1-2-Setup-Alon-Te-pr0p	May 18, 2020, 3:39 PM	OK	
● Broadcaster - QA-Gil-Bx4x1-2-Setup-Alon-Te-pr0p	May 18, 2020, 3:39 PM	Unable to access Broadcaster API, Error: Timeout.	Manage
● Source - chub-03	May 18, 2020, 3:38 PM	Incorrect continuity-count on PID 1000 (expected: 6, found: 2)	Manage
● Task Sets - gil-qa-au-35-ZM-484-enable	May 18, 2020, 3:38 PM	Task set is already active. Schedule Run-Task-ZM-484 aborted.	Manage
● Task Sets - gil-qa-au-32-Activate-Diactivate-Content-Analy...	May 18, 2020, 3:38 PM	Task set is already active. Schedule Run every 3 mins aborted.	Manage
● Task Sets - gil-qa-au-31-2-bonding-enable-disable-3-minut...	May 18, 2020, 3:38 PM	Task set is already active. Schedule Run every 3 minutes abor...	Manage

For an explanation of the event log listings see [EVENTS](#). Click on **Load More** to show earlier event logs.

Maps

The Maps screen shows your Resources (Feeders, Broadcasters and Receivers) and other system objects (Sources and Targets) on a geographical map. By default, each object is represented by a marker which is automatically positioned on the map based on its IP address. You can manually adjust the marker positions either as part of the object configuration or while viewing the Map display. Communications between these objects are displayed as connecting lines showing the direction of data flow. This is helpful for visualizing the interactions between objects in your network. It can also help to identify ways of using your network more efficiently.



For objects that don't have an external IP (e.g. UDP Targets sent to internal IPs) the marker's will initially be placed somewhere within the region specified as the "Default Region" in the Map configuration.

Creating a Map

You need to first create Maps in the system, each of which contains a set of objects to be shown on the Map display. Then, you can open the Map to see those objects displayed in their geographical locations.

The objects displayed on the Map are organized in layers, which can be shown or hidden together. Each Channel that is included in a Map constitutes a separate layer, including all objects associated with that Channel. You can also create custom layers that include any group of specific objects. For example, you can create a layer that shows all of your Broadcasters or you can create a layer that shows all objects related to a certain product.

➔ To create a new Map:

1. In the main navigation, click **Maps**.

2. Click **+ Add**.
The **Create New Map** screen is displayed.

CREATE NEW MAP

INFO

Name *

Access Tags * ⓘ

CONFIGURATION

Default Region ⓘ

Default Style

CHANNELS

MediaConnect Flows

MediaConnect Flow objects will automatically be added to the map in a layer named after the channel name.

Adaptive Channels

Adaptive channel objects will automatically be added to the map in a layer named after the channel name.


Pass-Through Channels

Pass-Through channel objects will automatically be added to the map in a layer named after the channel name.

OBJECTS

Individual objects will be added to the map in a layer named after the user specified layer name.

3. In the **Info** section, in the **Name** field, specify a name for the Map.
4. In the **Tags** field, select one or more of the predefined Tags from the drop-down list. Tags are used for access control. By selecting a Tag, you are relating this Map to that Tag. Tags are associated with certain roles (through the Users & Roles screen), and roles, in turn, are associated with users and user groups. If you would like to create a new Tag, see [CREATING A TAG](#).
5. In the **Configuration** section, in the **Default Region** field, select from the drop-down list the default region for your assets. Available options are: *Africa*, *Asia*, *Australia/Oceania*, *Europe*, *North America* (default) or *South America*.



The default region will be used to position the marker if there is no IP based geolocation and you haven't manually set the location for the asset.

6. In the **Default Style** field, select from the drop-down list the default background style for this Map. Available options are: *Street* (default), *Topographic*, *Dark* or *Light*.
7. Select the **Cluster Markers** checkbox if you would like the Map to cluster nearby Markers together as a single Marker.

8. In the **Channels** section, in the **MediaConnect Flows** field, select from the drop-down list one or more of the MediaConnect Flows to be viewed as a layer on this map.
9. In the **Adaptive Channels** field, select from the drop-down list one or more of the Adaptive Channels to be viewed as a layer on this map.
10. In the **Pass-Through Channels** field, select from the drop-down list one or more of the Pass-Through Channels to be viewed as a layer on this map.
11. In the **Objects** section, if you would like to add individual objects as a layer on this map, click **+ Add Layer**.

The Objects fields are displayed.

OBJECTS

Layer #1

Layer Name *

Feeders

Receivers

Broadcasters

Sources

MediaConnect Sources

Targets

[- Remove Layer](#)

Individual objects will be added to the map in a layer named after the user specified layer name.

[+ Add Layer](#)

[X Cancel](#) [✓ Save](#)

Configure the layer as follows:

- a. In the **Layer Name** field, specify a name for the layer.
 - b. In the **Feeders/Receivers/Broadcasters/Sources/MediaConnect Sources/Targets** field, select from the drop-down lists one or more of the available objects to be added to this layer.
 - c. If you would like to add an additional layer to the map, click **+ Add Layer**.
12. If you would like to add additional layers, repeat the previous procedure for each layer.
 13. Click **Save**.

Editing Maps

➔ To edit an existing Map:

1. In the main navigation, click **Maps**.
2. Click on the **Edit** icon, for the Map that you would like to change.
The **Edit Map** window opens showing the current settings for the Map.
3. Adjust the settings as desired.
4. Click **Save**.
The new Map settings are saved.

Cloning Maps

You can clone a Map, i.e. create a new Map with settings similar to an existing one.

➔ To clone a Map:

1. In the main navigation, click **Maps**.
2. Click on the **Clone** icon, for the Map that you would like to clone.
The **Clone Map** window opens with the settings configured as in the original Map.
3. In the **Name** field, enter a name for the new Map.
4. Adjust the settings as desired.
5. Click **Save**.
The new Map is created *in addition* to the original Map.

Viewing Map Lists

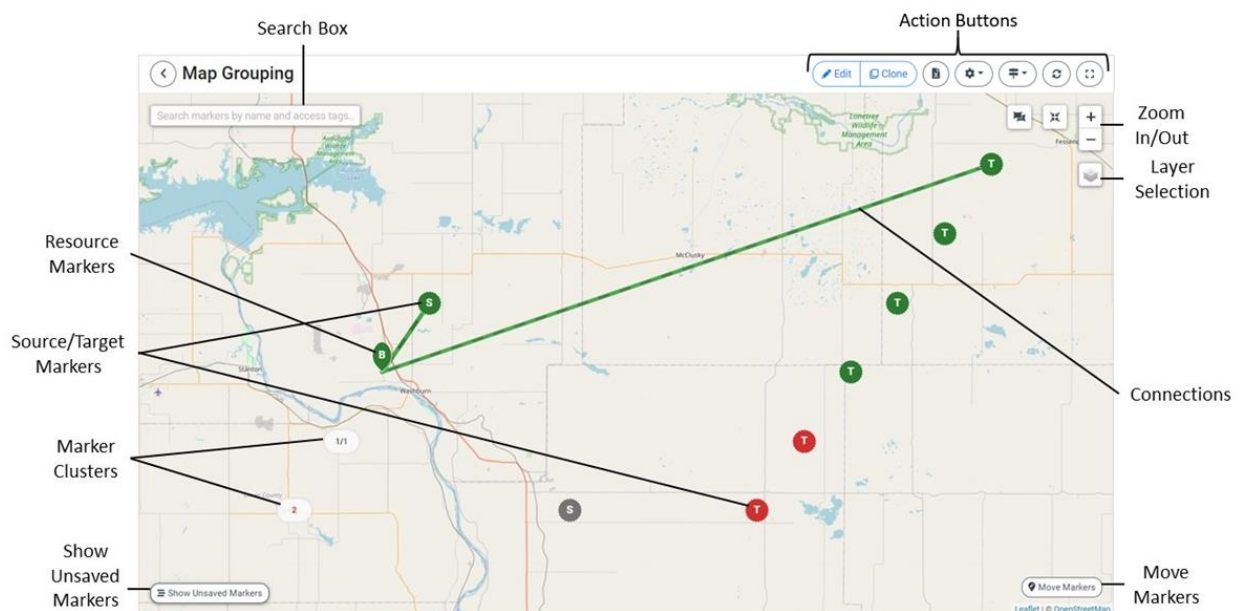
The Maps screen shows a listing of all *Maps* in the system. You can click on a map to open the map display.

Name	Type	Region	Style	# of Layers
all	Geographic	Africa	Topographic	11
Map1	Geographic	North America	Topographic	8
MyMap	Geographic	North America	Dark	1

Parameter	Description
Name	The name of the Map.
Region	The default map region (i.e. the region that objects are positioned when there is no location data available.)
Style	The style of the map background. Possible styles are: <i>Street</i> (default), <i>Topographic</i> , <i>Dark</i> or <i>Light</i> .

# of Layers	The number of layers configured in this Map.
Actions	
Edit	Edit the Map configuration.
Clone	Clone the Map.
Delete	Delete the Map.

Viewing Map Display



The following Elements are shown on the **Maps** screen:

- **Resource Markers** – A pin shaped marker is shown for each resource (Feeder, Broadcaster and Receiver) at its geographical position. The resource’s state is indicated by the color of the marker. Hover over a marker to show its name. Click on a marker to show its details.
- **Source/Target Markers**– A round marker is shown for each Source and Target at its geographical position. The object’s state is indicated by the color of the marker. Hover over a marker to show its name. Click on a marker to show its details.
- **Marker Clusters** – When several markers are positioned in close geographical proximity, the markers are grouped together as a single Marker Cluster. The Marker shows the number of resources at that location, broken down by status. Marker Clusters are automatically grouped/ungrouped as you zoom in and out on the display. You can also manually ungroup all clusters by clicking on the Uncluster button.

- **Connections** – A connecting line shows data transfer between objects. The color indicates the connection status and the moving dash indicates the direction of data flow.
- **Search Box** – Enter search text to search for an object by name or Tag. Select the desired object from the dropdown list in order to zoom in on it in the map display.
- **Action Buttons** – Adjust the Map display using the following buttons:
 - **Move Markers** – enable moving of marker positions.
 - **Edit** – open the Map configuration for editing.
 - **Clone** – clone the displayed Map, i.e. create a new Map with a similar configuration.
 - **Color by** – specify whether object colors indicate status or health score.
 - **Export** – download the data that is currently displayed, as an Excel file.
 - **Legend** – show the legend for understanding Map markings.
 - **Refresh** – refresh the map display.
 - **Expand/Contract** – expand to full screen view.
 - **Cluster/Uncluster** – clusters Markers in close geographical proximity as a single Marker.
 - **Recenter** – automatically reset the automatic Map centering.
 - **Layer Selection** – select the background display (Street, Topographic, Dark or Light) and select which layers are displayed.
 - **Show Unsaved Markers** – open a side pane showing all markers that haven't yet been positioned.

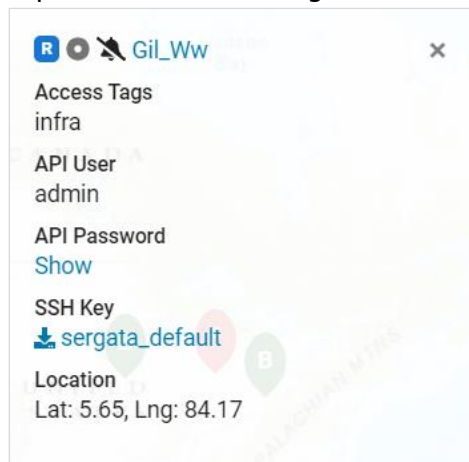


This pane only shows markers for which the position hasn't been identified. Markers that were automatically positioned based on IP aren't shown in this list. Also, once a marker has been manually positioned, it is removed from the list.

Viewing Object Details

When an object on the Map is selected, the details of that object are shown in a panel on the left side of the screen.

The panel includes specific data for each object. Information about the data displayed is explained in the *Viewing* section for each type of object.



Adjusting Display Settings

You can adjust the map display using the display buttons on the Map. You can use the Zoom In/Out buttons to zoom the Map in or out. You can also select different backgrounds and layers to be displayed on the Map.

➔ To add/remove layers and backgrounds from the Map:

1. Click on the **Layer Selection** icon.
2. In the background section, select the desired background. Options are: *Street*, *Topographic*, *Dark* and *Light*.
3. In the layers section, select or deselect the layers as desired. Changes are applied for this session.

Moving Map Markers

Markers representing their respective objects are placed on the Map automatically according to the geolocation of the IP address. Resources for which no geolocation info is available are positioned in the default region. You can override the automatic positioning and configure the location manually as desired.

A list of all markers with no saved location can be displayed by clicking on the **Show Unsaved Markers** button. Once you have manually entered a location for a resource, it is removed from the list.



Resources for which the geolocation was determined automatically based on the IP address are not shown in this list.

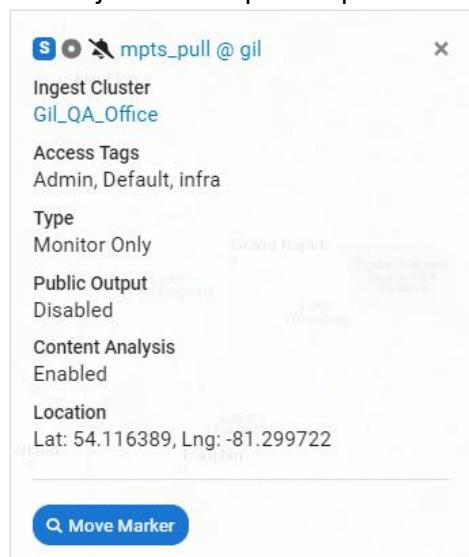
➔ To move object markers:

1. In the Map display, click **Move Markers**. Then, do one of the following procedures:
 - Drag the object markers and drop them on the desired location.



Alternatively, you can press the **ctrl** button on your keyboard and drag the markers to the desired location.

- Or, specify the location based on street address, zip code, or coordinates using the following procedure:
 - a. Click on the desired object marker.
The object details panel opens on the left side of the screen.




- b. Click **Move Marker** in the left panel.
 - c. In the search field, enter the desired address, zip code or location coordinates. Search results are displayed below the search box as you type.
 - d. Click on the desired location.
2. Click **Save**.

Networks

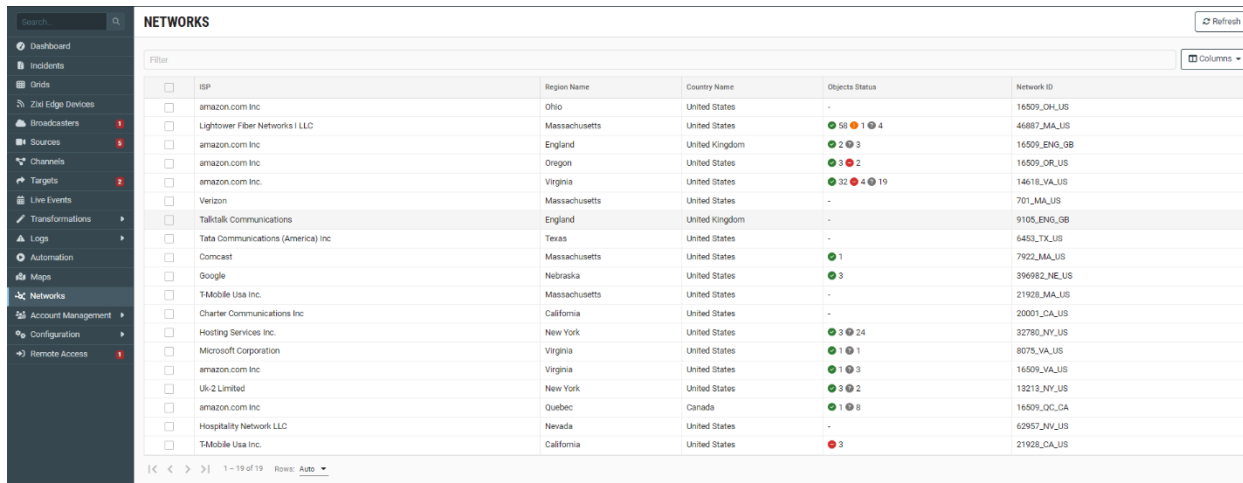
ZEN Master follows the networks in which the various objects reside to understand if a common root cause of an issue is at the network level. For example, if multiple sources originate from the same network and they are experiencing an issue, the root cause of this issue may be at the network level.

The Networks are discovered automatically by ZEN Master using IP-to-location method. A network is defined as an ASN from a specific country and region/state.



This screen required Admin access.

The Networks screen provides details and object states about each network. When a Network is selected, the list pane is minimized and detailed info about the selected Network is shown on the right side of the screen, showing the specific objects that are active on the network.



ISP	Region Name	Country Name	Objects Status	Network ID
amazon.com Inc	Ohio	United States	-	16509_OH_US
Lighttower Fiber Networks I LLC	Massachusetts	United States	50 1 4	46887_MA_US
amazon.com Inc	England	United Kingdom	2 3	16509_ENG_GB
amazon.com Inc	Oregon	United States	1 2	16509_OR_US
amazon.com Inc.	Virginia	United States	32 4 19	14618_VA_US
Verizon	Massachusetts	United States	-	701_MA_US
Talktalk Communications	England	United Kingdom	-	9105_ENG_GB
Tata Communications (America) Inc	Texas	United States	-	6453_TX_US
Comcast	Massachusetts	United States	1	7922_MA_US
Google	Nebraska	United States	3	396982_NE_US
T-Mobile Usa Inc.	Massachusetts	United States	-	21928_MA_US
Charter Communications Inc.	California	United States	-	20001_CA_US
Hosting Services Inc.	New York	United States	3 24	32780_NY_US
Microsoft Corporation	Virginia	United States	1 1	8075_VA_US
amazon.com Inc	Virginia	United States	1 3	16509_VA_US
Uk-2 Limited	New York	United States	3 2	13213_NY_US
amazon.com Inc	Quebec	Canada	1 8	16509_QC_CA
Hospitality Network LLC	Nevada	United States	-	62957_NV_US
T-Mobile Usa Inc.	California	United States	3	21928_CA_US

The main display includes the following data for each Network:

Parameter	Description
ISP	The name of the Internet Service Provider that hosts the network, as defined in the ASN.
Region Name	The region of the network, as defined in the ASN.
Country	The country of the network, as defined in the ASN.
Objects Status	The number of objects in each status: Green – OK Red – error Orange – warning Gray - unknown

Networks

Network ID	The name of network, which comprises the ASN ID, followed by the region code and country code.
-------------------	--

Actions on Networks

When one or more networks are selected the following actions can be performed:

- **Mute/Unmute** – disables/activates notification for error/recovery events related to this network.
- **Delete** – deletes the Network from monitoring list.

Networks Details

When you select a network the details of the selected network are shown on the right side of the screen.

The screenshot shows a web interface for managing networks. On the left, there is a 'NETWORKS' section with a search filter and a list of networks. The network 'Lighttower Fiber Networks I LLC' is selected. On the right, the 'DETAILS' tab is active, showing the following information for the selected network:

- Name: 46887_MA_US
- ISP: Lighttower Fiber Networks I LLC
- ASN: 46887
- Country Code: US
- Country Name: United States
- Region Code: MA
- Region Name: Massachusetts

The Details tab includes the following data for the selected network:

Parameter	Description
Name	The name of network, which comprises the ASN ID, followed by the region code and country code.
ISP	The name of the Internet Service Provider that hosts the network, as defined in the ASN

Networks

ASN	The ASN ID number
Country Code	The country code of the network, as defined in the ASN
Country Name	The country of the network, as defined in the ASN.
Region Code	The region code of the network, as defined in the ASN
Region Name	The region of the network, as defined in the ASN.

Networks Active Objects

The screenshot displays the 'ACTIVE OBJECTS' tab for network 46887_MA_US. The table lists the following objects:

Status	Name	Type
Error	AJA FS1	Remote Access
Error	AJA FS2	Remote Access
Error	Ateme_CM5000	Remote Access
Error	Ateme_DR8400	Remote Access
Error	Cradlepoint-4G/5G	Remote Access
Error	EDGE-DMZ-ASIA	Broadcaster
Error	ElementaLive_Lab	Remote Access
Ok	Evertz_XPS_1_Demo_unit	Remote Access
Ok	Evertz_XPS_2_Demo_unit	Remote Access
Ok	Evertz_XPS_3_Demo_unit	Remote Access

The Active Objects screen a list of objects that are related to the selected network with their statuses. Click on the object's name to view the object's details.

The Details tab includes the following data for the selected network:

Parameter	Description
Status	The object status: Green – OK Red – error Orange – warning Gray - unknown
Name	The name of the object.
Type	The type of object

Grids

ZEN Master Grids provide a high density way to monitor resources and other objects that are configured in ZEN Master. Grids can be used both to monitor the current status of the objects as well as to show various status and configuration properties. The grid display is highly configurable, including what type of objects to display, what information is included in the status box for each object and the number of objects displayed per page. For Sources, there is an option to either display the standard “status” view or to display the “thumbnail” view (for a list of supported formats for thumbnail view, see [SUPPORTED FORMATS FOR THUMBNAIL VIEW](#)).

The screenshot displays the ZEN Master interface with a 'Status Grid' for an 'Exhibition'. The grid consists of 16 individual status boxes arranged in a 4x4 grid. Each box shows the name of the object, its status (e.g., 'Good', 'Audio clipped in channel 1 PID 1002', 'Incorrect continuity-count on PID 17 (expected: ...)'), and key performance indicators: Bitrate, TR101, and Latency. The objects are color-coded: red for error states, orange for warnings, and green for good status. The interface includes a search bar, a navigation menu on the left, and a bottom status bar showing 'Showing: 1 - 16 of 36' and a refresh button.

Object Name	Status	Bitrate	TR101	Latency
LIVE_EVENT_SOURCE @ live-event-cluster	Audio clipped in channel 1 PID 1002	776 kbps	🟡🟡	4000
Autoslate_Backup @ demozixi	Audio clipped in channel 1 PID 1002	400 kbps	🟡🟡	4000
SRT-Pull_720P_10Mbps @ srtcluster	Incorrect continuity-count on PID 17 (expected: ...)	11,330 kbps	🟡🟡	1000
Aterne_CM5000 @ zixi-onpremise-bx	Good	9,172 kbps	🟢🟢	4000
Autoslate @ demozixi	Good	8,001 kbps	🟢🟢	4000
AWS_MediaConnect_Source @ aws-el-lab-in...	Good	5,910 kbps	🟢🟢	4000
BARS_AND_TONE @ linear-distribution	Good	786 kbps	🟢🟢	2000
Elemental_50i_10Mbps @ aws-el-lab-ingest	Good	11,522 kbps	🟢🟢	4000
FrmCheddar @ zixi-onpremise-bx	Good	8,381 kbps	🟢🟢	4000
FrmCheddar2 @ zixi-onpremise-bx	Good	8,392 kbps	🟢🟢	4000
From_Elemental_Lab @ aws-el-lab-ingest	Good	5,937 kbps	🟢🟢	4000
From_Elemental_Lab_2 @ aws-el-lab-ingest	Good	5,937 kbps	🟢🟢	4000
GCSHOW_01 @ showfloor-02-bx	Good	1,565 kbps	🟢🟢	4000
GCSHOW_02 @ showfloor-02-bx	Good	1,736 kbps	🟢🟢	4000
GCSHOW_HITLESS_01_02 @ showfloor-02-bx	Good	9,099 kbps	🟢🟢	4000
Hitless_from_BX_to_MC_Source @ Hitless_1...	Good	5,942 kbps	🟢🟢	4000

Status Grid

You can filter the elements shown in a Grid by object type, object status, tags, name and status. Admin users have the option of making Grids available to the "public" (i.e. to all users who are authorized to view information about the relevant objects). You can also create Grid Groups to display several Grids together.

Grids enable you to concentrate key information about many different system elements in a single display. This can be useful in situations such as a NOC that is monitoring several different systems. You can monitor all activity in your ZEN Master network by displaying Grids on one or more dedicated screen displays. You can also set up a "penalty box" configuration, showing only objects that are in error state.

Creating a Grid

➔ To create a new Grid:

1. In the main navigation, click **Grids**.
2. Click **+ Add Grid**.

The **Create New Grid** window is displayed.

CREATE NEW GRID

Info Filter Display

INFO

Name *

Name

Public (available to non-admin users) ⓘ

Type

Status Thumbnails

FILTER

Object Types

Feeders Sources

Clusters Channels

Broadcasters Targets

Receivers

Only Show Objects with Selected Tags

Select Access Tags

Match All Match Any

Do Not Show Objects with Selected Tags

Select Access Tags

Name Filter (Include)

Name Filter (Include)

Name Filter (Exclude)

Name Filter (Exclude)

Status * ⓘ

Error Warning OK Pending Disabled

Muted Objects

Show all objects

Do not show muted objects

Only show muted objects

Acknowledged Objects

Show all objects

Do not show acknowledged objects

Only show acknowledged objects

DISPLAY

Sort By

Status Health Name

Fields

Status

Health (Sources)

Bitrate (Sources)

TR101 Status (Sources)

Latency (Sources)

IP (Feeders, Broadcasters, Receivers)

CPU (Feeders, Broadcasters, Receivers)

RAM (Feeders, Broadcasters)

Bandwidth (Broadcasters)

Version (Feeders, Broadcasters, Receivers)

Rows

Auto

Columns

Auto

Cycle Pages Automatically ⓘ

Enable Interval

Settings

Fit to screen

Cancel Save

3. In the **Info** section, in the **Name** field, enter a name for the Grid.

4. If you would like to make the Grid available to all users, click the **Public** checkbox.



Only Admin users can make Grids available to the "public". If the *Public* checkbox isn't selected then the Grid is only available for the user who created it. Even when Grids are made public, users who aren't authorized to access particular objects (based on Tags) won't be able to view those objects in the Grids.

5. In the **Filter** section, under **Type**, select the type of Grid. Options are:
 - **Status** – shows a tile with relevant data for each object OR
 - **Thumbnails** (for Source Grids only) – shows a thumbnail of the current content of the Source



For a list of supported formats for showing Thumbnails, see [SUPPORTED FORMATS FOR THUMBNAIL VIEW](#).

6. In the **Object Types** section, select the checkbox next to each type of object that you would like to include in the Grid (e.g. Feeders, Clusters etc.).



For Thumbnail Grids, the Object Type selection is not shown since the only relevant type is Sources.

7. If you would like to filter the objects shown in the Grid by Tags, click on the **Only Show Objects...** field and select one or more Tags from the drop-down list.
8. By default the **Match Any** radio button is selected, to include all objects that have any of the above Tags. If you would like to include only objects that have *all* of the above listed Tags, then select the **Match All** radio button.
9. If you would like to *exclude* objects with a particular Tag/s, click on the **Do Not Show Objects...** field and select one or more Tags from the drop-down list.
10. If you would like to filter the objects shown in the Grid by *Name*:
 - a. In the **Name Filter (include)** field, enter the characters that must be part of the Name in order for an object to be included.
 - b. In the **Name Filter (exclude)** field, enter the characters that must not be part of the name in order for an object to be included.
11. If you would like to filter the objects shown in the Grid by *Status*, in the **Status** field, click on the 'x' next to a status to remove it from the Grid.



The default setting is to include all Statuses. Once a Status has been removed, it can be re-included by selecting it from the dropdown list.

12. In the **Muted Objects** section, select the radio button for the type of objects that you would like to include in the Grid. Options are: *Show all objects* (default), *Do not show muted objects* or *Only show muted objects*.
13. In the **Acknowledged Objects** section (i.e. error states that have been marked as acknowledged), select the radio button for the type of objects that you would like to include in the Grid. Options are: *Show all objects* (default), *Do not show acknowledged objects* or *Only show acknowledged objects*.

14. In the **Display** Section, under **Sort By**, select the way in which the objects are sorted. Options are: *Status* (default), *Health* or *Name*.
15. In the **Fields** section (for Status type Grids), select the checkbox next to each of the data elements that you would like to include in the display. Options are: Status, Health, Bitrate, TR101, Latency, IP, CPU, RAM, Bandwidth and Version.



Each selected data element is shown only for objects for which it is relevant, i.e. Bitrate and TR101 status are shown for Sources while IP and CPU are shown for resources.

16. In the **Rows** field, set the number of rows shown in the Grid (default: *Auto*).
17. In the **Columns** field, set the number of columns shown in the Grid (default: *Auto*).
18. If you would like to automatically cycle through the pages, select the **Enable** checkbox and enter the number of seconds of the interval.



When this feature is selected, the user is able to adjust the interval as well as to pause/restart the cycling.

19. If *Thumbnails* was selected, under **Thumbnail refresh**, adjust the thumbnail refresh time by sliding the indicator on the bar to display the desired number of seconds. Options are: 2-20 seconds. (Default: 8 seconds)
20. In the Settings section, select the checkbox next to each of the settings that you would like to apply to the Grid. Options are:
 - Fit Screen
 - Show Overlay (for Thumbnails type Grids)
21. Click **Save**.

Creating a Grid Group

You can create Grid Groups to display several Grids together.

➔ To create a Grid Group:

1. In the main navigation, click **Grids**.

- In the **Groups** tab, click + **Add Group**.
The **Create New Grid Group** window is displayed.

CREATE NEW GRID GROUP

INFO

Name *

Public (available to non-admin users) ⓘ

FILTER

Your Grids

Public Grids

DISPLAY

Mode

Stack first # of rows of each Grid on one screen


Cycle through Grids one by one

Cycle Pages Automatically ⓘ

Enable

Rows Per Grid (Stacked)

- In the **Info** section, in the **Name** field, enter a name for the Grid Group.
- If you would like to make the Grid Group available to all users, select the **Public** checkbox.



Only Admin users can make Grid Groups available to the "public". If the *Public* checkbox isn't selected then the Grid Group is only available for the user who created it. Even when Grid Groups are made public, users who aren't authorized to access particular objects (based on Tags) won't be able to view those objects in the Grids.

- In the **Filter** section, in the **Your Grids** field, if you would like to include one or more Grids that you created in the Grid Group, click on the **Your Grids** field and select one or more Grids from the dropdown list.
- If you would like to include one or more public Grids in the Grid Group, click on the **Public Grids** field and select one or more Grids from the dropdown list.
- In the **Display** section under **Mode**, do one of the following:
- If you would like to show one or more row/s of each Grid on each page, then select the radio button next to *Stack first #...* (selected by default) and enter the number of rows shown for each Grid in the **Rows Per Grid** field (default: 2).

9. If you would like to show each Grid on a separate page, then select the radio button next to *Cycle through...* If you selected this option and you would like to cycle through the pages automatically then select the **Enable** checkbox for *Cycle Grids Automatically* and enter the number of seconds of the interval.



When this feature is selected, the user is able to adjust the interval as well as to pause/restart the cycling.

10. Click **Save**.

Editing Grids

You can edit the settings of an existing Grid.

➔ To edit an existing Grid:

1. In the main navigation, click **Grids**.
2. In the **Grids** tab (default), click on the **Edit** icon, for the Grid that you would like to change.

The **Edit Grid** window opens showing the current settings for the Grid.

3. Adjust the settings as desired.
4. Click **Save**.
The new Grid settings are saved.

Editing Grid Groups

You can edit the settings of an existing Grid Group.

➔ To edit an existing Grid Group:

1. In the main navigation, click **Grids**.
2. Click on the **Groups** tab.
3. Click on the **Edit** icon, for the Grid Group that you would like to change.
The **Edit Grid Group** window opens showing the current settings for the Grid Group.

4. Adjust the settings as desired.
5. Click **Save**.

The new Grid Group settings are saved.

Cloning Grids

You can clone a Grid, i.e. create a new Grid with settings similar to an existing one.

➔ To clone a Grid:

1. In the main navigation, click **Grids**.

2. In the Grids tab (default), click on the **Clone** icon, for the Grid that you would like to clone.
The **Clone Grid** window opens with the settings configured as in the original Grid.
3. In the **Name** field, enter a name for the new Grid.
4. Adjust the settings as desired.
5. Click **Save**.
The new Grid is saved in addition to the original Grid.

Cloning Grid Groups

You can clone a Grid Group, i.e. create a new Grid Group with settings similar to an existing one.

➔ To clone a Grid Group:

1. In the main navigation, click **Grids**.
2. Click on the **Groups** tab.
3. Click on the **Clone** icon, for the Grid Group that you would like to clone.
The **Clone Grid Group** window opens with the settings configured as in the original Grid Group.
4. In the **Name** field, enter a name for the new Grid Group.
5. Adjust the settings as desired.
6. Click **Save**.
The new Grid Group is saved in addition to the original Grid Group.

Viewing Grid Lists

The Grids screen shows a listing of all *Grids* and *Grid Groups* in the system.

Grid Lists

In the *Grids* tab, for each Grid, the *Name* field shows the name of the Grid and the *Types* field shows the type of objects that are included in the Grid. The *Public* field indicates whether or not the Grid is available to the “public” (i.e. to all users who are authorized to view information about the relevant objects, as opposed to a "private" Grid which is only available to the specific user who created it). Available actions for each Grid are *Edit*, *Clone* and *Delete*.

The screenshot shows the 'GRIDS' tab in a web application. It features a search filter, '+ Add Grid' and 'Refresh' buttons, and a table with columns: Name, Public, Types, and Actions. The table lists 11 grids with their respective public status and object types. At the bottom, there is a pagination control showing 'Showing: 1 - 11 of 24' and a 'Rows' dropdown set to 'Auto'.

Name	Public	Types	Actions
ATEME_CHANNELS_TARGETS	✓	Channels, Targets	[Edit] [Clone] [Delete]
ATEME_SOURCES	✓	Sources	[Edit] [Clone] [Delete]
ATEME_ZIXI_SOFTWARE	✓	Feeders, Clusters, Receivers	[Edit] [Clone] [Delete]
CG_SHOWFLOOR	✓	Sources	[Edit] [Clone] [Delete]
E2E_SCTE35_CM		Feeders, Broadcasters, Targets	[Edit] [Clone] [Delete]
Exhibition		Source Thumbnails	[Edit] [Clone] [Delete]
Exhibition		Source Thumbnails	[Edit] [Clone] [Delete]
HPVZ-01-EGDE-MULTICAST		Source Thumbnails	[Edit] [Clone] [Delete]
JVC-LOW-LATENCY-CONTRIBUTION	✓	Broadcasters, Sources	[Edit] [Clone] [Delete]
LIVE_EVENT_PLATFORM	✓	Feeders, Broadcasters, Receivers	[Edit] [Clone] [Delete]
LIVE_EVENT_STREAMS_ACTIVE	✓	Sources, Channels, Targets	[Edit] [Clone] [Delete]

Grid Group Lists

In the *Groups* tab, for each Grid Group the *Name* field shows the name of the Grid Group and the *Grids* field shows which Grids are included in the Grid Group. The *Public* field indicates whether or not the Grid Group is available to the “public” (i.e. to all users who are authorized to view information about the relevant objects, as opposed to a "private" Grid which is only available to the specific user who created it). Available actions for each Grid are *Edit*, *Clone* and *Delete*.

The screenshot shows the 'GROUPS' tab in the same web application. It features a search filter, '+ Add Group' and 'Refresh' buttons, and a table with columns: Name, Public, Grids, and Actions. The table lists 5 grid groups and a 'Stacked Grid' entry, showing the specific grids included in each group. At the bottom, there is a pagination control showing 'Showing: 1 - 5 of 5' and a 'Rows' dropdown set to 'Auto'.

Name	Public	Grids	Actions
ATEME_INGEST	✓	ATEME_ZIXI_SOFTWARE, ATEME_SOURCES, ATEME_CHANNELS_TARGETS	[Edit] [Clone] [Delete]
E2E_SCTE35_CM			[Edit] [Clone] [Delete]
LIVE_EVENT	✓	LIVE_EVENT_STREAMS_ACTIVE, LIVE_EVENT_PLATFORM	[Edit] [Clone] [Delete]
SCTE35_OTT_CDN	✓	SCTE35_OTT_Sources, SCTE35_OTT_Stream_Channel, SCTE35_OTT_Infrastructure, SCTE35_OTT_CDN_Return	[Edit] [Clone] [Delete]
Stacked Grid		Sources, Targets	[Edit] [Clone] [Delete]

Viewing Grid Display

Click on a Grid on the Grids screen to display that Grid. The Grid display shows a tile for each object included in the Grid.

There are two types of Grids:

- **Status Grids** - show color coded tiles indicating the status of each element. Status Grids can be displayed in Table or Grid views.
- **Thumbnail Grids** (for Sources) – shows a thumbnail of the current content for each Source. Thumbnail Grids can be displayed in Table or Grid views.

Viewing Status Grid Display

The screenshot displays a ZenGrid interface for a status grid titled "zen_demo_src_status". The grid consists of 24 tiles arranged in a 4x6 layout. Each tile represents a different source or workflow and is color-coded to indicate its status:

- Red tiles (Error state):** 12 tiles in the top two rows. These include sources like "erlyre @ aws_virginia_egress", "lab_bx02_mcx_01_x @ mediacnect...", "mediacnect-workflow @ us-east-1", "Multiview_Demo @ aws_virginia_ingest", "src_bonded_fo_lab_bx0405_elm01_xy...", "src_bonded_lab_bx05_elm01_ya8 @ a...", "src_file_s3_Wonderland_HEVC_420_1...", "src_multiplex_mpts @ aws_virginia_jn...", "tgt_pul_aws_virginia_zec01_iphone-c...", "tgt_rtmp_youtube01", "tgt_zixl_probe_mediacnect-workflow", and "tgt_zixl_xf8".
- Green tiles (Good state):** 12 tiles in the bottom two rows. These include sources like "9800_A @ aws_virginia_ingest", "9800_B @ ZIXI_DEMOHD", "adaptive-hls @ aws_virginia_egress", "azure_blob_source @ azure-eastus-in...", "cellphones @ aws_virginia_egress", "Chris_NDI @ aws_virginia_ingest", "distribution-east @ aws_virginia_egress", "errors @ aws_virginia_ingest", "hitless-bonded-useast-aws @ aws_vir...", "hitless-bonded-useast-boston @ aws...", "hitless-east @ aws_virginia_egress", and "hitless-west @ aws_oregon_egress".

Each tile displays the source name, type of object, and its current state. Some tiles also show performance metrics such as Health (e.g., 100), Bitrate (e.g., 51,441 kbps), TR101 status (e.g., OK), and Latency (e.g., 4000). The interface includes a top navigation bar with "Grid" and "Table" views, "Edit", "Clone", and "Filter" buttons, and a bottom navigation bar with page numbers and a "Showing: 1 - 24 of 184" indicator.

A color coded tile indicates the status of each element included in the Grid (red indicates *error* state, orange for *warning* state, green for *good* state and *gray* for pending/disabled). The tile includes the name, type of object and its current state. Depending on how the Grid was configured, it may contain additional information about the performance of the object (e.g. bitrate, TR101 Status, RAM, health score etc.) The display settings (e.g. display density, sorting method (name or status) and cycling through pages) are configured for each Grid as part of the initial Grid configuration. If automatic cycling through pages was activated then the user is able to pause/restart the cycling as well as to adjust the interval time.

The Header bar contains controls that enable you to:

- Toggle between Grid and Table views
- Edit
- Clone
- Filter
- Fit to screen
- Download Excel file
- Refresh
- Expand to full screen mode

Viewing Thumbnail Grid Display

< Source Thumbnails 17

Grid Table Edit Clone Filter

bloomberg4k @ gputest clock @ Tim_Manual_Testing_Clus... output_rasppi_4core_alienware_001_0... slovenia @ Tim_Manual_Testing_Clust... starlink_uplink @ Tim_AWS_Cluster_O... starlink_uplink_srt @ Tim_AWS_Cluste...

Thumbnail not Available Unknown Offline Thumbnail not Available Offline Thumbnail not Available Unknown Offline Thumbnail not Available Offline Thumbnail not Available Unknown Offline

timtestsource @ Tim_AWS_Cluster_O... zixi_intro @ Tim_Manual_Testing_Clus... ZMDemoSource1 @ ZMDemoK bbb_AVC_420_8bit_1080p6... 2.973 kbps ZMDemoFollower @ ZMDe... 3,377 kbps Ken-Zixi_OnAir @ Tim_AWS_Cluster_O...

Thumbnail not Available Offline Thumbnail not Available Offline Thumbnail not Available Offline

09:41:36.753 09:41:36.753

MATT_MC_SRC @ Matts_AWS_Cluste... Matt_Src_Via_Rest @ Matts_AWS... newsroom01 @ Matts_AWS_Clust... newsroom02 @ Matts_AWS_Clust... starlink_10M_uplink_4000ms @ Tim... starlink_10M_uplink_4000ms @ Zixi_C...

Disabled Zixi Disabled Zixi Disabled Zixi Disabled Zixi Disabled Zixi

Showing 1 - 18 of 24 10 seconds

A thumbnail tile shows the current content for each Source included in the Grid. Depending on how the Grid was configured, it may show an overlay with the audio levels and timestamp. The display settings (e.g. display density, sorting method (name or status) and cycling through pages) are configured for each Grid as part of the initial Grid configuration. If automatic cycling through pages was activated then the user is able to pause/restart the cycling as well as to adjust the interval time.

Grids

The Header bar contains controls that enable you to:

- Expand to full screen mode
- Dark mode (available in full screen mode only, ideal for NOC environment)
- Adjust the thumbnail refresh time
- Fit to screen
- Show overlay
- Filter
- Download Excel file
- Edit
- Clone

Supported Formats for Thumbnail View

Thumbnail view is supported for the following stream formats:

- Scan Style: Interlaced and Progressive
- Codec: MPEG2, H.264/AVC
- Frame Size: SD, HD (720p), Full HD (1080p), 4K (2160p)
- Frame Rate: 24fps, 25fps, 29.97fps, 30fps, 59.94fps, 60fps
- Chroma Subsampling: 4:2:0
- Bit Depth: 8-bit (MPEG2, H.264/AVC), 10-bit (H.264/AVC)

Viewing Grid Groups

The screenshot shows a 'Stacked Grid' interface with a header bar containing 'Edit', 'Clone', and other controls. The main area is divided into two sections: 'Sources' and 'Targets'.

Sources:

LIVE_EVENT_SOURCE @ live-event-cluster Audio clipped in channel 1 PID 1002 Bitrate: 775 kbps TR101: 🟢🟢 Latency: 4000	Autoslate_Backup @ demozixi Audio clipped in channel 1 PID 1002 Bitrate: 394 kbps TR101: 🟢🟡 Latency: 4000	Ateme_CM5000 @ zixi-onpremise-bx Good Bitrate: 9,172 kbps TR101: 🟢🟢 Latency: 4000	Autoslate @ demozixi Good Bitrate: 7,997 kbps TR101: 🟢🟢 Latency: 4000
AWS_MediaConnect_Source @ aws-el-lab-in... Good Bitrate: 5,926 kbps TR101: 🟢🟢 Latency: 4000	BARS_AND_TONE @ linear-distribution Good Bitrate: 775 kbps TR101: 🟢🟢 Latency: 2000	Elemental_50I_10Mbps @ aws-el-lab-ingest Good Bitrate: 11,522 kbps TR101: 🟢🟢 Latency: 4000	FrmCheddar @ zixi-onpremise-bx Good Bitrate: 8,390 kbps TR101: 🟢🟢 Latency: 4000

Targets:

LIVE_EVENT_TARGET_07_GCP Error (Rejected) for LIVE_EVENT_TARGET_07_G...	Studio-Return Zixi Push output Studio-Return Error: Authentica...	GCP-Bucket Error (Rejected) for GCP-Bucket	AWS_MediaStore Good
CABLE_HEAD_END Good	Fiber_Hitless Good	HITLESS-RX02 Good	HITLESS_RECEIVER Good

Click on a Grid Group to show tiles for all objects included in the Group. The tiles are group by the Grids to which they are assigned. This enables you to monitor a wide range of different objects in a single view.

Account Management

EN Master features a multi-tier access control mechanism that enables granular control of the access privileges down to the object level. It manages access to all system objects, including Resources (i.e. ZECs, Broadcaster Clusters, Receivers and Licenses), Sources (i.e. input streams), Channels (e.g. adaptive channels, pass-through channels), Targets, and Reports.

The access control is managed through the following entities:

- **Tags** – Each object (Resource, Source, Channel, Target, Report) is assigned one or more Tags. The assignment of the Tag is performed during the creation/configuration of the object. The same Tag can be assigned to several different objects.
- **Roles** – A role defines a set of privileges in the system. A role is associated with one particular Tag, enabling access to objects associated with that Tag. The role also designates what actions can be performed on each object type (i.e. Resources, Sources, Channels, Targets, and Reports). Actions include Read (the ability to view data from the object), Write (the ability to edit the object's configuration), Notify (the ability to receive email notifications/alerts regarding the object). A Tag can be associated with one or multiple roles.
- **Users and User Groups** – A user receives privileges in the system by being assigned one or multiple roles. Users can be assigned to User Groups. A user can be assigned a role either directly or through a user group to which he is assigned. One or multiple users are designated as Administrators. An Administrator can access and interact with all objects without need for assignment of specific roles. He can also manage SSH Keys, transcoding profiles and users.

Summary:

A user can only access a specific object in the system if he is assigned a role that -

- is associated with the Tag that is assigned to that particular object, and
- has privileges that allow access to that object type.

For Example:

If a Tag '*Content 1*' is assigned to all objects relating to that content (e.g. *Source 1*, *Adaptive Channel 1* and *Pass-Through Channel 1*). And that Tag is associated with a role *Channel_Viewer_1* with privileges to Read (in the ZEN Master system) both Adaptive Channels and Pass-Through Channels but no privileges to Read Sources. Then, a user with the role *Channel_Viewer_1* will be able to view *Adaptive Channel 1* and *Pass-Through Channel 1* but not *Source 1*. The user will not be able to edit the configuration for these channels since the role only has viewing privileges and not editing privileges. Also, the user will not be able to view *Adaptive Channel 2* since the Tag assigned to his/her role is not associated with *Adaptive Channel 2*.

Managing Users and Groups

As part of the management and configuration process, users are added to the system as described below.

Adding Users

User accounts are set up by an administrator with an initial password. The user can change the password from the **My Account** tab after logging into the system.

➔ **To add a user:**

1. In the main navigation, click **Account Management > Users**.
2. On the **Users** screen, click **+ Add**.

The **Create New User** screen is displayed:

CREATE NEW USER

Name *

Email *

Authentication Type

Single Sign-On ZEN Master

New Password *

Confirm New Password *

Require password reset

Administrator

Enabled

Groups

Roles

Cancel Save

3. In the **Name** field, enter a name for the new user.
4. In the **Email** field, enter the email of the new user.
5. Under **Authentication Type**, select the manner in which you would like the User to sign in. Options are: *Single Sign-On* or *ZEN Master*.

6. If you selected **ZEN Master**, then continue with the following procedure. If you selected **Single Sign-On**, then proceed to the step 7.
 - a. In the **New Password** field, enter the password that will be used by the new user. The Password must contain at least four alphanumeric characters. The password is case sensitive.
 - c. In the **Confirm New Password** field, type the identical Password that you entered in the **New Password** field.
 - d. If you would like to require the user to reset his/her password upon initial login, select the **Require password reset** checkbox.
7. If you would like to give the new user Administrator privileges, select the **Administrator** checkbox. An Administrator is authorized to view and edit all objects without need for assignment of specific roles. He can also manage SSH Keys, transcoding profiles and users.
8. If you would like to activate the user's account, select the **Enabled** checkbox (*default*).



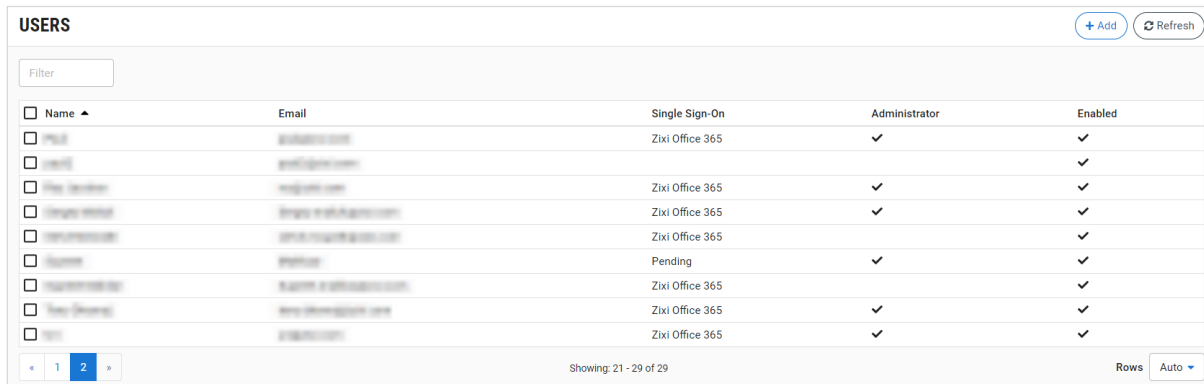
If you create a User account but don't enable it then the account is saved in the system but the user won't be able to access the system until it is enabled.

9. In the **Groups** field, select from the drop-down list the Groups you would like the User assigned to.
10. In the **Roles** field, select from the drop-down list the Roles you would like to assign the User.
11. Click **Save**.

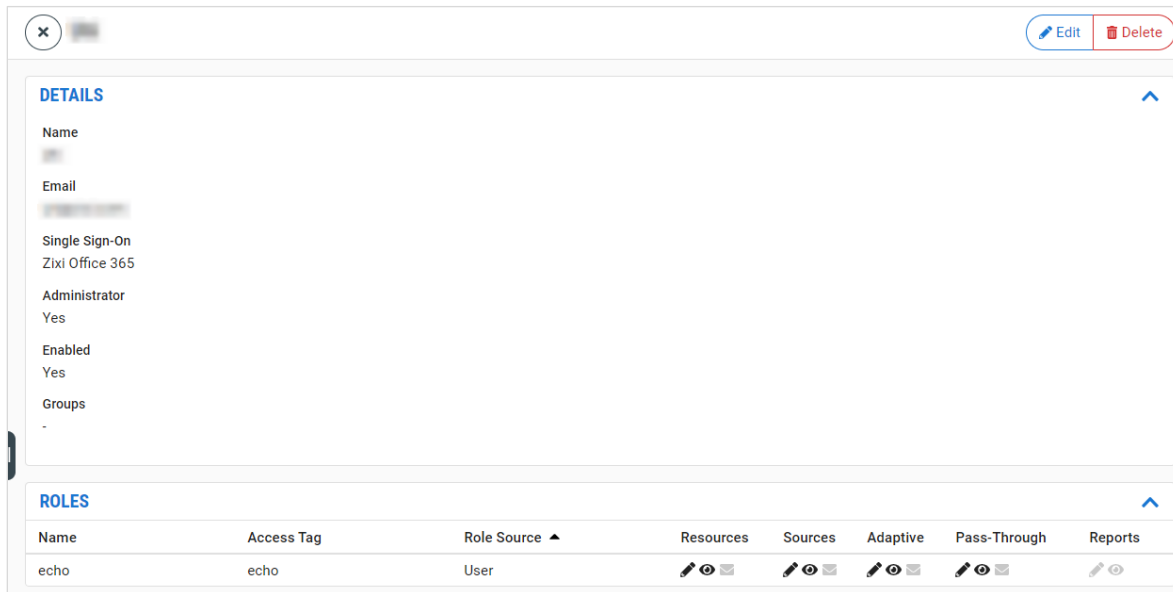
The new User is added to the list of Users.

Viewing Existing Users

The **Users** screen displays all of the existing users, and the details described below.



When a user is selected, the list pane is minimized and detailed info about the selected user is shown on the right side of the screen.



The main display shows the following data:

Parameter	Description
Name	The name of the user.
Email	The email account of the user.
SSO Name	The name of the SSO provider (for users who log in using an SSO).
Administrator	Shows whether or not the user has Admin privileges.
Enabled	Shows whether or not the user account is currently enabled.

Selecting one of the users displays the following tabs at the right side of the screen:

- **Details** – shows details about the user account.
- **Roles** – shows the list of all of the roles assigned to the user, including details about how the role was assigned, the Tag and the actions that can be performed on each object type.

Action on Users

The following actions can be done for the selected User:

- **Edit** – Edit the account settings. You can activate/deactivate a user account by editing the settings.
- **Delete** – Delete the User account completely from the system.

User Details Pane

When one of the user accounts in the list is selected, the details of the selected user account, divided into tabs, is displayed at the right side of the screen.

The following table describes the information shown in the **Details** section.




Parameter	Description
Name	The name of the user.
Email	The email of the user.
Administrator	Indicates whether or not the user has administrator privileges.
Enabled	Indicates whether or not the user account is enabled.
Groups	The name of each user group in which the selected user is a member.

User Roles

The following table describes the information shown in the **Roles** section.

Parameter	Description
Name	The name of each of the roles assigned to the selected user.
Tag	The Tag associated with each role.
	Shows the source of the assignment of each role, as follows:
Role Source	<ul style="list-style-type: none">• Role assigned to the individual user – 'User'• Role assigned to a user group – The name of the User Group

For each object type, the bolded icons indicate the user privileges associated with the role. The following is a description of the possible privileges:

- Resources, Sources, Adaptive, Pass-Through, Reports**
-  - can edit the configuration for this object type.
 -  - can view objects of this type.
 -  - receives email notifications about error and OK (activation) events for this object type.

Adding User Groups

As part of the management and configuration process, user groups are added to the system as described below.

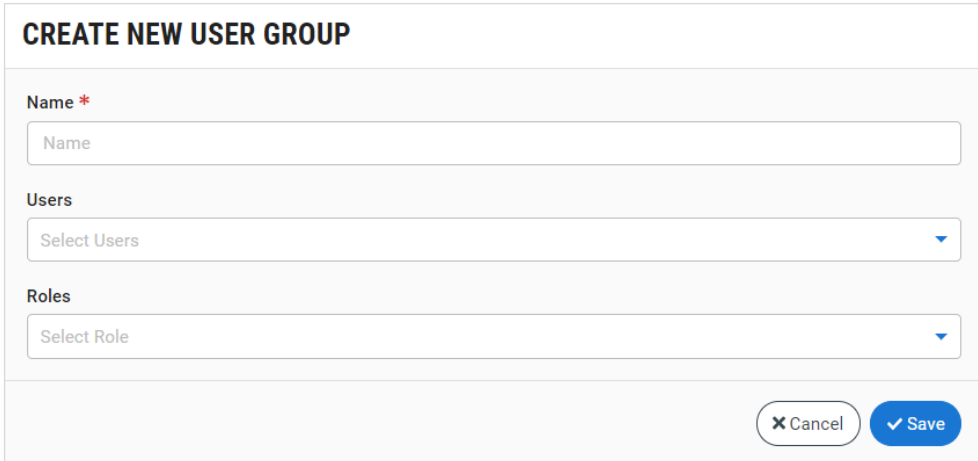


Users are assigned to a group as part of the procedure of creating the group. If you would like to add users to an existing group, you can do so by editing the group configuration.

➔ To add a user group:

1. In the main navigation, click **Account Management > User Groups**.
2. Click **+ Add**.

The **Create New User Group** window is displayed:



3. In the **Name** field, enter a name for the new user group.
4. In the **Users** field, select from the drop-down list the users you would like to add to the group.

Account Management

5. In the **Roles** field, select from the drop-down list the roles you would like assigned to the group.
6. Click **Save**.
The new user group is added to the User Groups list.

Viewing Existing User Groups

After a user group is created, it is added to the list of existing user groups. The **Users Groups** screen displays all of the existing user groups, and the details described below.

USER GROUPS		+ Add	Refresh
Filter			
<input type="checkbox"/> Name	Users		
<input type="checkbox"/> admins	1		
<input type="checkbox"/> ADULT_SWIM_GROUP	1		
<input type="checkbox"/> demo_group	0		
<input type="checkbox"/> dwdw	0		
<input type="checkbox"/> Fox Affiliates	0		
<input type="checkbox"/> Gil-QA-484	0		
<input type="checkbox"/> Gil-Tag-1	1		
<input type="checkbox"/> Gil_QA	0		
<input type="checkbox"/> ibcsales	0		
<input type="checkbox"/> ProdMgmt	0		
<input type="checkbox"/> qgroup	0		
<input type="checkbox"/> Sergata Developers	0		
<input type="checkbox"/> Sergata QA	0		
<input type="checkbox"/> team a	0		
<input type="checkbox"/> test	0		
<input type="checkbox"/> Viewers	0		

« 1 2 » Showing: 1 - 16 of 18 Rows Auto ▾

Account Management

When one of the user groups in the list is selected, the details of the selected user group, divided into tabs, are displayed at the right side of the screen.

Name	Access Tag ▲	Resources	Sources	Adaptive	Pass-Through	Reports
Admin	Default					
infra_managers	infra					
sources_mgr	sources					
stream_editors_east	streams_east					
stream_editors_west	streams_west					

The main display includes the following data:

Parameter	Description
Selection Checkbox	By selecting one or more User Groups, you can click Delete All to delete all selected groups.
Name	The name of the user group.
Users	The number of users who are members of the group.

Selecting one of the user groups displays the following tabs at the right side of the screen:

- **Details** – shows the list of users who are members of this user group.
- **Roles** – shows the list of roles assigned to the user group and information about each role.

Action on User Groups

The following actions can be done for the selected User Group:

- **Edit** – Edit the group settings. You can add/remove users and roles by editing the settings.
- **Delete** – Delete the User Group completely from the system.

User Group Details Pane

When one of the user groups in the list is selected, the details of the selected user group, divided into tabs, are displayed at the right side of the screen.

The following table describes the information shown in the **Details** section.

Parameter	Description
Name	The name of the group.
Users	The name and email of each user assigned to the selected group.

User Group Roles

The following table describes the information shown in the **Roles** section.

Parameter	Description
Name	The name of each role assigned to the selected user group.
Tag	The Tag associated with each role.

For each object type, the bolded icons indicate the user group privileges associated with the role. The following is a description of the possible privileges:

Resources, Sources, Adaptive, Pass-Through, Reports



- can edit the configuration for this object type.



- can view objects of this type.



- receives notifications about alerts/events for this object type.

Managing Roles

A role enables access to specific objects in the system (i.e. resources and system entities) and designates the level of privileges given (i.e. Read, Write, or Notify).

When creating a role you relate one specific Tag to the role (the Tag is assigned to each relevant object). New Tags can be created either on the **Settings > Tags** screen or during the creation of a Role. The role configuration determines the type of interaction (read, write, notify) that is enabled for each of the object types. The following is a description of the objects included in each object type:

- **Resources** – all Zixi-enabled resources managed in ZEN Master. This includes ZECs, Zixi Broadcaster clusters as well as other devices that have been configured in ZEN Master through Remote Access connections (e.g. encoders, IRDs etc.). This also includes access to licenses, remote access, incidents, live events and maps.
- **Sources** – input streams that are managed in ZEN Master, MediaConnect Sources, and PID mapping profiles.
- **Channels** - includes adaptive channels, which are all channels in ZEN Master that involve processing of Sources **as well as their associated Targets**. This includes both Adaptive and Transcoded Channels as well as HTTP and S3 Bucket Targets. It also includes Pass-Through Channels, which includes all Channels that send sources to Targets without additional processing as well **as their associated Targets**. This includes Pass-Through Channels as well as Push, Pull and RTMP Targets. In addition, it includes Failover channels, MediaConnect Flows, and MediaLive Channels.
- **Targets** - Targets that are managed in ZEN Master.
- **Reports** – Usage Reports, Stats Summary Reports and Uptime/Outage Reports.

As part of the management and configuration process, roles are added to the system as described below. As part of the role configuration, you assign users and user groups to the role.

Adding Roles

➔ **To add a role:**

1. In the main navigation, click **Account Management > Roles**.

2. Click + Add.

The **Create New Role** window is displayed:

CREATE NEW ROLE

Name *

Tag *

Permissions

Object	Read	Write	Notify
Resources	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Tags	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
License	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Remote Access	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
ZEC	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Feeder	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Receiver	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Broadcaster Cluster	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Broadcaster	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Task Sets	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Incidents	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Live Events	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Maps	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Channels	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Adaptive Channel	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Pass-Through Channel	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fallover Channel	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
MediaConnect Flows	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
MediaLive Channels	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sources	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Source	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
MediaConnect Sources	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PID Mapping Profiles	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Targets	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Publishing Target	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
MediaConnect Flow	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
MediaConnect CDI Targets	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
MediaConnect JPEG XS Targets	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
MediaLive HTTP Targets	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
MediaConnect Entitlement Targets	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Pull	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
UDP/RTP	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
RIST	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
SRT Targets	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
NDI Targets	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Push	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
RTMP Push	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Reports	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Reports	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Users

Groups

3. In the **Name** field, enter a name for the new role.

4. In the **Tag** field, select a predefined Tag from the drop-down list.

Tags are used for access control. By assigning a Tag to this role you enable users with this role to access all system object to which the Tag is assigned. If you would like to create a new Tag, see [CREATING A TAG](#).

Account Management

- Under Permissions, for object type select the permission level that will be assigned to this role. You can apply the same selection on an entire category (e.g. Resources, Channels, Sources, etc.) by selecting it at the category level, which is highlighted in gray. The options are:
 - Read** – allows users with this role to view objects of this type but not edit their configuration.
 - Write** – allows users with this role to edit the configuration of objects of this type.
 - Notify** – allows users with this role to receive notifications/alerts regarding this object type.
- In the **Users** field, select from the drop-down list the users you would like to assign the role to.
- In the **Groups** field, select from the drop-down list the groups you would like to assign the role to.
- Click **Save**.
The new role is added to the list of roles.

Viewing Existing Roles

The **Roles** screen displays each of the existing roles, and the Tag and privileges associated with that role. Selecting one of the roles displays the **Details** tab at the right side of the screen.

ROLES								+ Add	Refresh
Filter								Columns	
<input type="checkbox"/>	Name	Tag	Resources	Channels	Sources	Targets	Reports		
<input type="checkbox"/>	Admin	default							
<input type="checkbox"/>	delete	apac							
<input type="checkbox"/>	Demo_User	__Exhibition							
<input type="checkbox"/>	Exhibitions	__Exhibition							
<input type="checkbox"/>	UK Demo	__UKDemo							
<input type="checkbox"/>	Viewer	default							

|< < > >| 1 - 6 of 6 Rows: Auto

Account Management

When a role is selected, the list pane is minimized and detailed info about the selected role is shown on the right side of the screen.

× Demo_User Edit Clone Delete

DETAILS

Name
Demo_User

Tag
_Exhibition

Users
SlackTest (slack-zmtest-aaaaeywaekjagfijkryr267cby@zixillc.slack.com), Demo User (demouser@zixi.com)

Groups
Zixi Internal Zen Demo




Permissions

Object	Read	Write	Notify
Resources	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Tags	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Feeder	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Receiver	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
ZEC	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Remote Access	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Broadcaster Cluster	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Broadcaster	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
License	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Task Sets	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Maps	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Sources	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Source	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
MediaConnect Sources	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
PID Mapping Profiles	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Channels	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Adaptive Channel	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
MediaConnect Flows	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
MediaLive Channels	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Pass-Through Channel	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Targets	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Publishing Target	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
MediaConnect Flow	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
MediaConnect CDI Targets	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
MediaConnect JPEG XS Targets	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
MediaLive HTTP Targets	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Pull	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
UDP/RTP	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
RIST	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
SRT Targets	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
NDI Targets	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Push	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
RTMP Push	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Reports	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Reports	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

The main display includes the following data:

Parameter	Description
Name	The name of the role.
Tag	The Tag associated with the role.

Account Management

Users	The Users associated with the role.
Groups	The Groups associated with the role.
Resources, Sources, Channels, Targets, Reports	For each object type, the bolded icons indicate the user privileges associated with the role. The following is a description of the possible privileges:  - can edit the configuration for this object type.  - can view objects of this type.  - receives email notifications about error and OK (activation) events for this object type.

Action on Roles

The following actions can be done for the selected role:

- **Edit** – Edit the role configuration. You can add or remove users to a role by editing the role.
- **Delete** – Delete the role completely from the system.

Role Details

When one of the roles in the list is selected, the details of the selected role, are displayed at the right side of the screen.

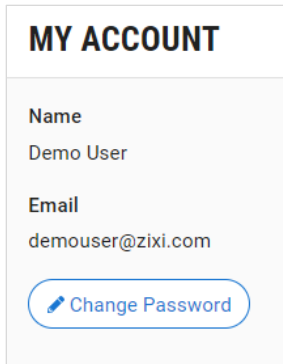
Parameter	Description
Name	The name of the selected role
Tag	The tag associated with the selected role.
Users	The name and email of each of the users assigned to the selected role.
Groups	The name of each of the groups assigned to the selected role.

Editing your Account Details

You can change your password at any time. The username and email, which is used for logging in is not editable.

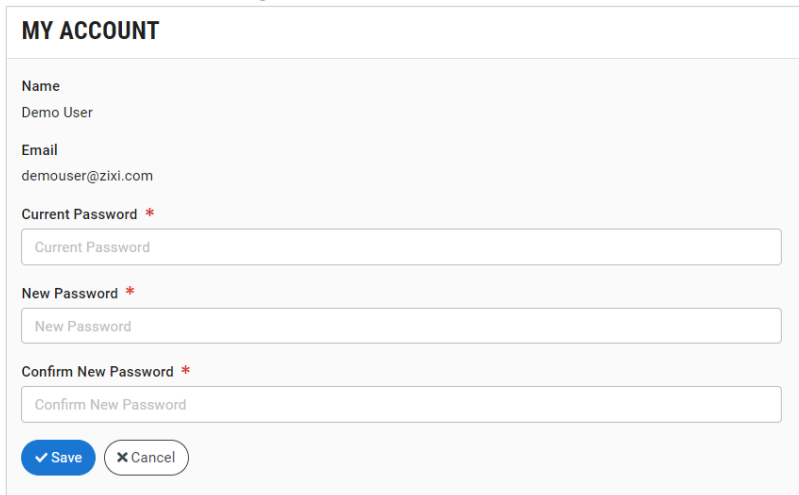
➔ **To modify your account details:**

1. In the main navigation, select **Account Management > My Account**.
The **My Account** screen opens.



The screenshot shows a card titled "MY ACCOUNT". Below the title, there are two sections: "Name" with the value "Demo User" and "Email" with the value "demouser@zixi.com". At the bottom of the card is a blue button with a pencil icon and the text "Change Password".

2. Click **Change Password**.
The fields for editing the Password are shown.



The screenshot shows the "MY ACCOUNT" screen with the password change form. It includes the same "Name" and "Email" information. Below that are three password fields: "Current Password *", "New Password *", and "Confirm New Password *". At the bottom are two buttons: a blue "Save" button and a white "Cancel" button with a red 'x' icon.

3. In the **Current Password** field, enter your current password.
4. In the **New Password** field, enter your new password.



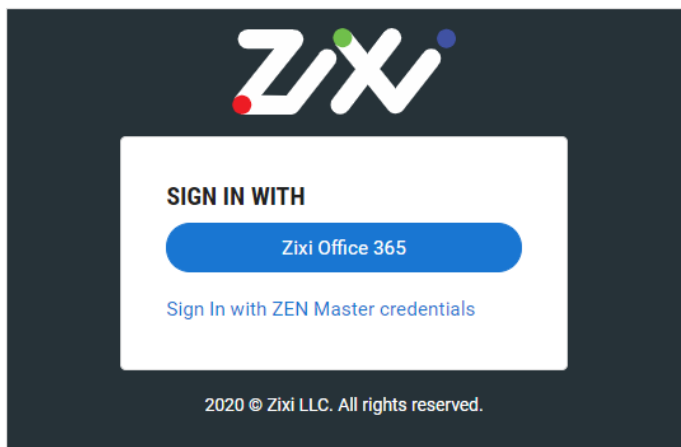
Passwords must be at least 8 characters long and contain at least one of each of the following: lower case letter, upper case letter, number, and special character.

5. In the **Confirm New Password** field, confirm the new password that was entered
6. Click **Save**.

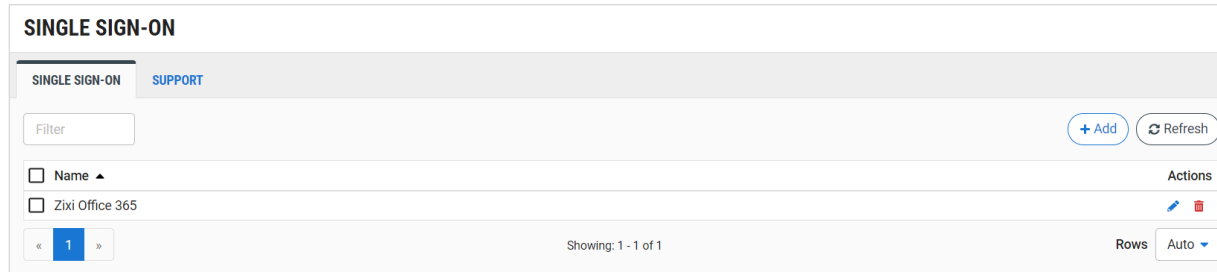
Configuring Single Sign-on Account Settings

You can configure ZEN Master to use SSO (Single sign-on) for user authentication. This is done by connecting ZEN Master to an OAuth 2.0 SSO account (e.g. Microsoft Office 365, Google Identity, Okta).

Once SSO has been configured on your ZEN Master domain, the login screen gives the option of signing in through one of your SSO providers or signing in using ZEN Master credentials.



The Single Sign-On screen shows a list of the SSO providers configured in your ZEN Master account.



You can perform the following action for each SSO account.

- **Edit** – Edit the SSO configuration.
- **Delete** – Delete the SSO account from ZEN Master.

In the Support tab there is a checkbox for enabling/disabling Zixi support to access the system.

Adding an SSO Account

➔ **To configure ZEN Master to use an SSO:**

1. In the main navigation, click **Account Management > Single Sign-On**.
The Single Sign-On screen is displayed.
2. Click **+ Add**.
The **Create New Single Sign-On** screen appears.

CREATE NEW SINGLE SIGN-ON

Name *

Configuration

OpenID Discovery Manual

OpenID Connect Discovery Document URL *

Client ID *

Client Secret *

Allow pre-registered users only

Callback URL - <https://zixi.staging.devcloud.zixi.com/auth/oauth2/callback>

3. In the **Name** field, enter a name for the SSO account.
4. Under **Configuration**, select the configuration method for the SSO account. Options are: *OpenID Discovery* or *Manual*.
5. Create a new SSO account or configure an existing account for use with ZEN Master using the **Callback URL** shown at the bottom of the **Create New Single Sign-On** window. (You may also be asked to provide a JavaScript origin. Use the Callback URL domain without the path e.g. <https://zixi.staging.zixi.com>.)



The precise procedure for configuring your account differs depending on your SSO provider.

6. If *OpenID Discovery* was selected, in the **OpenID Connect Discovery Document URL** field, enter your *Token URL*.
7. If *Manual* was selected, enter your *Authorization URL*, *Token URL* and *User Info URL* in their respective fields.



You may need to download the JSON for your account in order to access this info.

8. Enter your *Client ID* and *Client Secret* in their respective fields.
9. If you would like to allow only pre-registered users (i.e. users for whom an account has already been created in ZEN Master) to access the system, select the **Allow pre-registered users only** checkbox.



If this checkbox is not selected, then any user can login to ZEN Master using the SSO. However, he/she will not be able to access any information in ZEN Master until roles have been assigned to him/her by an Admin.

10. Click **Save**.
ZEN Master is configured to use your SSO account.

Allowing Zixi Support to Access your System

Zixi Support personnel can access your system in order to help you to resolve issues that arise. You can control whether to allow/block access to Zixi Support personnel.

➔ To allow/block access to Zixi Support personnel:

1. In the main navigation, click **Account Management > Single Sign-On**.
The Single Sign-On screen is displayed.
2. Click on the **Support** tab.
3. To allow/block access, select/deselect the **Allow Zixi support access** checkbox.
Changes are saved automatically.

Notifications

Zen Master automatically sends email notifications about errors that occur in the system to all relevant parties. The default notification behavior is that whenever an object (i.e. Feeder, Broadcaster, Receiver, Source, Channel or Target) in the system enters an *Error* state as well as when the error is resolved, all users that have access to that object are notified. Users can customize the settings for when and to whom notifications are sent, see [MANAGING ERROR NOTIFICATIONS](#).

Severe events (e.g. a Source going offline) immediately cause the relevant object to enter an *Error* state. Less severe events (e.g. TR101 or Content Quality events) cause the object to enter a *Warning* state. If an error causing a *Warning* state persists for an extended period of time, then the state of that object is automatically escalated to an *Error* state (causing notifications to be sent out). Users can customize the settings for when a *Warning* event escalates to an *Error* event, see [CREATING A TAG](#).

For a list of events that generate Warnings and Errors see [LOG EVENTS](#).

For an explanation of the information shown on the *Notification* screen, see [CONFIGURING NOTIFICATIONS](#).

Managing Error Notifications

The default behavior is that whenever an object enters an error state all users who have access to that object receive email notifications about the Error. There are four methods for limiting the notifications that are sent out.

- You can *Mute* a specific object, stopping **all** notifications related to that object for **all** users.
- You can adjust the *Event Profile* that applies to the object, see [CONFIGURING EVENTS PROFILES](#). This enables you to adjust each rule in the profile individually, specifying the following settings:
 - **Enabled/Disabled** – Specify whether or not this rule is enabled for generating Events.
 - **Thresholds** – For rules that are governed by thresholds (e.g. CPU usage, low bitrate), specify the thresholds for generating warning and error Events.
 - **Escalation** – Specify the number of events that cause escalation from “warning” to “error” Events and the window of time that is considered for escalation.
 - **Notifications** – Specify which Events trigger notifications.
- *Flapping Detection* automatically mutes an object on a temporary basis when it repeatedly goes into an error state. You can configure the settings for when this takes effect.

- You can adjust the *thresholds* for certain Error and Warning notifications that relate to excessive CPU/GPU usage. This is done within the configuration for each specific Broadcaster Cluster, see [ADDING A BROADCASTER CLUSTER – MANAGED](#).

Muting Objects

You can mute any object in the system (i.e. Feeder, Broadcaster, Receiver, Source, Channel or Target), stopping it from generating error notifications. You can mute the object permanently (i.e. until it is manually 'unmuted') or you can set a date and time when the mute will be automatically 'unmuted'.



Each type of object can be muted on the display screen for that object type, i.e. a Feeder can be muted on the *Feeders* screen and a Source can be muted on the *Sources* screen.

➔ To mute an object:

1. Go to the main screen for the desired object type.
2. Select the desired object.
Details of the selected object are shown on the right side of the screen.
3. Do one of the following actions:
 - To mute the object permanently, click **Mute**.
 - To mute the object temporarily, do the following procedure:
 - a. Click on the down-arrow next to the Mute button and select **Mute until**.
A calendar view is shown.
 - b. Select the end date.
A list of times is shown.
 - c. Select the end time.
 - d. Click **Mute**.

➔ To reactivate notifications:

1. Go to the main screen for the object type of the muted object.
2. Select the desired object.
Details of the selected object are shown on the right side of the screen.
3. Click **Unmute**.

Flapping Detection

ZEN Master uses Flapping Detection to prevent the system from flooding users with multiple notifications for a particular object in the system that undergoes frequent state changes. Once the threshold frequency of recurrence is reached the system automatically mutes the notifications for that object until it becomes stabilized.

You can configure the settings for what degree of frequency causes the notifications to be muted and how long the system must remain stable before notifications for that object are reactivated.

➔ **To adjust the Flapping Detection settings:**

1. Go to **Configuration > Notifications**.
2. Click on the **Flapping Detection** tab.

The screenshot shows the 'NOTIFICATIONS' configuration page with the 'FLAPPING DETECTION' tab selected. The page contains the following elements:

- Navigation tabs: ERRORS, WARNINGS, **FLAPPING DETECTION**, KAFKA CONFIGURATION
- Text: A flapping state is detected when X number of State Changes happen within the flapping detection Window. If a flapping state is detected the object is automatically muted for Cooldown minutes.
- Field: Window [minutes] with a value of 15
- Field: State Changes with a value of 3
- Field: Cooldown [minutes] with a value of 60
- Button: Update

3. In the **Window [minutes]** field, enter the number of minutes in which the specified number of state changes must occur to trigger the Flapping Detection.
4. In the **State Changes** field, enter the number of state changes that must occur in the specified window of time in order to trigger the Flapping Detection.
5. In the **Cooldown [minutes]** field, enter the number of minutes that the object must remain stable in order to resume sending notifications for that object.
6. Click **Update**.
The new Flapping Detection settings are applied.

Sending Notifications to a Kafka Server

ZEN Master can export event notifications and SCTE 35 messages to an Apache Kafka server. Kafka is a data streaming platform that allows you to publish and subscribe to streams of data, store them, and process them. ZEN Master is a “publisher” that uses the Kafka Producer API to send event data to a Kafka server. Once the event data from ZEN Master is streaming to a Kafka server, connectors are available to pull data from the Kafka server into third party applications and services including Elasticsearch, Splunk, Azure Event Hubs, AWS CloudWatch, AWS S3, and more.

Kafka integration operates with admin privileges, so that all events that are logged in the system will be sent to Kafka regardless of Tags. You can stop events from being sent to Kafka by disabling the Events checkbox in the configuration. Also, if you disable logging for certain types of events on certain objects (such as a Source), those events will no longer be written to the ZEN Master Events database or sent to Kafka servers.

➔ **To add a new Kafka configuration:**

1. Go to **Configuration > Notifications**.
2. Click on the **Kafka Configuration** tab.
3. Click **+ Add**.

The **Create New Kafka Configuration** window is displayed.

CREATE NEW KAFKA CONFIGURATION

Name *

Servers *

Topic *

Username *

Password *

Events

SCTE35

✕ Cancel Save

4. In the **Name** field, enter a name for the Kafka Configuration.
5. In the **Servers** field, enter one or more of your Kafka servers, using the following syntax: Kafka broker/host combination delimited by comma, e.g. kafka-1.us-east-1.myapp.com:9093,kafka-2.us-east-1.myapp.com:9093.

6. In the **Topic** field, enter the Topic created on the Kafka server where messages will go.



The Topic needs to be pre-configured in the Kafka server. If the topic hasn't been created in Kafka, the messages won't be delivered and you will receive an error message.

7. In the **Username** field, enter your username for the Kafka account.
8. In the **Password** field, enter your password for the Kafka account.
9. If you would like to send Event notifications to the Kafka server, select the **Events** checkbox.
10. If you would like to send SCTE35 messages to the Kafka server, select the **SCTE35** checkbox.
11. Click **Save**.
12. If you would like to test the server connection, in the **Kafka Configuration** tab, under *Actions* in the row of the new server, click on the **Test** icon. A pop-up window will appear, stating if the server has connected successfully or not. You can also test the server connection by checking if the notification was received on the Kafka server.

Reports

You can generate reports based on the data collected by ZEN Master. First you create a report configuration in which you define the type of report you would like to generate and specify details such as the degree of granularity, time period and system objects included in the report. You can then generate reports based on the report configuration. Finally, the reports can be downloaded and submitted to the relevant stakeholders.



Additionally, you can create a quick report using the *Report* button located on the top-right corner of the main list screens, see [DOWNLOAD QUICK REPORT](#).

Reports are generated as .xlsx files, enabling end users to apply analytic tools to derive important insights from the data.

There are three types of reports that can be generated in ZEN Master.

- **Usage** – this type of reports shows volume of data sent and active time for Sources, Targets and Transcoded Channels during the time period covered by the report. For Transcoded Channels, it also shows bytes transcoded. These reports can be helpful for billing your customers based on usage.
- **Stats** – shows statistics about the performance of your Zixi enabled resources and system objects. For each type of object, the report includes statistics relevant to that type of object.
- **Uptime/Outage** – shows the time periods that your Sources or Targets were running online. It also shows info about errors that occurred and stream outages (e.g. TR101 and CQA errors). These reports help you to analyze the quality and consistency of video feeds being provided by content suppliers.



As for all system objects in ZEN Master, only users with roles that allow them access to a specific report are able to view, edit and generate "runs" for that report. (See [MANAGING ROLES](#))

Adding New Reports

Create report configurations specifying the type of report and configuring its details. You will then be able to generate the actual reports based on these configurations.



When configuring reports, take into consideration that the more comprehensive the report is, the longer it will take to run a report build (i.e. generate a report). Factors that increase the build time include; covering a long period of time, highly granular results, inclusion of multiple objects.

Adding a New Usage Report

➔ To add a New Usage Report:

1. In the main navigation, click **Reports**.
The **Reports** screen opens.
2. Click **+ Add**.

The **Create New Report** window is displayed:

CREATE NEW REPORT

[Info](#) [Configuration](#) [Filter](#)

INFO

Name *

Access Tags * ⓘ

CONFIGURATION

Report Type

Usage Report Stats Summary Uptime Summary / Outage List

Types *

Sources Targets Transcoding

Granularity

Select Time Period By

Period Month Quarter Custom Range

Period

Time Zone

FILTER

Only Show Objects With Selected Tags

Match All Match Any

Do Not Show Objects With Selected Tags

Name Filter (Include)

Name Filter (Exclude)

Status * ⓘ

3. In the **Info** section, in the **Name** field, enter a name for the new report.

4. In the **Tags** field, select one or more of the predefined Tags from the drop-down list. This will determine who is authorized to access this Report. Tags are used for access control. By selecting a Tag, you are relating this Report to that Tag. Tags are associated with certain roles (through the Users & Roles screen), and roles, in turn, are associated with users and user groups. If you would like to create a new Tag, see [CREATING A TAG](#).
5. In the **Configuration** section, under **Report Type**, verify that **Usage Report** is selected (default).
6. In the **Types** section, select the checkbox next to each type of object that you would like to include in the Report. Options are: *Sources*, *Targets* and *Transcoding*.
7. In the **Granularity** field, select from the drop-down list the unit of time by which the data will be broken down. Possible values are: *Hour*, *Day* or *Week* (default).
8. Under **Select Time Period By**, select the time period of the report. Options are: *Period* (default), *Month*, *Quarter* or *Custom Range*.



The Time Period settings included in the report configuration are applied as the default time period when you generate a run of this report. However, while generating the report you have the option of adjusting the time period.

- For **Period**, select from the drop-down list the time period that will be included in the report.
 - For **Month**, select from the drop-down list the month for which the report will be generated.
 - For **Quarter**, select from the drop-down list the quarter for which the report will be generated.
 - For **Custom Range**, select:
 - a. In the **From Date** field, select the date from which data is included in the report.
 - b. In the **To Date** field, select the date until which data is included in the report.
9. In the **Time Zone** field, select from the drop-down list the time zone on which the report schedule is based.
 10. In the **Filter** section, in the **Only Show Objects with Selected Tags** field, select from the drop-down list the Tags associated with the objects you would like to include in the report.
 - Select the **Match All** radio button if you want only objects that contain all selected Tags to be included in the report.
 - Select the **Match Any** radio button if you want objects that contain any of the selected Tags to be included in the report.
 11. In the **Do Not Show Objects with Selected Tags** field, select from the drop-down list the Tags associated with the objects you would not like included in the report.



These fields relate to defining the **content** of the Report as opposed to the Tag field discussed in step 4, which controls **access** to the report itself.

12. In the **Name Filter (include)** field, enter text to be used as a filter for elements to include in the Report.
13. In the **Name Filter (exclude)** field, enter text to be used as a filter for elements to exclude from the Report.
14. In the **Status** field, select from the drop-down list the statuses of objects to be included in the report.



The default setting is to include all statuses. Once a status has been removed, it can be re-included by selecting it from the dropdown list.

15. Click **Save**.
The new Usage report is created.



After "adding" a report, the report is not actually created until you generate a specific "run" of the report, see [GENERATING REPORTS](#).

Adding a New Stats Summary Report

➔ To add a New Stats Summary Report:

1. In the main navigation, click **Reports**.
The **Reports** screen opens.
2. Click **+ Add**.

The **Create New Report** window is displayed:

CREATE NEW REPORT

Info Configuration Filter

INFO

Name *

Access Tags *

CONFIGURATION

Report Type

Usage Report Stats Summary Uptime Summary / Outage List

Types *

Feeders Broadcasters Receivers Sources Targets

Granularity

Select Time Period By

Period Month Quarter Custom Range

Period

Time Zone

FILTER

Only Show Objects With Selected Tags

Match All Match Any

Do Not Show Objects With Selected Tags

Name Filter (Include)

Name Filter (Exclude)

Status *

3. In the **Info** section, in the **Name** field, enter a name for the new report.
4. In the **Tags** field, select one or more of the predefined Tags from the drop-down list. This will determine who is authorized to access this Report. Tags are used for access control. By selecting a Tag, you are relating this Report to that Tag. Tags are associated with certain roles (through the Users & Roles screen), and roles, in turn, are associated with users and user groups. If you would like to create a new Tag, see [CREATING A TAG](#).
5. In the **Configuration** section, under **Report Type**, select **Stats Summary**.
6. In the **Types** section, select the checkbox next to each type of object that you would like to include in the Report. Options are: *Feeders, Broadcasters, Receivers, Sources* and *Targets*.
7. In the **Granularity** field, select from the drop-down list the unit of time by which the data will be broken down. Possible values are: *Hour, Day* or *Week* (default).
8. Under **Select Time Period By**, select the time period of the report. Options are: *Period* (default), *Month, Quarter* or *Custom Range*.



The Time Period settings included in the report configuration are applied as the default time period when you generate a run of this report. However, while generating the report you have the option of adjusting the time period.

- For **Period**, select from the drop-down list the time period that will be included in the report.
 - For **Month**, select from the drop-down list the month for which the report will be generated.
 - For **Quarter**, select from the drop-down list the quarter for which the report will be generated.
 - For **Custom Range**, select:
 - a. In the **From Date** field, select the date from which data is included in the report.
 - b. In the **To Date** field, select the date until which data is included in the report.
9. In the **Time Zone** field, select from the drop-down list the time zone on which the report schedule is based.
 10. In the **Filter** section, in the **Only Show Objects with Selected Tags** field, select from the drop-down list the Tags associated with the objects you would like to include in the report.
 - Select the **Match All** radio button if you want only objects that contain all selected Tags to be included in the report.
 - Select the **Match Any** radio button if you want objects that contain any of the selected Tags to be included in the report.

11. In the **Do Not Show Objects with Selected Tags** field, select from the drop-down list the Tags associated with the objects you would not like included in the report.



These fields relate to defining the **content** of the Report as opposed to the Tag field discussed in step 4, which controls **access** to the report itself.

12. In the **Name Filter (include)** field, enter text to be used as a filter for elements to include in the Report.
13. In the **Name Filter (exclude)** field, enter text to be used as a filter for elements to exclude from the Report.
14. In the **Status** field, select from the drop-down list the statuses of objects to be included in the report.



The default setting is to include all statuses. Once a status has been removed, it can be re-included by selecting it from the dropdown list.

15. Click **Save**.

The new Stats report is created.



After "adding" a report, the report is not actually created until you generate a specific "run" of the report, see [GENERATING REPORTS](#).

Adding a New Uptime Summary/Outage List

➔ To add a New Uptime Summary/Outage List report:

1. In the main navigation, click **Reports**.
The **Reports** screen opens.
2. Click **+ Add**.

The **Create New Report** window is displayed:

CREATE NEW REPORT

Info
Configuration
Filter

INFO

Name *

Access Tags *

CONFIGURATION

Report Type

Usage Report
Stats Summary
Uptime Summary / Outage List

Types

Sources
Targets

Granularity

Select Time Period By

Period
Month
Quarter
Custom Range

From Date *

To Date *

Time Zone

FILTER

Bitrate Threshold [kbps]

Outage Conditions

<input checked="" type="checkbox"/> Not Recovered Packets	<input checked="" type="checkbox"/> Blank Picture
<input checked="" type="checkbox"/> Connections	<input checked="" type="checkbox"/> Silent Audio
<input checked="" type="checkbox"/> TR101 Continuity Count Error	<input checked="" type="checkbox"/> Audio Clipping
<input checked="" type="checkbox"/> Frozen Video	

Only Show Objects With Selected Tags

Match All Match Any

Do Not Show Objects With Selected Tags

Name Filter (Include)

Name Filter (Exclude)

Status *

Cancel
Save

3. In the **Info** section, in the **Name** field, enter a name for the new report.

4. In the **Tags** field, select one or more of the predefined Tags from the drop-down list. This will determine who is authorized to access this Report. Tags are used for access control. By selecting a Tag, you are relating this Report to that Tag. Tags are associated with certain roles (through the Users & Roles screen), and roles, in turn, are associated with users and user groups. If you would like to create a new Tag, see [CREATING A TAG](#).
5. In the **Configuration** section, under **Report Type**, select **Uptime Summary / Outage List**.
6. Under **Types**, select the type of object that you would like to include in the Report. Options are: *Sources* (default) or *Targets*.
7. In the **Granularity** field, select from the drop-down list the unit of time by which the data will be broken down. Possible values are: *Hour*, *Day* or *Week* (default).
8. Under **Select Time Period By**, select the time period of the report. Options are: *Period* (default), *Month*, *Quarter* or *Custom Range*.



The Time Period settings included in the report configuration are applied as the default time period when you generate a run of this report. However, while generating the report you have the option of adjusting the time period.

- For **Period**, select from the drop-down list the time period that will be included in the report.
 - For **Month**, select from the drop-down list the month for which the report will be generated.
 - For **Quarter**, select from the drop-down list the quarter for which the report will be generated.
 - For **Custom Range**, select:
 - a. In the **From Date** field, select the date from which data is included in the report.
 - b. In the **To Date** field, select the date until which data is included in the report.
9. In the **Time Zone** field, select from the drop-down list the time zone on which the report schedule is based.
 10. In the **Filter** section, in the **Bitrate Threshold [kbps]** field, enter the minimum bitrate for streams to be included in the report.
 11. In the **Outage Conditions** section, select the checkbox by each condition to be included in the report. Possible conditions are: *Not Recovered Packets*, *Connections*, *TR101 Continuity Count Error*, *Frozen Video*, *Blank Picture*, *Silent Audio* and *Audio Clipping*.



For reports about Targets, *Not Recovered Packets* and *Connections* are the only conditions available.

12. In the **Only Show Objects with Selected Tags** field, select from the drop-down list the Tags associated with the objects you would like to include in the report.
 - Select the **Match All** radio button if you want only objects that contain all selected Tags to be included in the report.

- Select the **Match Any** radio button if you want objects that contain any of the selected Tags to be included in the report.

13. In the **Do Not Show Objects with Selected Tags** field, select from the drop-down list the Tags associated with the objects you would not like included in the report.



These fields relate to defining the **content** of the Report as opposed to the Tag field discussed in step 4, which controls **access** to the report itself.

14. In the **Name Filter (include)** field, enter text to be used as a filter for elements to include in the Report.

15. In the **Name Filter (exclude)** field, enter text to be used as a filter for elements to exclude from the Report.

16. In the **Status** field, select from the drop-down list the statuses of objects to be included in the report.



The default setting is to include all statuses. Once a status has been removed, it can be re-included by selecting it from the dropdown list.

17. Click **Save**.

The new Uptime Summary/Outage List report is created.



After "adding" a report, the report is not actually created until you generate a specific "run" of the report, see [GENERATING REPORTS](#).

Editing Reports

You can edit the settings of an existing report.

➔ To edit an existing report.

1. In the main navigation, click **Reports**.
2. Click **Edit**, for the report that you would like to change.
The **Edit Report** window opens showing the current settings for the Report.
3. Adjust the settings as desired (see [ADDING NEW REPORTS](#)).
4. Click **Save**.
The new report settings are saved.

Cloning Reports

You can clone a report, i.e. create a new report with settings similar to an existing one.

➔ To clone a report:

1. In the main navigation, click **Reports**.
2. Select the report on which you would like to base the new report.

3. Click **Clone**, for the Report that you would like to clone.
The **Clone Report** window opens with the settings configured as in the original report.
4. In the **Name** field, enter a name for the new report.
5. Adjust the settings as desired (see [ADDING NEW REPORTS](#)).
6. Click **Save**.
The new Report is saved **in addition** to the original Report.

Generating Reports

Once you have a created a report configuration with your desired setting you can generate an actual report.



Before generating a report that is very comprehensive, consider the system resources that will be taken up by the report build and time required to execute it. Factors that increase the build time include; covering a long period of time, highly granular results, inclusion of multiple objects.

➔ To generate a report:

1. In the main navigation, click **Reports**.
The **Reports** screen is displayed.
2. Select the report that you would like to generate.
The report details are shown at the right side of the screen.
3. In the Info pane, click **Generate Report**.
The **Generate Report** window is displayed. By default, the **Name** for this run of the report is given as the <Report Name> followed by the current date in the format 'YYYYMMDD'. Also, by default the **Time Period** and **Time Zone** settings configured in the report configuration are applied to this run of the report.

Generate Report

Name *

ADULT_SWIM Usage-20200524

Select Time Period By

Period Month Quarter Custom Range

Period

Previous 7 Days

Time Zone

(UTC-05:00) Eastern Time (US & Canada)

Cancel Save

4. You can edit any of the fields as desired.
5. Click **Save**.
A new report run is generated. The new run is shown in the **Run History** tab for this report and can be downloaded from there.



Depending on how comprehensive the report is, it may take a while to generate the report. While the report is being generated, the percentage completed is shown in the Status column in the Run History tab.

Viewing and Downloading Reports

You can view a list of all reports that have been configured in ZEN Master. When a report is selected, the following tabs are shown at the right side of the screen:

- **Details** – shows configuration details of the selected report.
- **Run History** – shows a list of all report "runs" that have been generated for the specified report configuration. You can download the reports as .xls files from this tab.

REPORTS				
Name	Type	Object Types	Granularity	Time Period
<input type="checkbox"/> 1	Usage	Sources, Targets, Transcoding	Week	Jan 2, 2013 to Sep 5, 2019
<input type="checkbox"/> ;#+bT*_JL)nrN8\$@bZ\$tlcX*EKU?V ++!qnWp%pbvUPWjlv...	Usage	Sources, Targets, Transcoding	Week	Jan 2, 2013 to Sep 5, 2019
<input type="checkbox"/> ADULT_SWIM Usage	Usage	Sources	Day	7 days
<input type="checkbox"/> all test	Stats	Feeders, Broadcasters, Receivers, Sources, Channels, Targets	Week	7 days
<input type="checkbox"/> all usage test	Usage	Sources, Targets, Transcoding	Day	Sep 1, 2019 to Sep 2, 2019
<input type="checkbox"/> Broadcaster Stats	Stats	Receivers	Day	7 days
<input type="checkbox"/> Channels stats	Stats	Channels	Day	7 days
<input type="checkbox"/> Feeders stats	Stats	Feeders	Day	7 days
<input type="checkbox"/> Gil - QA - Filter Admin	Usage	Sources, Targets, Transcoding	Week	Jan 2, 2013 to Sep 5, 2019
<input type="checkbox"/> Gil - QA filter Admin no Admin	Usage	Sources, Targets, Transcoding	Week	Apr 1, 2019 to Jul 1, 2019
<input type="checkbox"/> Gil - QA filter no Admin	Usage	Sources, Targets, Transcoding	Week	Jan 2, 2013 to Sep 5, 2019
<input type="checkbox"/> Gil-	Usage	Sources, Targets, Transcoding	Week	Jan 2, 2013 to Sep 5, 2019
<input type="checkbox"/> Gil-Gil-Streams	Usage	Sources, Targets, Transcoding	Week	Mar 5, 2014 to Jul 1, 2019
<input type="checkbox"/> Gil-Gil-Tag-2	Usage	Sources, Targets, Transcoding	Week	Jan 2, 2013 to Sep 5, 2019
<input type="checkbox"/> Gil-QA-AWS	Uptime	Sources	Hour	7 days
<input type="checkbox"/> Gil-Uptime-1	Uptime	Sources, Transcoding	Hour	Current month
<input type="checkbox"/> IBC_OTT_report_example_01	Usage	Sources, Targets, Transcoding	Hour	Aug 1, 2019 to Sep 1, 2019
<input type="checkbox"/> OTT_target_outage_report_example	Uptime	Targets	Day	Aug 1, 2019 to Sep 1, 2019

The following table describes the information shown on the Reports screen.

Parameter	Description
Name	The name of the report.
Type	The report type. Possible types are: <i>Usage</i> , <i>Uptime</i> or <i>Stats</i> .
Object Types	The types of system objects that are included in the report. Possible values are: <i>Feeders</i> , <i>Broadcasters</i> , <i>Receivers</i> , <i>Sources</i> , <i>Targets</i> and <i>Transcoding</i> .
Granularity	The degree of granularity of the report. Possible values are: <i>Hour</i> , <i>Day</i> or <i>Week</i> .
Time Period	The time period that is included in the report.

The following actions can be done for the selected report:

Reports

- **Generate Report** – generate a "run" of the specified report based on the report configuration.
- **Edit** – Edit the report configuration settings.
- **Clone** - Create a new report with settings similar to an existing one.
- **Delete** – Delete the report configuration from the system.

In addition, in the Run History tab, you can download or delete a specific "run" of the specified report.

Report Details

In the Details tab, you can view information about the selected report.

The following table describes the information shown in the Details tab.

Parameter	Description
Name	The name of the report.
Tags	The Tags associated with this report (i.e. that determine who has access to view and download the reports).
Type	The report type. Possible types are: <i>Usage, Uptime</i> or <i>Stats</i> .
Object Types	The types of system objects that are included in the report. Possible values are: <i>Feeders, Broadcasters, Receivers, Sources, Targets,</i> and <i>Transcoding</i> .
Granularity	The degree of granularity of the report. Possible values are: <i>Hour, Day</i> or <i>Week</i> .
Time Period	The time period that is included in the report.
Time Zone	The time zone on which the time period of the report is based.

Run History

In the Run History tab, you can view and download all of the report "runs" that have been generated for the specified report.

The following table describes the information shown in the Run History tab.

Parameter	Description
Name	The name of the report.
Created at	The date and time that the report was generated.
From	The start date of the data included in the report.
To	The end date of the data included in the report.
Time Zone	The time zone on which the report time period is based.

Status	Status of the report run. While the report is being processed the status is shown as <i>Processing</i> together with the percentage completed. Once the report has been completed the status is shown as <i>Ready</i> .
Actions	
Download	Download this run of the report as a .xls file.
Delete	Delete this run of the report from the system.

Understanding Report Content

The following sections explain the content of the various types of reports that are generated by ZEN Master. All reports are downloaded as .xls files containing data for the time period specified in the report configuration.

Stats Report Content

Stats reports show statistics about the performance of your Zixi enabled resources and system objects. For each type of object, the report includes statistics relevant to that type of object.

Each file contains a separate tab for each type of system object that is included in the report (e.g. Broadcasters, Feeders, Sources etc.). There is also an *Exceptions* tab which shows all object instances included in the report which were not active during the time period of the report.

Each tab includes a report for that object type with the following structure. A series of records are shown for each object instance according to the time units that were specified in the report configuration. For example, if you have 5 Broadcasters in your network and you generate a report for the past 7 days with a granularity of one day, then the Broadcasters tab will contain 35 records (5 Broadcasters x 7 time units of one day). If you generate a report for the past day with granularity of one hour then you will have 120 records (5 Broadcasters x 24 time units of one hour).

The following is a sample of a Stats report.

	A	B	C	D	E	F	G	H	I
1	Name	Cluster	Access Tags	Time	Max Receive	Avg. Receive M	Max Send Bitrate [kbps]		Avg. Send Bitrate [kbps]
2	ADULT_SWIM_Clstr-1xgn	ADULT_SWIM_Clstr	adult_swim	2019-09-12T00:00:00Z	30375866.7	16408059		29788266.67	1607620
3	ADULT_SWIM_Clstr-1xgn	ADULT_SWIM_Clstr	adult_swim	2019-09-19T00:00:00Z	18456000	417471.89		18001466.67	408832
4	Bx_76	Gil_QA_Office	infra	2019-09-12T00:00:00Z	0	0		1813733.333	987565
5	Bx_76	Gil_QA_Office	infra	2019-09-19T00:00:00Z	0	0		1812400	987115
6	Gil-QA-AWS-2-4r9d	Gil-QA-AWS-2	aaaaaa,Admi	2019-09-12T00:00:00Z	36911733.3	17821338		33466.66667	15826
7	Gil-QA-AWS-2-4r9d	Gil-QA-AWS-2	aaaaaa,Admi	2019-09-19T00:00:00Z	26188400	430197.43		28933.33333	15260.5
8	Gil-QA-AWS-2-jg32	Gil-QA-AWS-2	aaaaaa,Admi	2019-09-12T00:00:00Z	0	0		133.3333333	0.04412
9	Gil-QA-AWS-2-jg32	Gil-QA-AWS-2	aaaaaa,Admi	2019-09-19T00:00:00Z	0	0		133.3333333	0.09498
10	Gil-QA-AWS-2-ol1k	Gil-QA-AWS-2	aaaaaa,Admi	2019-09-12T00:00:00Z	0	0		133.3333333	0.08824
11	Gil-QA-AWS-2-ol1k	Gil-QA-AWS-2	aaaaaa,Admi	2019-09-19T00:00:00Z	0	0		133.3333333	0.09498
12	Gil-QA-AWS-2-rg0d	Gil-QA-AWS-2	aaaaaa,Admi	2019-09-12T00:00:00Z	0	0		133.3333333	0.3529
13	Gil-QA-AWS-2-rg0d	Gil-QA-AWS-2	aaaaaa,Admi	2019-09-19T00:00:00Z	0	0		666.6666667	0.5698
14	Gil-QA-Azure-l2je	Gil-QA-Azure	dev,infra	2019-09-12T00:00:00Z	31933066.7	16541760		9710666.667	9224.43
15	Gil-QA-Azure-l2je	Gil-QA-Azure	dev,infra	2019-09-19T00:00:00Z	30596800	17184206		33094533.333	644963
16	Gil-QA-Azure-m10o	Gil-QA-Azure	dev,infra	2019-09-12T00:00:00Z	18694266.7	9250410.9		7066.6666667	3732.32
17	Gil-QA-Azure-m10o	Gil-QA-Azure	dev,infra	2019-09-19T00:00:00Z	19284533.3	9251149.6		6800	3730.70
18	Gil-QA-GCP-yp91	Gil-QA-GCP	Admin,asdas	2019-09-12T00:00:00Z	0	0		133.3333333	0.04413
19	Gil-QA-GCP-yp91	Gil-QA-GCP	Admin,asdas	2019-09-19T00:00:00Z	0	0		133.3333333	0.1139
20	Gil_QA_AWS-4rmd	Gil_QA_AWS	Gil-Tag-2	2019-09-12T00:00:00Z	0	0		0	0
21	Gil_QA_AWS-4rmd	Gil_QA_AWS	Gil-Tag-2	2019-09-19T00:00:00Z	0	0		0	0
22	Gil_QA_AWS-q92w	Gil_QA_AWS	Gil-Tag-2	2019-09-12T00:00:00Z	37153466.7	18206992		39369333.33	199556
23	Gil_QA_AWS-q92w	Gil_QA_AWS	Gil-Tag-2	2019-09-19T00:00:00Z	21129066.7	460499.69		24502666.67	499045
24	Gil_QA_AWS-q92w	Gil_QA_AWS	Gil-Tag-2	2019-09-12T00:00:00Z	0	0		0	0

Broadcaster Stats



All data included in a given record is for the particular object instance and time unit of that record.

Parameter	Description
Name	The name of the Broadcaster.
Cluster	The name of the Broadcaster Cluster as configured in ZEN Master.
Tags	The Tag/s which controls access to this cluster.
Time	The beginning date and time, from which data is included in this record. Note: The end date and time is determined based on the granularity of the report i.e. for a report with granularity of <i>one day</i> the record includes data for the 24 hr period starting from the <i>Time</i> .
Max Receive Bitrate [kbps]	The highest received bitrate, in kbps.
Avg. Receive Bitrate [kbps]	The average received bitrate, in kbps.
Min Receive Bitrate [kbps]	The lowest received bitrate, in kbps.
Max Send Bitrate [kbps]	The highest sent bitrate, in kbps.
Avg. Send Bitrate [kbps]	The average sent bitrate, in kbps.
Min Send Bitrate [kbps]	The lowest sent bitrate, in kbps.
UdpRcvbufErrors	The total number of UDP receive errors.
UdpSndbufErrors	The total number of UDP send errors.
Max Disk Usage	The maximum usage of disk space in the files directory as a percentage of the total available disk space.
Avg. Disk Usage	The average usage of disk space in the files directory as a percentage of the total available disk space.
Min Disk Usage	The minimum usage of disk space in the files directory as a percentage of the total available disk space.
Max Install Disk Usage	The maximum usage of disk space on the install disk as a percentage of the total available disk space.
Avg. Install Disk Usage	The average usage of disk space on the install disk as a percentage of the total available disk space.

Reports

Min Install Disk Usage	The minimum usage of disk space on the install disk as a percentage of the total available disk space.
Max CPU	The maximum CPU usage as a percentage of total available CPU.
Avg. CPU	The average CPU usage as a percentage of total available CPU.
Min CPU	The minimum CPU usage as a percentage of total available CPU.
Max Memory	The maximum memory usage as a percentage of total available memory.
Avg. Memory	The average memory usage as a percentage of total available memory.
Min Memory	The minimum memory usage as a percentage of total available memory.
Max Nvidia Decoder	The maximum usage of the Nvidia Decoder as a percentage of total decoder GPU.
Avg. Nvidia Decoder	The average usage of the Nvidia Decoder as a percentage of total decoder GPU.
Min Nvidia Decoder	The minimum usage of the Nvidia Decoder as a percentage of total decoder GPU.
Max Nvidia Encoder	The maximum usage of the Nvidia Encoder as a percentage of total encoder GPU.
Avg. Nvidia Encoder	The average usage of the Nvidia Encoder as a percentage of total encoder GPU.
Min Nvidia Encoder	The minimum usage of the Nvidia Encoder as a percentage of total encoder GPU.
Max Nvidia Memory	The maximum usage of memory on the Nvidia server.
Avg. Nvidia Memory	The average usage of memory on the Nvidia server.
Min Nvidia Memory	The minimum usage of memory on the Nvidia server.
Max Nvidia Usage	The maximum usage of disk space on the Nvidia server as a percentage of the total available disk space.
Avg. Nvidia Usage	The average usage of disk space on the Nvidia server as a percentage of the total available disk space.
Min Nvidia Usage	The minimum usage of disk space on the Nvidia server as a percentage of the total available disk space.

Reports

Receiver Stats



All data included in a given record is for the particular object instance and time unit of that record.

Parameter	Description
Name	The name of the Receiver.
Tags	The Tag/s which controls access to this Receiver.
Time	The beginning date and time, from which data is included in this record. Note: The end date and time is determined based on the granularity of the report i.e. for a report with granularity of one day the record includes data for the 24 hr period starting from the Time.
Max CPU	The maximum CPU usage as a percentage of total available CPU.
Avg. CPU	The average CPU usage as a percentage of total available CPU.
Min CPU	The lowest CPU usage as a percentage of total available CPU.

Sources Stats



All data included in a given record is for the particular object instance and time unit of that record.

Parameter	Description
Name	The name of the Source in ZEN Master.
Cluster	The name of the Broadcaster Cluster used for this Source.
Tags	The Tag/s which controls access to this Source.
Time	The beginning date and time, from which data is included in this record. Note: The end date and time is determined based on the granularity of the report i.e. for a report with granularity of one day the record includes data for the 24 hr period starting from the <i>Time</i> .
Max Bitrate [kbps]	The maximum sent bitrate, in kbps.

Reports

Avg. Bitrate [kbps]	The average sent bitrate, in kbps.
Min Bitrate [kbps]	The minimum sent bitrate, in kbps.
Connections	The number of times that the stream connected.
Not recovered packets	The number of packets that weren't recovered.
tr101 Continuity Count Errors	The number of TR101 Continuity Count errors.
Frozen Video	The number of Frozen Video errors.
Blank Picture	The number of Blank Picture errors.
Silent Audio	The number of Silent Audio errors.
Audio Clipping	The number of Audio Clipping errors.
Good Video Frames	The number of good video frames that were sent.
Max Jitter	The maximum Jitter, in milliseconds.
Avg. Jitter	The average Jitter, in milliseconds.
Min Jitter	The minimum Jitter, in milliseconds.
Max RTT	The highest Round Trip Time (RTT) from the Source, in milliseconds.
Avg. RTT	The average Round Trip Time (RTT) from the Source, in milliseconds.
Min RTT	The lowest Round Trip Time (RTT) from the Source, in milliseconds.

Targets Stats



When Targets are included in a Stats Report, separate tabs are shown for each type of Target.



All data included in a given record is for the particular object instance and time unit of that record.

Parameter	Description
Zixi Targets tab	
Name	The name of the Target in ZEN Master.
Channel	The name of the Channel that is being sent to the Target.

Reports

Tags	The Tag/s which controls access to this Target.
Time	The beginning date and time, from which data is included in this record. Note: The end date and time is determined based on the granularity of the report i.e. for a report with granularity of one day the record includes data for the 24 hr period starting from the <i>Time</i> .
Max Bitrate [kbps]	The maximum received bitrate, in kbps.
Avg. Bitrate [kbps]	The average received bitrate, in kbps.
Min Bitrate [kbps]	The minimum received bitrate, in kbps.
Not recovered packets	The number of packets that weren't recovered.
Max Jitter	The maximum Jitter, in milliseconds.
Avg. Jitter	The average Jitter, in milliseconds.
Min Jitter	The minimum Jitter, in milliseconds.
Max RTT	The highest Round Trip Time (RTT) from the Source, in milliseconds.
Avg. RTT	The average Round Trip Time (RTT) from the Source, in milliseconds.
Min RTT	The lowest Round Trip Time (RTT) from the Source, in milliseconds.
RTMP Targets tab	
Name	The name of the Target in ZEN Master.
Channel	The name of the Channel that is being sent to the Target.
Tags	The Tag/s which controls access to this Target.
Time	The beginning date and time, from which data is included in this record. Note: The end date and time is determined based on the granularity of the report i.e. for a report with granularity of one day the record includes data for the 24 hr period starting from the <i>Time</i> .
Max Bitrate [kbps]	The maximum received bitrate, in kbps.
Avg. Bitrate [kbps]	The average received bitrate, in kbps.

Reports

Min Bitrate [kbps]	The minimum received bitrate, in kbps.
Send Errors	The number of errors generated while sending the stream.
HTTP Targets tab	
Name	The name of the Target in ZEN Master.
Channel	The name of the Channel that is being sent to the Target.
Tags	The Tag/s which controls access to this Target.
Time	The beginning date and time, from which data is included in this record. Note: The end date and time is determined based on the granularity of the report i.e. for a report with granularity of one day the record includes data for the 24 hr period starting from the <i>Time</i> .
Max Bitrate [kbps]	The maximum received bitrate, in kbps.
Avg. Bitrate [kbps]	The average received bitrate, in kbps.
Min Bitrate [kbps]	The minimum received bitrate, in kbps.
Send Errors	The number of failed uploads attempts.
Abandoned Uploads	The number of uploads that were abandoned because of repeated failure to upload successfully.
Abandoned Commands	The number of commands (e.g. deleting a chunk after it has expired) that were abandoned because of repeated failure to execute successfully.
UDP Targets tab	
Name	The name of the Target in ZEN Master.
Channel	The name of the Channel that is being sent to the Target.
Tags	The Tag/s which controls access to this Target.
Time	The beginning date and time, from which data is included in this record. Note: The end date and time is determined based on the granularity of the report i.e. for a report with granularity of one day the record includes data for the 24 hr period starting from the <i>Time</i> .
Max Bitrate [kbps]	The maximum received bitrate, in kbps.

Reports

Avg. Bitrate [kbps]	The average received bitrate, in kbps.
Min Bitrate [kbps]	The minimum received bitrate, in kbps.
Send Errors	The number of UDP packets that failed to be sent.

Feeders Stats



All data included in a given record is for the particular object instance and time unit of that record.

Parameter	Description
Name	The name of the Feeder.
Tags	The Tag/s which controls access to this Feeder.
Time	The beginning date and time, from which data is included in this record. Note: The end date and time is determined based on the granularity of the report i.e. for a report with granularity of one day the record includes data for the 24 hr period starting from the Time.
Max CPU	The maximum CPU usage as a percentage of total available CPU.
Avg. CPU	The average CPU usage as a percentage of total available CPU.
Min CPU	The minimum CPU usage as a percentage of total available CPU.
Max Memory	The maximum memory usage as a percentage of total available memory.
Avg. Memory	The average memory usage as a percentage of total available memory.
Min Memory	The minimum memory usage as a percentage of total available memory.

Stats Exceptions Tab

This tab shows all object instances that were not active during the time period of the report.

Parameter	Description
Type	The type of system object.

Reports

Name	The name of the object instance.
Scope	Shows additional info about the object. For Broadcasters and Sources this shows the designated Broadcaster Cluster. For Targets this shows the Channel assigned to the Target.
Exception	The reason why this object is an exception. For Stats Reports this is always 'No data for time period'.

Usage Report Content

Usage reports show volume of data sent and active time for Sources, Targets and Transcoded Channels during the time period covered by the report. For Transcoded Channels, it also shows bytes transcoded.

Usage reports are downloaded as .xls files. Each file contains a separate tab for each type of system usage that is included in the report (i.e. Sources, Targets, Transcoding Usage). There is also an *Exceptions* tab which shows all object instances included in the report which were not active during the time period of the report.

Each tab includes a report for that type of usage, with the following structure. A single record is shown for each object instance. Each record shows totals for runtime and bytes for the entire time period of the report. In addition, separate columns display runtime and bytes, broken down by units of time at the level of granularity determined by the report configuration. Thus, for example, if a report was generated for the last 7 days with a granularity of one day, then (in addition to the totals) separate values will be given for each of the 7 days.

The following is a sample Usage report:

	A	B	C	D	E	F	G	H	I	J	
1							Sat Aug 31 2019 00		Sun Sep 01 2019 00:00		Mon
2	Name	Type	Access Tags	Created At	Total Minutes	Total Bytes	Minutes	Bytes	Minutes	Bytes	Minutes
3	appt4	monitor_only	infra	Thu Aug 30 2018 16:03:00	0	0					
4	appt5	monitor_only	infra	Thu Aug 30 2018 16:02:00	0	0					
5	bbb	monitor_only	infra_streams_ea	Tue Jul 31 2018 22:16:20	0	0					
6	bbb	broadcaster	Admin,sources,ir	Sun Jun 02 2019 11:50:00	1440	49896682030	360	1.2482E+10	1080	37414990826	
7	bbb-sql1w	broadcaster	Admin	Mon Jun 10 2019 09:43:00	0	0					
8	bbb-sql1w	broadcaster	Admin,asdasd,as	Thu Jun 06 2019 12:00:00	1440	49899501861	360	1.2467E+10	1080	37432669314	
9	bim-01	broadcaster	Admin	Wed May 29 2019 13:30:00	0	0					
10	bloom	monitor_only	infra,Default,Gil	Wed Apr 24 2019 12:00:00	0	0					
11	bloom	feeder	Admin,infra,Defa	Sun May 12 2019 15:00:00	0	0					
12	bloom-push	other	test	Wed Oct 02 2019 12:32:00	0	0					
13	bloom2	monitor_only	Admin,Gil_QA_A	Wed Apr 24 2019 12:00:00	0	0					
14	chub	broadcaster	infra,Default,sour	Thu Feb 21 2019 13:51:00	0	0					
15	chubs	monitor_only	infra_streams_ea	Tue Jul 24 2018 16:32:40	0	0					
16	chubs	broadcaster	Admin,sources,ir	Sun Jun 02 2019 11:50:00	1440	9235709278	360	2310646703	1080	6925062575	
17	clock_h	broadcaster	infra	Mon Feb 25 2019 13:30:00	0	0					
18	Demo	other	aaaaaa,Admin	Wed Sep 18 2019 12:30:00	0	0					
19	encoder 01	feeder	infra	Wed Jun 27 2018 22:49:00	0	0					
20	Gil_QA_Chub_Tran	transcoded	sources,Default	Thu Mar 28 2019 11:32:00	0	0					
21	HitlessFailover	other	infra	Thu Aug 30 2018 16:04:00	0	0					
22	HITLESS_CH1_CH	other	ibcsales,ibc_adn	Sun Sep 02 2018 22:46:00	0	0					
23	IBC_HITLESS_CH1	broadcaster	ibcsales,ibc_adn	Sun Sep 02 2018 22:44:00	0	0					
24	IBC_HITLESS_CH2	broadcaster	ibcsales,ibc_adn	Sun Sep 02 2018 22:45:00	0	0					
25	internal	feeder	infra	Mon Mar 05 2018 10:12:00	0	0					
26	Matt_MediaConnec	mediaconnect	Cat_A,Cat_B	Wed May 15 2019 15:42:00	0	0					
27	mpts_pull	monitor_only	Admin,Default,inf	Mon Apr 22 2019 14:44:00	0	0					
28	nbcu-001	monitor_only	Admin	Wed May 29 2019 15:42:00	1437	0	360	0	1077	0	

Sources Usage

Parameter	Description
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Reports

Name	The name of the Source in ZEN Master.						
Type	The Tag/s which controls access to this Source.						
Tags	The beginning date and time, from which data is included in this record. Note: The end date and time is determined based on the granularity of the report i.e. for a report with granularity of one day the record includes data for the 24 hr period starting from the <i>Time</i> .						
Created At	The date and time that the that the Source was created.						
Total Minutes	The total minutes that the Source was running during the time period of the report.						
Total Bytes	The total number of Bytes sent for this Source during the time period of the report.						
Time Unit (start time)	For each time unit included in the report, the start time of the time unit is shown at the top of a column. Below this, values are given for the minutes and Bytes during that time unit. The time period included in each unit is determined based on the granularity that was configured in the report settings. <hr/> <table><thead><tr><th>Parameter</th><th>Description</th></tr></thead><tbody><tr><td>Minutes</td><td>The number of minutes that the Source was running during the specified time unit.</td></tr><tr><td>Bytes</td><td>The number of Bytes sent for this Source during the specified time unit.</td></tr></tbody></table> <hr/>	Parameter	Description	Minutes	The number of minutes that the Source was running during the specified time unit.	Bytes	The number of Bytes sent for this Source during the specified time unit.
Parameter	Description						
Minutes	The number of minutes that the Source was running during the specified time unit.						
Bytes	The number of Bytes sent for this Source during the specified time unit.						

Targets Usage

Parameter	Description
Name	The name of the Target in ZEN Master.
Type	The type of Target. Possible types are: Push, Pull, RTMP, S3, HTTP or UDP/RTP.
Tags	The Tag/s which controls access to this Target.
Created At	The date and time that the Target was created.

Reports

Total Minutes	The total minutes that the Target was running during the time period of the report.						
Total Bytes	The total number of Bytes received by this Target during the time period of the report.						
Time Unit (start time)	For each time unit included in the report, the start time of the time unit is shown at the top of a column. Below this, values are given for the minutes and bytes during that time unit. The time period included in each unit is determined based on the granularity that was configured in the report settings.						
	<table border="1"><thead><tr><th>Parameter</th><th>Description</th></tr></thead><tbody><tr><td>Minutes</td><td>The number of minutes that the Target was running during the specified time unit.</td></tr><tr><td>Bytes</td><td>The number of Bytes sent for this Target during the specified time unit.</td></tr></tbody></table>	Parameter	Description	Minutes	The number of minutes that the Target was running during the specified time unit.	Bytes	The number of Bytes sent for this Target during the specified time unit.
Parameter	Description						
Minutes	The number of minutes that the Target was running during the specified time unit.						
Bytes	The number of Bytes sent for this Target during the specified time unit.						

Transcoding Usage

Parameter	Description
Name	The name of the object instance that did the transcoding.
Type	The type of system object that did the transcoding (<i>Source</i> or <i>Channel</i>).
Tags	The Tag/s which controls access to this Transcoding object instance.
Created At	The time and date that the transcoding entity was created.
Total Minutes	The total minutes that the Target was running during the time period of the report.
Total Bytes	The total number of Bytes received by this Target during the time period of the report.

Time Unit (start time)	For each time unit included in the report, the start time of the time unit is shown at the top of a column. Below this, values are given for the minutes and bytes during that time unit. The time period included in each unit is determined based on the granularity that was configured in the report settings.
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Parameter	Description
Minutes	The number of minutes that the Source was running during the specified time unit.
Bytes	The number of Bytes sent for this Source during the specified time unit.

Uptime Summary/Outage List Report Content

Uptime Summary/Outage Reports are downloaded as .xls files. Depending on the report configuration settings, the report can be for **either** Sources or Targets. The report shows data in two separate tabs for the Uptime (i.e. when the streams were running online) and Outages (i.e. errors that occurred in the streams).

- The **Uptime** tab shows uptime data with the following structure. A single record is shown for each object instance. Totals are given for number of outages and time offline (in minutes). In addition, separate columns show the number of outages and time offline, broken down by units of time at the level of granularity determined by the report configuration. Thus, for example, if a report was generated for the last 7 days with a granularity of one day, then (in addition to the totals) separate values will be given for each of the 7 days.
- The **Outages** tab shows outage data with the following structure. A separate record is shown for each outage event that occurred during the time period of the report. The type of outage events that are included in the report is determined by the report configuration.
- The **Exceptions** tab shows data about Sources or Targets that were inactive during the time period of the report. It also lists all outage events for which ZEN Master did not identify the cause of the failure.

Reports

The following is a sample Uptime Summary/Outages report:

	A	B	C	D	E	F	G	H	I	J	K	L	
1											2019-09-05T2		2019
2	Source Name	Cluster Name	Access Tags	Status	Source IP	Bitrate	Created At	Exceptions	Total Outages	Total Downtime	Outages	Downtime	Outage
3	bloomberg	nvidia-east	test	good	3.90.217.84	15044.74	2019-05-12T10:56	TRUE	62	539789	3	90	
4	NBCU-bloom-2	QA-Gil-Bx4x1-Setup	Admin,infra,Defau	bad	3.88.22.118	0	2019-05-14T14:32	TRUE	0	0	0	0	
5	NBCU-bloom-4	QA-Gil-Bx4x1-Setup	Admin,infra,Defau	bad	3.88.22.118	0	2019-05-14T15:00	TRUE	0	0	0	0	
6	NBCU-bloom-5	QA-Gil-Bx4x1-Setup	Admin,infra,Defau	bad	3.88.22.118	0	2019-05-14T15:01	TRUE	0	0	0	0	
7	UDP_INPUT_TI	ADULT_SWIM_Clstr	adult_swim	good	157.166.173.4	334.985	2019-05-16T21:20	FALSE	51	3286	0	0	
8	nbcu-010	Gil_QA_Office	Admin	good		0	2019-05-29T15:43	TRUE	0	0	0	0	
9	nbcu-011	Gil_QA_Office	Admin	good		0	2019-05-29T15:43	TRUE	0	0	0	0	
10	nbcu-012	Gil_QA_Office	Admin	good		0	2019-05-29T15:43	TRUE	0	0	0	0	
11	nbcu-014	Gil_QA_Office	Admin	good		0	2019-05-29T15:43	TRUE	0	0	0	0	
12	nbcu-013	Gil_QA_Office	Admin	good		0	2019-05-29T15:43	TRUE	0	0	0	0	
13	nbcu-015	Gil_QA_Office	Admin	good		0	2019-05-29T15:43	TRUE	0	0	0	0	
14	nbcu-016	Gil_QA_Office	Admin	good		0	2019-05-29T15:43	TRUE	0	0	0	0	
15	nbcu-017	Gil_QA_Office	Admin	good		0	2019-05-29T15:43	TRUE	0	0	0	0	
16	nbcu-018	Gil_QA_Office	Admin	good		0	2019-05-29T15:43	TRUE	0	0	0	0	
17	nbcu-019	Gil_QA_Office	Admin	good		0	2019-05-29T15:43	TRUE	0	0	0	0	
18	nbcu-020	Gil_QA_Office	Admin	good		0	2019-05-29T15:43	TRUE	0	0	0	0	
19	nbcu-021	Gil_QA_Office	Admin	good		0	2019-05-29T15:43	TRUE	0	0	0	0	
20	nbcu-022	Gil_QA_Office	Admin	good		0	2019-05-29T15:43	TRUE	0	0	0	0	
21	nbcu-023	Gil_QA_Office	Admin	good		0	2019-05-29T15:43	TRUE	0	0	0	0	
22	nbcu-024	Gil_QA_Office	Admin	good		0	2019-05-29T15:43	TRUE	0	0	0	0	
23	nbcu-026	Gil_QA_Office	Admin	good		0	2019-05-29T15:43	TRUE	0	0	0	0	
24	nbcu-027	Gil_QA_Office	Admin	good		0	2019-05-29T15:43	TRUE	0	0	0	0	
25	nbcu-025	Gil_QA_Office	Admin	good		0	2019-05-29T15:43	TRUE	0	0	0	0	
26	nbcu-028	Gil_QA_Office	Admin	good		0	2019-05-29T15:43	TRUE	0	0	0	0	
27	nbcu-029	Gil_QA_Office	Admin	good		0	2019-05-29T15:43	TRUE	0	0	0	0	

Sources Uptime/Outages

The following sections describe the tabs that are included in the Uptime/Outages reports for Sources.

Sources Uptime Tab

Parameter	Description
Source Name	The name of the Source in ZEN Master.
Cluster Name	The name of the Broadcaster Cluster used for this Source.
Tags	The Tag/s which controls access to this Source.
Status	The status of the Source at the time that the report was generated.
Source IP	The IP address of the Source's input resource.
Bitrate	The bitrate of the stream.
Created At	The date and time that the Source was created.
Exceptions	Indicates whether or not an exception was recorded for this Source. True = one or more exceptions occurred. False = no exceptions occurred.
Total Outages	The total number of outages (of the error types included in the report) that occurred for this Source during the time period of the report.

Reports

Total Downtime	The total duration (in seconds) of outages (of the error types included in the report) that occurred for this Source during the time period of the report.						
Time Unit (start time)	For each time unit included in the report, the start time of the time unit is shown at the top of a column. Below this, values are given for the number of outages and downtime for events that occurred during that time unit. The amount of time included in each unit is determined based on the granularity that was configured in the report configuration.						
	<table><thead><tr><th>Parameter</th><th>Description</th></tr></thead><tbody><tr><td>Outages</td><td>The number of outages (of the error types included in the report) that occurred for this Source during the specified time unit.</td></tr><tr><td>Downtime</td><td>The duration (in seconds) of outages (of the error types included in the report) that occurred for this Source during the specified time unit.</td></tr></tbody></table>	Parameter	Description	Outages	The number of outages (of the error types included in the report) that occurred for this Source during the specified time unit.	Downtime	The duration (in seconds) of outages (of the error types included in the report) that occurred for this Source during the specified time unit.
Parameter	Description						
Outages	The number of outages (of the error types included in the report) that occurred for this Source during the specified time unit.						
Downtime	The duration (in seconds) of outages (of the error types included in the report) that occurred for this Source during the specified time unit.						

Sources Outages Tab

Parameter	Description
Source Name	The name of the Source in ZEN Master.
Cluster Name	The name of the Broadcaster Cluster used for this Source.
Start Time	The date and time that the error event began.
End Time	The date and time that the error event ended.
Duration	The duration of the error event, in seconds.
Outage Type	The type of outage error that occurred. Possible error types are: Not Recovered Packets, Connections, TR101 Continuity Count Error, Frozen Video, Blank Picture, Silent Audio and Audio Clipping.

Sources Outages Exceptions Tab

Parameter	Description
Source Name	The name of the Source in ZEN Master.
Cluster Name	The name of the Broadcaster Cluster used for this Source.
Start Time	The date and time that the error event began.

Reports

End Time	The date and time that the error event ended.
Duration	The duration of the error event, in seconds.
Exception	The reason why this was recorded as an exception. 'No data for time period' indicates that the Source wasn't active during the time period of the report. 'No data' indicates that an outage occurred for which ZEN Master didn't discover the cause of the failure.

Targets Uptime/Outages

The following sections describe the tabs that are included in the Uptime/Outages reports for Targets.

Targets Uptime Tab

Parameter	Description
Target Name	The name of the Target in ZEN Master.
Channel Name	The name of the Channel that is being sent to the Target.
Target Type	The type of Target. Possible types are: Push, Pull, RTMP, S3, HTTP or UDP/RTP.
Tags	The Tag/s which controls access to this Target.
Status	The status of the Target at the time that the report was generated.
Created At	The date and time that the Target was created.
Exceptions	Indicates whether or not an exception was recorded for this Target. True = one or more exceptions occurred. False = no exceptions occurred.
Total Outages	The total number of outages (of the error types included in the report) that occurred for this Target during the time period of the report.
Total Downtime	The total duration (in seconds) of outages (of the error types included in the report) that occurred for this Target during the time period of the report.

Reports

Time Unit (start time)	For each time unit included in the report, the start time of the time unit is shown at the top of a column. Below this, values are given for the number of outages and downtime for events that occurred during that time unit. The amount of time included in each unit is determined based on the granularity that was configured in the report configuration.
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Parameter	Description
Outages	The number of outages (of the error types included in the report) that occurred for this Target during the specified time unit.
Downtime	The duration (in seconds) of outages (of the error types included in the report) that occurred for this Target during the specified time unit.

Targets Outages Tab

Parameter	Description
Target Name	The name of the Target in ZEN Master.
Channel Name	The name of the Channel that is being sent to the Target.
Target Type	The type of Target. Possible types are: Push, Pull, RTMP, S3, HTTP or UDP/RTP.
Start Time	The date and time that the error event began.
End Time	The date and time that the error event ended.
Duration	The duration of the error event, in seconds.
Outage Type	The type of outage error that occurred. Possible error types are: <i>Not Recovered Packets</i> and <i>Connections</i> .

Targets Outages Exceptions Tab

Parameter	Description
Target Name	The name of the Target in ZEN Master.
Channel Name	The name of the Channel that is being sent to the Target.
Target Type	The type of Target. Possible types are: Push, Pull, RTMP, S3, HTTP or UDP/RTP.

Reports

Start Time	The date and time that the error event began.
End Time	The date and time that the error event ended.
Duration	The duration of the error event, in seconds.
Exception	The reason why this was recorded as an exception. 'No data for time period' indicates that the Target wasn't active during the time period of the report. 'No data' indicates that an outage occurred for which ZEN Master didn't discover the cause of the failure.

Automation

You can automate a variety of different types of tasks in ZEN Master, such as enabling/disabling objects, setting cluster sizes, assigning/removing Targets to Channels etc. You can group together a series of tasks to include in a Task Set. For each task you can specify for which object instances the task will be run. You can then schedule the start and end times and the frequency at which the Task Set will run. In addition, you can manually activate any Task Set that you have defined in ZEN Master.

For example, if you are not licensed to broadcast a certain weekly program, you can create an automated task to disable the relevant Source for the duration of that program on a weekly basis. Similarly, if you are concerned that during certain peak times a certain Broadcaster Cluster will become overloaded, you can create an automated task to increase the number of broadcasters assigned to that Cluster during those peak times.

The work flow for automating actions is as follows:

1. Define a new Task Set. See [ADDING A NEW AUTOMATION TASK SET](#)
2. Add one or more tasks to the Task Set. See [ADDING TASKS TO A TASK SET](#)
3. Set one or more Schedules for executing the Task Set or run the Task Set manually. See [ADDING A SCHEDULE TO A TASK SET](#) and [MANUALLY RUNNING A TASK SET](#)

Adding a New Automation Task Set

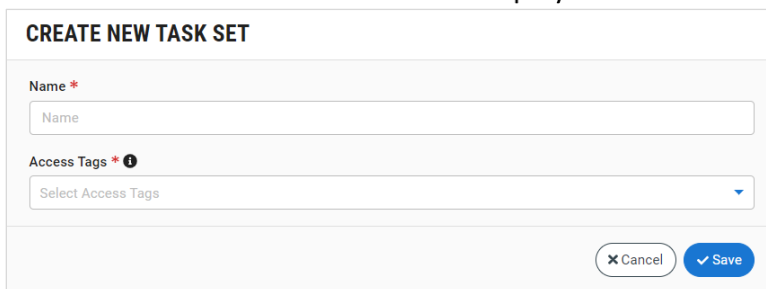
You can define a Task Set and include one or more tasks in the Task Set. You will then be able to schedule the precise times at which the set of Tasks will be executed. You will also be able to manually run the Task Set.

When you first define a new Task Set entity in ZEN Master it is just a "shell" with no Tasks assigned to it and no schedule for when it will be executed. You will then assign tasks to the Task Set and create schedules for when it will be run.

➔ To create a new Task Set:

1. In the Main Navigation, click **Automation**.
The Automation screen opens.
2. Click **+ Add**.

The **Create New Task Set** window is displayed:



CREATE NEW TASK SET

Name *

Access Tags *

3. In the **Name** field, enter a name for the new Task Set. Choose a name that is representative of the Tasks and Schedules that you plan to apply to the Task Set.
4. In the **Tags** field, select one or more of the predefined Tags from the dropdown list. This will determine who is authorized to access this Task Set.
Tags are used for access control. By selecting a Tag, you are relating this Task Set to that Tag. Tags are associated with certain roles (through the Users & Roles screen), and roles, in turn, are associated with users and user groups. If you would like to create a new Tag, see [CREATING A TAG](#).
5. Click **Save**.
The new Task Set is created. You can now add one or more tasks and schedules to the Task Set.

Adding Tasks to a Task Set

Once you have created a Task Set you need to assign one or more tasks to it in order for it to be functional. All tasks that are assigned to a Task Set are run whenever the Task Set is scheduled to run as well as whenever the Task Set is initiated manually. You can stagger the running of various tasks within a Task Set by setting a time delay before the start of each task.

The following sections describe the procedures for adding each of the various types of tasks.



Tasks are created within the framework of a Task Set. Only after a Task Set has been created can you begin adding tasks to that Task Set.

Adding a Mute/Unmute Task

You can add a task to mute (i.e., stop generating notifications) or unmute one or more specific object instances or all objects of a particular type that are associated with the specified Tags.

➔ To create a new Mute/Unmute task:

1. In the main navigation, click **Automation**.
The Automation screen opens.
2. Select the Task Set for which you would like to add a task.
Details of the selected Task Set are shown at the right side of the screen.
3. Click on the **Tasks** tab.

4. Click **+ Add Task**.
The **Create New Task** window is displayed.

CREATE NEW TASK

INFO

Name *

CONFIGURATION

of Minutes After Start Time to Initiate Task *

Task Type

Mute/Unmute

Mute Unmute

Mute By

One or more objects Objects based on type and access tags

Feeders

Select Feeders

Clusters

Select Cluster

Receivers

Select Receivers

Sources

Select Sources

MediaConnect Sources

Select Sources

MediaConnect Flows

Select AWS MediaConnect Flow

Adaptive Channels

Select Adaptive Channels

Pass-Through Channels

Select Pass-Through Channels

Targets

Select Targets

Cancel Save

5. In the **Info** section, in the **Name** field, enter a name for this task.
6. In the **Configuration** section, in the **# of Minutes...** field, specify the number of minutes to delay starting this task from the beginning of the execution of the Task Set. The default value is "0" meaning that the task begins immediately when the Task Set is run.
7. In the **Task Type** field, select from the dropdown list *Mute/Unmute* (default).
8. Select the action that you would like to take. Options are: *Mute* or *Unmute*.

9. Under **Mute By** (or **Unmute By**), select the way that you would like to define what objects the task applies to. *One or more objects* enables you to specify the particular object instances to include in the Task. *Objects based on type and tags* enables you to specify the type of objects and associated Tags to include in the task.
10. Specify the objects as follows:
 - If you selected **One or more objects** –
 - a. Click on the field of an object type that you would like to include.
A dropdown list of relevant object instances is displayed.
 - b. Click on the desired object instance.
 - c. If you would like to add additional instances of the same object type, click on the object type field again and select additional instances.
 - d. If you would like to add instances of different object types, click on the field for each additional object type and select the relevant instances for each type.
 - If you selected **Objects based on type and tags** –
 - a. Select the checkbox next to each of the object types that you would like to include.
 - b. In the Tags field, select from the dropdown list one or more Tags.



When *Objects based on type and tags* is selected, only objects instances which are of the specified type **and** are associated with the specified Tag are included in the task. **Therefore, at least one object type and one Tag must be selected.**



When *Objects based on type and tags* is selected, the determination of which object instances are included in the task is made at the time of each execution of the task. So, for example, if the specified Tag was assigned to 5 Sources at the time of the initial run and was then assigned to two additional Sources prior to the second run, then the second run of the task will apply to all 7 Sources.

11. Click **Save**.

The task is added to the specified Task Set.

Adding an Enable/Disable Task

You can add a task to enable or disable one or more specific object instances or all objects of a particular type that are associated with the specified Tags.

➔ To create a new Enable/Disable task:

1. In the main navigation, click **Automation**.
The Automation screen opens.
2. Select the Task Set for which you would like to add a task.
Details of the selected Task Set are shown at the right side of the screen.
3. Click on the **Tasks** tab.

4. Click **+ Add Task**.

The **Create New Task** window is displayed.

CREATE NEW TASK

INFO

Name *

CONFIGURATION

of Minutes After Start Time to Initiate Task *

Task Type

Enable
 Disable

Enable By

One or more objects
 Objects based on type and access tags

Sources

MediaConnect Sources

MediaConnect Flows

Adaptive Channels

Pass-Through Channels

Targets

5. In the **Info** section, in the **Name** field, enter a name for this task.
6. In the **Configuration** section, in the **# of Minutes...** field, specify the number of minutes to delay starting this task from the beginning of the execution of the Task Set. The default value is "0" meaning that the task begins immediately when the Task Set is run.
7. In the **Task Type** field, select from the dropdown list *Enable/Disable*.
8. Select the action that you would like to take. Options are: *Enable* or *Disable*.
9. Under **Enable By (or Disable By)**, select the way that you would like to define what objects the task applies to. *One or more objects* enables you to specify the particular object instances to include in the task. *Objects based on type and tags* enables you to specify the type of objects and associated Tags to include in the task.

10. Specify the objects as follows:

- If you selected **One or more objects** –
 - a. Click on the field of an object type that you would like to include.
A dropdown list of relevant object instances is displayed.
 - b. Click on the desired object instance.
 - c. If you would like to add additional instances of the same object type, click on the object type field again and select additional instances.
 - d. If you would like to add instances of different object types, click on the field for each additional object type and select the relevant instances for each type.
- If you selected **Objects based on type and tags** –
 - a. Select the checkbox next to each of the object types that you would like to include.
 - b. In the Tags field, select from the dropdown list one or more Tags.



When *Objects based on type and tags* is selected, only objects instances which are of the specified type **and** are associated with the specified Tag are included in the task. **Therefore, at least one object type and one Tag must be selected.**



When *Objects based on type and tags* is selected, the determination of which object instances are included in the task is made at the time of each execution of the task. So, for example, if the specified Tag was assigned to 5 Sources at the time of the initial run and was then assigned to two additional Sources prior to the second run, then the second run of the task will apply to all 7 Sources.

11. Click **Save**.

The task is added to the specified Task Set.

Adding a Set Cluster Size Task

You can create a task to set the number of broadcasters assigned to a particular cluster.

➔ To create a new Set Cluster Size task:

1. In the main navigation, click **Automation**.
The Automation screen opens.
2. Select the Task Set for which you would like to add a task.
Details of the selected Task Set are shown at the right side of the screen.
3. Click on the **Tasks** tab.

4. Click **+ Add Task**.
The **Create New Task** window is displayed.

CREATE NEW TASK

INFO

Name *

Name

CONFIGURATION

of Minutes After Start Time to Initiate Task *

0

Task Type

Set Cluster Size

of Broadcasters *

1

Cluster *

Select Cluster

Cancel Save

5. In the **Info** section, in the **Name** field, enter a name for this task.
6. In the **Configuration** section, in the **# of Minutes...** field, specify the number of minutes to delay starting this task from the beginning of the execution of the Task Set. The default value is "0" meaning that the task begins immediately when the Task Set is run.
7. In the **Task Type** field, select from the dropdown list *Set Cluster Size*.
8. In the **# of Broadcasters** field, enter the number of broadcasters to be assigned to the Cluster.
9. In the **Cluster** field, select from the dropdown list the Cluster to which the task applies.
10. Click **Save**.
The task is added to the specified Task Set.

Adding an Activate/Deactivate Content Analysis Task

You can add a task to activate or deactivate Content Analysis for one or more Sources.

➔ To create a new Activate/Deactivate Content Analysis task:

1. In the main navigation, click **Automation**.
The Automation screen opens.
2. Select the Task Set for which you would like to add a task.
Details of the selected Task Set are shown at the right side of the screen.
3. Click on the **Tasks** tab.

4. Click **+ Add Task**.

The **Create New Task** window is displayed.

5. In the **Info** section, in the **Name** field, enter a name for this task.
6. In the **Configuration** section, in the **# of Minutes...** field, specify the number of minutes to delay starting this task from the beginning of the execution of the Task Set. The default value is "0" meaning that the task begins immediately when the Task Set is run.
7. In the **Task Type** field select from the dropdown list *Activate/Deactivate Content Analysis*.
8. Select the action that you would like to take. Options are: *Activate Content Analysis* or *Deactivate Content Analysis*.
9. Under **Activate Content Analysis By (or Deactivate Content Analysis By)**, select the way that you would like to define what objects the task applies to. *One or more objects* enables you to specify the particular object instances to include in the task. *Objects based on type and tags* enables you to specify the type of objects and associated Tags to include in the task.
10. Specify the objects as follows:
 - If you selected **One or more objects** –
 - a. Click on the **Sources** field.
A dropdown list of Sources is displayed.
 - b. Click on the desired object instance.
 - c. If you would like to add additional Source, click on the **Sources** field again and select additional Sources.
 - If you selected **Objects based on tags** –
 - a. In the **Tags** field, select from the dropdown list one or more Tags.



This task is only relevant for Sources.



At least one Tag must be selected.



When *Objects based on type and tags* is selected, the determination of which object instances are included in the task is made at the time of each execution of the task. So, for example, if the specified Tag was assigned to 5 Sources at the time of the initial run and was then assigned to two additional Sources prior to the second run, then the second run of the task will apply to all 7 Sources.

11. Click **Save**.

The task is added to the specified Task Set.

Adding an Assign Targets to Channel Task

You can add a task to assign one or more Targets to a Channel. You can select one or more specific Targets or all Targets of a particular type that are associated with the specified Tags.

➔ **To create a new Assign Targets to Channel task:**

1. In the main navigation, click **Automation**.
The Automation screen opens.
2. Select the Task Set for which you would like to add a task.
Details of the selected Task Set are shown at the right side of the screen.
3. Click on the **Tasks** tab.

4. Click **+ Add Task**.

The **Create New Task** window is displayed.

5. In the **Info** section, in the **Name** field, enter a name for this task.
6. In the **Configuration** section, in the **# of Minutes...** field, specify the number of minutes to delay starting this task from the beginning of the execution of the Task Set. The default value is "0" meaning that the task begins immediately when the Task Set is run.
7. In the **Task Type** field, select from the dropdown list *Assign Targets to Channel*.
8. Under **Channel Type**, select the type of Channel to which you would like to add Targets. Options are: *Adaptive Channel*, *Pass-Through Channel* or *MediaConnect Flow*.
9. Click on the **Channel** selection field and select the desired Channel from the dropdown list.
10. Under **Assign Targets to Channel By**, select the way that you would like to define what objects the task applies to. *One or more objects* enables you to specify the particular object instances to include in the Task. *Objects based on type and tags* enables you to specify the type of objects and associated Tags to include in the task.
11. Specify the objects as follows:
 - If you selected **One or more objects** –
 - a. Click on the **Select Targets** field.
A dropdown list of Targets is displayed.
 - b. Click on the desired Target.
 - c. If you would like to add additional Targets, click on the **Targets** field again and select additional Targets.

- If you selected **Objects based on type and tags** –
 - a. Select the checkbox next to the desired type of Targets. For a MediaConnect Flow options are: *UDP/RTP*, *Pull Targets*, *Push Targets* or *RIST*. For a Pass-Through Channel options are: *RTMP Targets*, *UDP/RTP Targets*, *SRT*, *Pull Targets* or *Push Targets*. For an Adaptive Channel, *HTTP Targets* is the only possible selection.
 - b. In the **Tags** field, select from the dropdown list one or more Tags.



When *Objects based on type and tags* is selected, only objects instances which are of the specified type **and** are associated with the specified Tag are included in the task. **Therefore, at least one object type and one Tag must be selected.**



When *Objects based on type and tags* is selected, the determination of which object instances are included in the task is made at the time of each execution of the task. So, for example, if the specified Tag was assigned to 5 Sources at the time of the initial run and was then assigned to two additional Sources prior to the second run, then the second run of the task will apply to all 7 Sources.

12. Click **Save**.

The task is added to the specified Task Set.

Adding a Remove Targets from Channel Task

You can add a task to remove one or more Targets from a Channel. You can select one or more specific Targets or all Targets of a particular type.

➡ **To create a new Remove Targets from Channel task:**

1. In the main navigation, click **Automation**.
The Automation screen opens.
2. Select the Task Set for which you would like to add a task.
Details of the selected Task Set are shown at the right side of the screen.
3. Click on the **Tasks** tab.

4. Click **+ Add Task**.

The **Create New Task** window is displayed.

CREATE NEW TASK

INFO

Name *

Name

CONFIGURATION

of Minutes After Start Time to Initiate Task *

0

Task Type

Remove Targets from Channel

Remove Targets from Channel By

One or more objects Objects based on type and access tags

Targets *

Select Targets

Cancel Save

5. In the **Info** section, in the **Name** field, enter a name for this task.
6. In the **Configuration** section, in the **# of Minutes...** field, specify the number of minutes to delay starting this task from the beginning of the execution of the Task Set. The default value is "0" meaning that the task begins immediately when the Task Set is run.
7. In the **Task Type**, field select from the dropdown list *Remove Targets from Channel*.
8. Under **Remove Targets from Channel By**, select the way that you would like to define what objects the task applies to. *One or more objects* enables you to specify the particular object instances to include in the Task. *Objects based on type and tags* enables you to specify the type of objects and associated Tags to include in the task.
9. Specify the objects as follows:
 - If you selected **One or more objects** –
 - a. Click on the **Select Targets** field.
A dropdown list of Targets is displayed.
 - b. Click on the desired Target.
 - c. If you would like to add additional Targets, click on the **Targets** field again and select additional Targets.
 - If you selected **Objects based on type and tags** –
 - a. Select the checkbox next to the desired type of Targets. Options are: *HTTP Targets, RTMP Targets, UDP/RTP Targets, RIST Targets, Pull Targets* or *Push Targets*.
 - b. In the **Tags** field, select from the dropdown list one or more Tags.



When *Objects based on type and tags* is selected, only objects instances which are of the specified type **and** are associated with the specified Tag are included in the task. **Therefore, at least one object type and one Tag must be selected.**



When *Objects based on type and tags* is selected, the determination of which object instances are included in the task is made at the time of each execution of the task. So, for example, if the specified Tag was assigned to 5 Sources at the time of the initial run and was then assigned to two additional Sources prior to the second run, then the second run of the task will apply to all 7 Sources.

10. Click **Save**.

The task is added to the specified Task Set.

Adding a Schedule to a Task Set

You can automate the execution of a Task Set by adding one or more Schedules to the Task Set. In the Schedule you specify the start time and end times that the Task Set will run. You can also create a schedule that repeats at regular intervals according to your specifications.



Schedules are created within the framework of a Task Set. Only once a Task Set has been created can you begin adding Schedules to that Task Set.

You can also run a Task Set manually at any time, see [MANUALLY RUNNING A TASK SET](#).

➔ To add a Schedule to a Task Set:


1. In the main navigation, click **Automation**.
The Automation screen opens.
2. Select the Task Set for which you would like to add a schedule.
Details of the selected Task Set are shown at the right side of the screen.
3. Click on the **Schedules** tab.

4. Click **+ Add Schedule**.
The **Create New Schedule** window is displayed.


CREATE NEW SCHEDULE

Name *

Start Date/Time *

End Date/Time

Time Zone

Frequency

Once
 Daily
 Weekly
 Monthly
 Last day of the month
 Every

5. In the **Name** field, enter a name for this schedule.
6. In the **Start Date/Time** field, enter the date and time that the specified Task Set will begin running, using the following procedure:
 - a. Click on the **Select Start Date/Time** field.
A calendar selection window is displayed.

Start Date/Time *

May 2020

Su	Mo	Tu	We	Th	Fr	Sa
26	27	28	29	30	1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31	1	2	3	4	5	6

Monthly
 Last day of the month

- b. Select the desired date.
An hour selection window is displayed.

- c. Select the desired hour.
A minute selection window is displayed.
- d. Select the start time.



In the selection window only five minute intervals are offered for selection, i.e. 10:20 or 10:25.

7. In the **End Date/Time** field, enter the date and time that the Task Set will stop running, using the same procedure as described above for the Start Date/Time.
8. In the **Time Zone** field, select the time zone for which the times are specified.
9. In the **Frequency** field, select a radio button for the desired frequency.
 - Once (default) – does not run the Task Set again after the initial run.
 - Daily – repeats the Task Set every day after the initial run at the specified time of day.
 - Weekly – repeats the Task Set every week after the initial run at the specified day of the week and time of day.
 - Monthly – repeats the Task Set every month after the initial run at the specified day of the month and time of day.
 - Last day of the month – repeats the Task Set every month on the last day of the month after the initial run.
 - Every__minutes – fill in the number of minutes of the interval between runs.
 - Every__hours – fill in the number of hours of the interval between runs.
 - Every__days – fill in the number of days of the interval between runs.
 - Every__weeks - fill in the number of weeks of the interval between runs.
 - Every__months - fill in the number of months of the interval between runs.
10. Click **Save**.

The new schedule is saved for the specified Task Set. The Task Set will run automatically at the times specified in the schedule.

Viewing and Running Task Sets

You can view a list of all Task Sets that have been configured in ZEN Master.

AUTOMATION					+ Add	Refresh
Filter						
<input type="checkbox"/> Name ▲	# of Tasks	# of Schedules	Next Scheduled Run	Status		
<input type="checkbox"/> QA-Gil-Enable-Disable-Failover-Platform-662-02	2	2	May 25, 2020, 12:30 AM	Executing		
<input type="checkbox"/> QA-Gil-Enable-Disable-Failover-Platform-662-03	3	12	May 25, 2020, 12:31 AM	Executing		
<input type="checkbox"/> EliTest	1	20	-	Ready		
<input type="checkbox"/> EliTest2	0	0	-	Ready		
<input type="checkbox"/> gil-qa-au-1	0	8	-	Executing		
<input type="checkbox"/> gil-qa-au-10-Set-Cluster-Size-Gil-AWS-EU (Frankfurt)-P3-AWS-up	1	18	-	Ready		
<input type="checkbox"/> gil-qa-au-11-Set-Cluster-Size-Gil-AWS-EU (Frankfurt)-P3-AWS-do...	1	21	-	Ready		
<input type="checkbox"/> gil-qa-au-12-Set-Cluster-Size-Gil-QA-au-Azure-AZURE-up	1	19	-	Ready		
<input type="checkbox"/> gil-qa-au-13-Set-Cluster-Size-Gil-QA-au-Azure-AZURE-down	1	19	-	Ready		
<input type="checkbox"/> gil-qa-au-14-1-By-Type-Enable-All	1	2	-	Ready		
<input type="checkbox"/> gil-qa-au-14-By-Type-Enable	1	31	-	Ready		
<input type="checkbox"/> gil-qa-au-15-1-By-Type-Disable	4	6	-	Executing		
<input type="checkbox"/> gil-qa-au-15-2-By-Type-Disable	5	6	-	Ready		
<input type="checkbox"/> gil-qa-au-15-By-Type-Disable	3	22	-	Executing		
<input type="checkbox"/> gil-qa-au-16-Mute by tag Gil-Tag-None	1	4	-	Ready		

Showing: 1 - 15 of 52

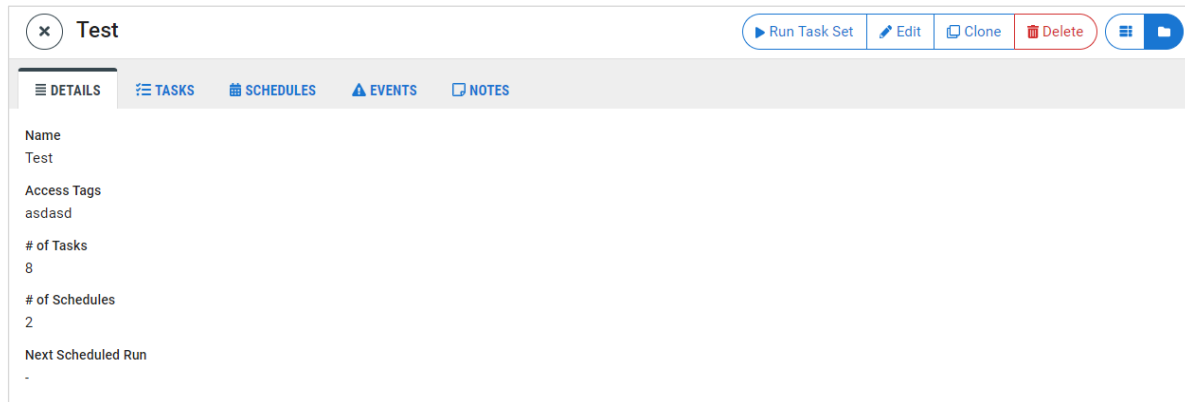
Rows [Auto](#)

The following table describes the information shown on the Automation screen.

Parameter	Description
Name	The name of the Task Set.
# of Tasks	The number of tasks included in the Task Set.
# of Schedules	The number of schedules assigned to the Task Set.
Next Scheduled Run	Note: Each time that the Task Set is run manually it is counted as a new schedule.
Status	Shows the date and time that the Task Set is next scheduled to run.
	Shows the status of the Task Set. Possible statuses are: <i>Ready</i> or <i>Executing</i> .

When a Task Set is selected, the following tabs are shown at the right side of the screen:

- **Details** – shows configuration details of the selected Task Set.
- **Tasks** – shows a list of all tasks that are included in the Task Set.
- **Schedules** – shows a list of all schedules applied to the Task Set.
- **Events** – shows a list of all system Events relevant to the Task Set.
- **Notes** – shows notes added to the Task Set.



The following actions can be done for the selected Task Set:

- **Run Task Set** – manually initiate a "run" of the specified Task Set. See [MANUALLY RUNNING A TASK SET](#).
- **Edit** – Edit the Task Set configuration.
- **Clone** - Create an additional Task Set based on the settings of the selected Task Set.
- **Delete** – Delete the Task Set from the system.

In addition, in the Tasks tab you can add new tasks, and in the Schedules tab you can add new schedules. In the Events tab you can also download a report of the Events.

Manually Running a Task Set

Each Task Set runs automatically according to the schedule/s that were created for that Task Set. You can also run a Task Set manually at any time.



You must run a complete Task Set. There is no method available for running an individual task that is part of a Task Set. If you would like to run one particular task then you must create a Task Set including only that task.



When you manually run a Task Set, no end time is assigned to the task. This means that the tasks will continue running indefinitely until the actions are reversed manually. For example, if you manually run a task to mute a group of objects, they remain muted until you take a separate action to unmute them.

➔ To manually run a Task Set:

1. In the main navigation, click **Automation**.
The Automation screen opens.
2. Select the Task Set that you would like to run.
Details of the selected Task Set are shown at the bottom of the screen.
3. In the Info pane, click **Run Task Set**.
The Task Set begins running momentarily. You can view the run details in the Schedules tab.

Task Set Tabs

Detailed information about the specified Task Set is shown, divided into tabs, at the right side of the screen.

Task Set Details Tab

In the Details tab, you can view information about the selected Task Set.

The following table describes the information shown in the Details tab.

Parameter	Description
Name	The name of the Task Set.
Tags	The Tags associated with this Task Set (i.e. that determine who has access to view and run the Task Set).
# of Tasks	The number of tasks included in the Task Set.
	The number of schedules assigned to the Task Set.
# of Schedules	Note: Each time that the Task Set is run manually it is counted as if you created a new schedule.
Next Scheduled Run	Shows the date and time that the Task Set is next scheduled to run.

Task Set Tasks Tab

In the *Tasks* tab, you can view information about the tasks included in the selected Task Set. There is also a button for adding additional tasks to the Task Set.

The following table describes the information shown in the Tasks tab.

Parameter	Description
Run	Shows the time that the specific task runs relative to the beginning of the Task Set run. <i>Immediately</i> means that the task begins running as soon as the Task Set begins.
Name	The name of the task.

Type	The type of task. Possible values are: Mute, Unmute, Enable, Disable, Set Cluster Size, Activate Content Analysis, Deactivate Content Analysis, Assign Targets to Channel or Remove Targets from Channel.
Actions	
Edit	Edit the settings of the selected task.
Clone	Create an additional task based on the settings of the selected task.
Delete	Delete the selected task.

Task Set Schedules Tab

In the *Schedules* tab, you can view information about the schedules assigned to the selected Task Set. There is also a button for adding additional Schedules to the Task Set.

The following table describes the information shown in the Schedules tab.

Parameter	Description
Name	The name of the schedule.
Start Date	The date and time that the Task Set began/will begin running.
End Date	The date and time that the Task Set ended/will end.
Next Execution Time	The date and time that the task is scheduled to run next.
Time Zone	The time zone on which the schedule is based.
Frequency	The frequency that the Task Set is run.
Enabled	Indicates whether or not the Task Set is currently enabled.
Actions	
Edit	Edit the settings of the selected schedule.
Clone	Create an additional schedule based on the settings of the selected schedule.
Enable/Disable	Enable or disable the selected Task Set. While a Task Set is disabled upcoming scheduled runs will not be run.
Delete	Delete the selected schedule.

Task Set Events Tab

In the *Events* tab, you can view information about Events that occurred that relate to the selected Task Set. For general info about viewing Events in ZEN Master, see [EVENTS](#).

There is also a button for generating a *Quick Report* of the Events. For general info about generating reports in ZEN Master, see [REPORTS](#).

The following table describes the information shown in the Events tab.

Parameter	Description
-----------	-------------

Object	The name of the system object to which the Event relates. For all Events shown in this tab the Object is labeled "Task Sets" followed by the name of the Task Set.
Date/Time	The date and time that the Event took place.
Message	A brief description of the Event.
Manage	For <i>Error</i> Events, click on Manage to adjust the notification settings.

Task Set Notes Tab

View notes that were added to the Task Set. You can edit the notes and add additional info. Your changes are saved automatically.

Insights



Insights is an add-on feature that is licensed separately, and it is not shown in standard ZEN Master accounts.

Insights are a set of graphs in ZEN Master that leverage our Intelligent Data Platform (IDP) to show a visualization that enables you to identify outliers and likely areas of instability in your system. These graphs make it easy to compare different workflows, showing you where you need to focus your attention. Graphs show metrics related to packet recovery as well as other Broadcaster KPIs such as CPU and memory usage.



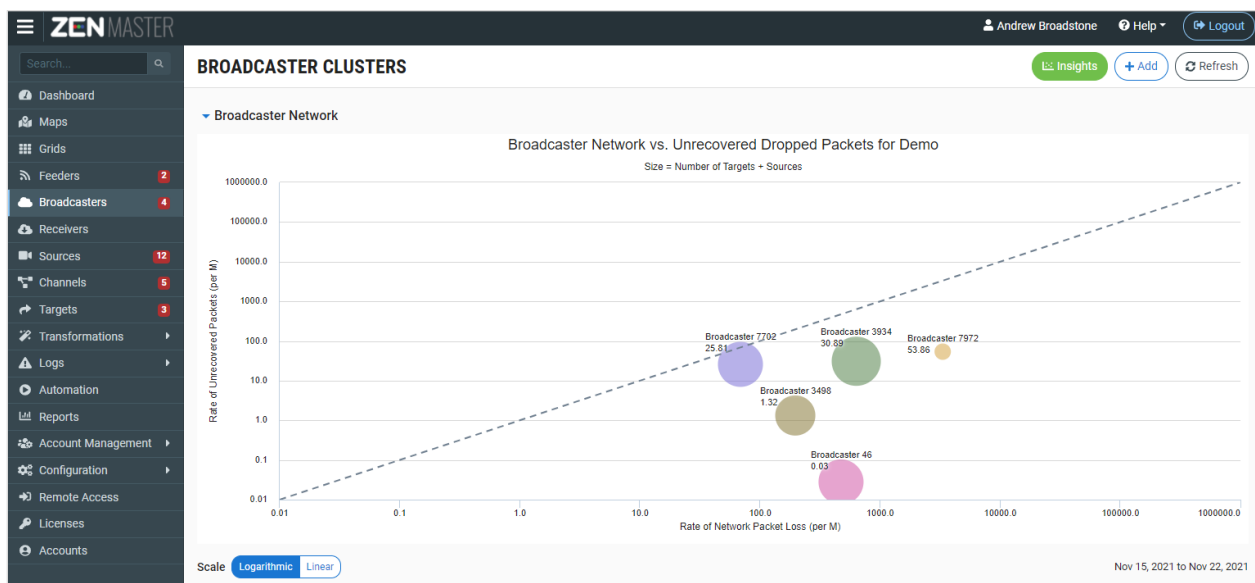
Insights are shown only for Sources that use Zixi protocol.

Insights graphs are shown for Broadcasters and for Channels and are accessed by clicking the **Insights** button on the Broadcaster and Channels screens respectively.

There are two types of graphs:

- **Network** – These graphs show an indication of the quality of your network connections as well as the effectiveness of Zixi at recovering lost packets. They are available for Broadcasters and Channels and you can drill down to show graphs for specific Sources and Targets.
- **KPIs** – These graphs show KPIs for the performance of each object such as CPU and memory usage. They are available for Broadcasters as well as for Sources and Targets in a Channel.

Network Insight Graphs



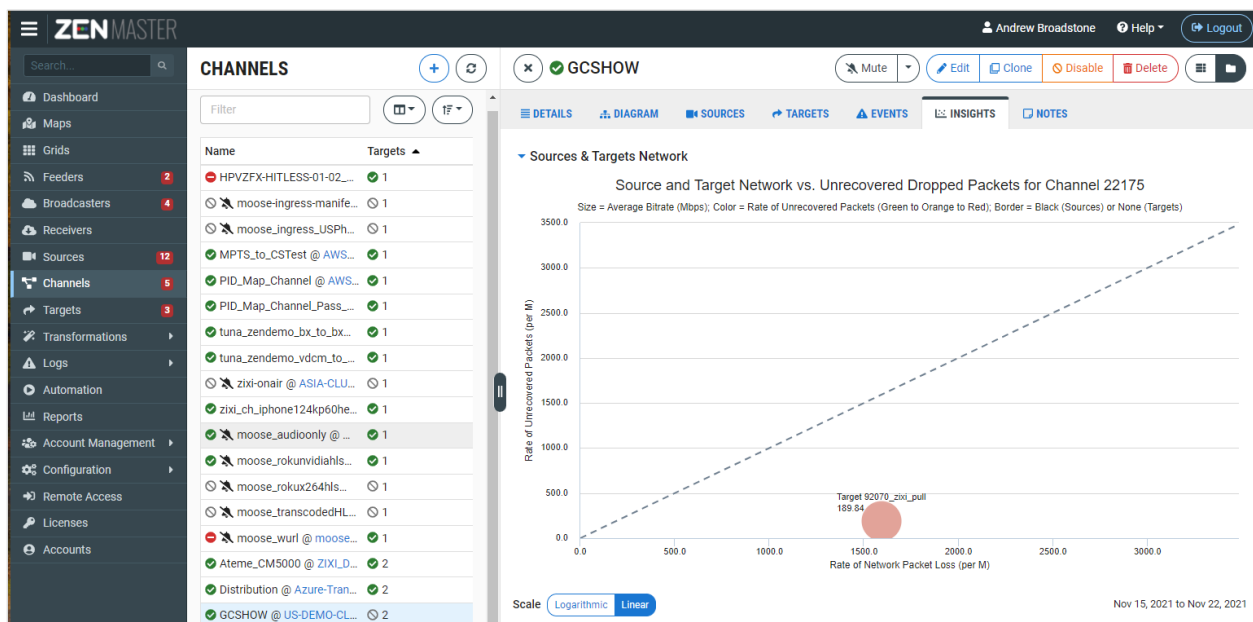
The Network Insight graphs give an at a glance indication of the quality of your network connections as well as the effectiveness of Zixi at recovering lost packets. Each object (Broadcaster, Channel, Source or Target) is represented on the graph as a color coded circle, with the size of the circle indicating the “importance” of the Broadcaster for your network (as determined by the number of Targets and Sources on the Broadcaster).

The x-axis indicates the quality of the raw network connection, as determined by the amount of packet loss. The y-axis indicates the performance of the Zixi protocol as determined by the rate of unrecovered packets, with a lower score indicating a more successful job of Zixi recovering packets. The dotted line indicates the level at which no packets are being recovered by Zixi.

For example, a large dot that is towards the bottom right of the graph would indicate an “important” object with poor performance for which the Zixi protocol is effectively recovering most of the packets.

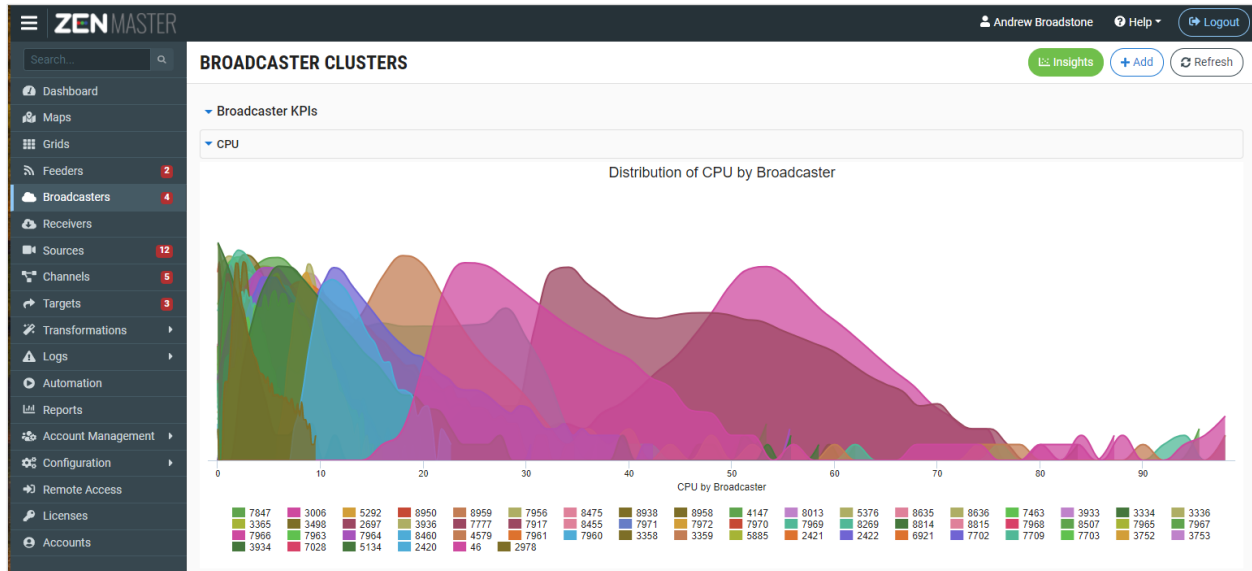
The graph shows data for the past seven days. You can toggle between showing the logarithmic or linear scale.

Click on a Broadcaster to show a breakdown of the metrics for each of the Sources and Targets on that Broadcaster.



KPI Graphs

Broadcaster/Channel KPIs show histogram graphs with detailed info about the performance of each of your Broadcasters/Channels. Each graph shows the distribution of objects with various values for the following metrics: CPU usage, Memory, UDP send errors, and UDP receive errors. This makes it easy to identify outliers that aren't performing at optimal levels.



Incidents

Name	State	Start Time	Duration	Runtime State	Root Cause	Description	# Objs.	Actions
Network Path US_VA_14618-US_VA_...	Open	8/13/23, 8:14 PM	43m, 9s	Ended	Network Path Error	100% of sources (3/3) on Network Path US_VA_...	3	
Network Path US_VA_14618-US_VA_...	Open	8/8/23, 4:59 PM	39m, 29s	Ended	Network Path Error	100% of sources (3/3) on Network Path US_VA_...	3	

The Incident view groups together related errors into incidents to simplify the process of identifying the common root cause. Incidents can be manually created or automatically generated.

- **Manually-created incidents** - in this case users can select a time range in a Source or Target History graph during which a series of related failures took place and display the Incident view for that object during the specified time range. You can customize the display of relevant graphs and data, enabling you to build your own customized incident reports, and share them with the relevant stakeholders.
- **Automatically-created incidents** – ZEN Master automatically groups errors into incidents, by determining correlations between individual-object incidents. The incidents are reported when there are 3 or more Sources, Targets, or Broadcasters having errors at the same time that share a common resource, and when at least 50% of the objects that share that resource are experiencing errors at the same time frame of 10 minutes. Errors that happen on these objects within 10 minutes of a previous error are grouped together into the incident. It is possible to have multiple related incidents if there is a period of more than 10 minutes without any errors. In some cases, if there are multiple shared resources, the system may also report multiple related incident records.

The shared resources, which determine the type of grouping include the following:

- **Client Network** – the network where Source or Target objects are connected. Networks are identified by network ASN (Autonomous System Number), country code, and region code. For example, US_OH_123 is a network in Ohio in the United States with ASN 123.
- **Server Network** – the network where a Broadcaster is connected.
- **Network Path** – the connection between a Source and a Broadcaster.
- **Broadcaster** – the shared Zixi Broadcaster.

There are two types of automatically-created incidents:

- **Network Error** – this type of incident is triggered by errors related to the network, such as unrecovered packets, etc.

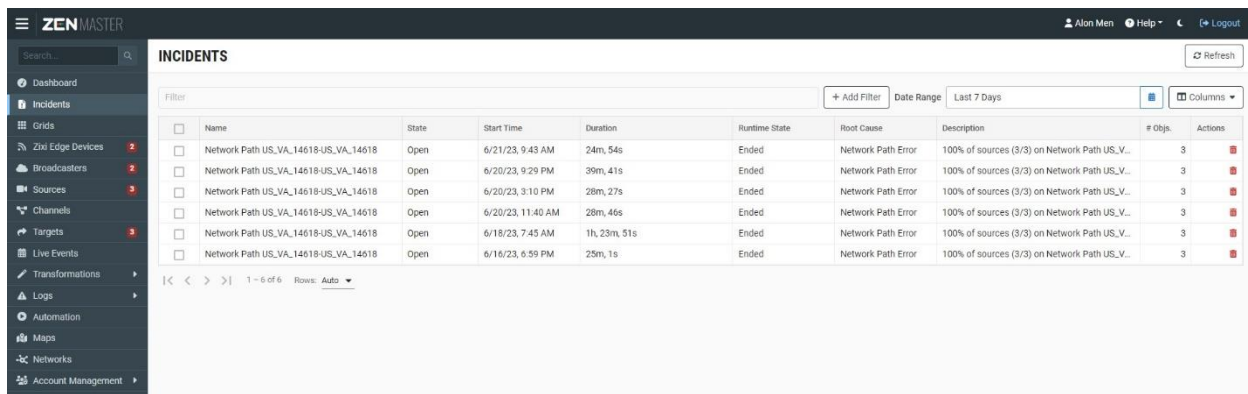
Incidents

- **Object Error** – this type of incident is triggered by a TR101-CC error on a Source, or a Broadcaster max CPU error, or any error reported in ZEN Master.

Viewing Existing Incidents

The Incidents screen displays a list of incidents that were either created manually or automatically generated by the system. By default, if it was automatically created, the name will include the following structure - <root_cause_category> <identifier>

- Root cause category - the name of the root cause category. See Root Cause column description below. For example, 'Server Network'
- Identifier - for networks, the identifier used is the network's ASN.



The screenshot shows the ZEN MASTER interface with the 'INCIDENTS' screen active. The table displays the following data:

Name	State	Start Time	Duration	Runtime State	Root Cause	Description	# Objs.	Actions
Network Path US_VA,14618-US_VA,14618	Open	6/21/23, 9:43 AM	24m, 54s	Ended	Network Path Error	100% of sources (3/3) on Network Path US_V...	3	[Red Square]
Network Path US_VA,14618-US_VA,14618	Open	6/20/23, 9:29 PM	39m, 41s	Ended	Network Path Error	100% of sources (3/3) on Network Path US_V...	3	[Red Square]
Network Path US_VA,14618-US_VA,14618	Open	6/20/23, 3:10 PM	28m, 27s	Ended	Network Path Error	100% of sources (3/3) on Network Path US_V...	3	[Red Square]
Network Path US_VA,14618-US_VA,14618	Open	6/20/23, 11:40 AM	28m, 46s	Ended	Network Path Error	100% of sources (3/3) on Network Path US_V...	3	[Red Square]
Network Path US_VA,14618-US_VA,14618	Open	6/18/23, 7:45 AM	1h, 23m, 51s	Ended	Network Path Error	100% of sources (3/3) on Network Path US_V...	3	[Red Square]
Network Path US_VA,14618-US_VA,14618	Open	6/16/23, 6:59 PM	25m, 1s	Ended	Network Path Error	100% of sources (3/3) on Network Path US_V...	3	[Red Square]

Parameter	Description
Name	The name of the incident. The name can be edited. By default, if it was automatically created, the name will include the following structure - <root_cause_category> <identifier> <ul style="list-style-type: none">• Root cause category - the name of the root cause category. See Root Cause column description below. For example, 'Server Network'• Identifier - for networks, the identifier used is the network's ASN.
State	Indicates whether the incident has been marked as closed by the user or is still open
Start Time	The time in which the incident has been first created.
Duration	The overall time from the creation of the incident until now

Incidents

Runtime State	Indicates whether the incident is ongoing or it has ended . By default, the window duration for checking if it has ended or it's ongoing is 20 minutes (i.e., if no issues occurred during 20 minutes then it has ended). This parameter is relevant for automatically generated incidents only.
Root Cause	Indicated the probable root cause of the incidents by categorizing it into the following categories: <ul style="list-style-type: none">• Server network - the network where the Broadcaster resides.• Client network - the network where the Target or Source resides.• Broadcaster - indicates that although this is not a network related incident, a Broadcaster may be the root cause of the incident.• Content analysis – the incident is related to errors detected in the audio and video content itself.• Performance – the incident is related to performance issues.• Other - the incident is related to other issues.
Description	In case of an auto-generated incident, the description includes the reason for generating the event. This description includes an indication of the number of components in the network that have experienced the issue (e.g., unrecovered packets events) around the same time. Currently, the threshold for generating an event is that over 50% of the components (targets/sources/Broadcasters) in the network have experienced the issue around the same time.
# Objects	Indicates the number of objects that are involved in the incident.
Actions	Click the trash icon to delete the incident.

Filtering the list of incidents

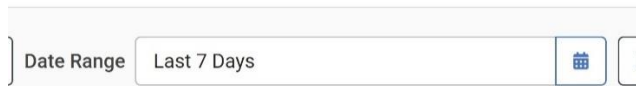
Filtering by date range

Filtering the list by date range can be done by selecting one of the predefined time ranges or by selecting specific start and end dates.

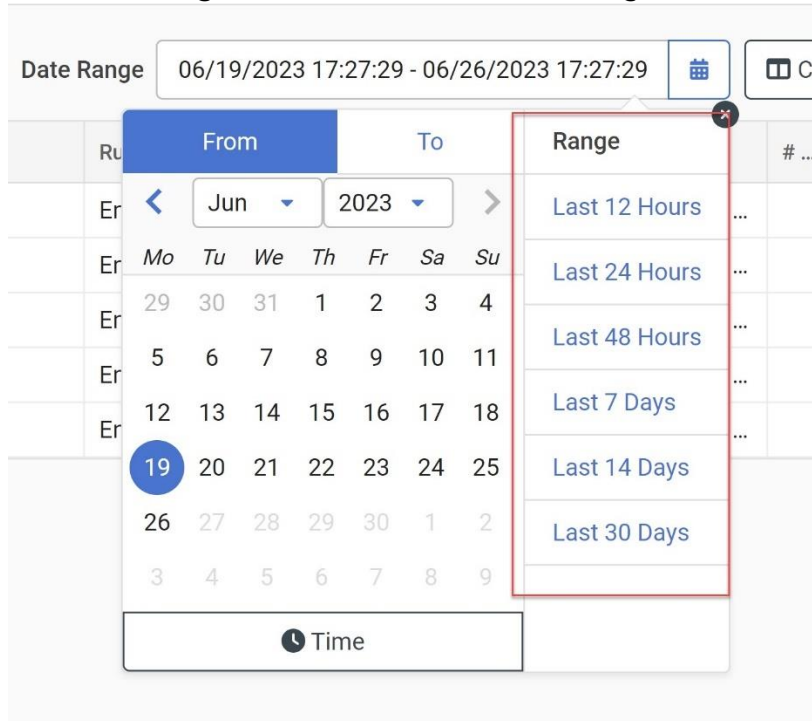
Incidents

➔ To filter by predefined ranges:

1. Click the **Date Range** field.



2. Under the **Range** column select the desired range.

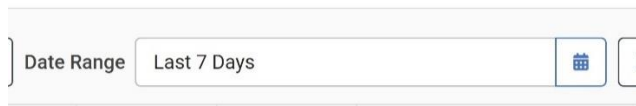


The list will be updated with incidents from the selected time range.

Filtering by selecting a specific date/time

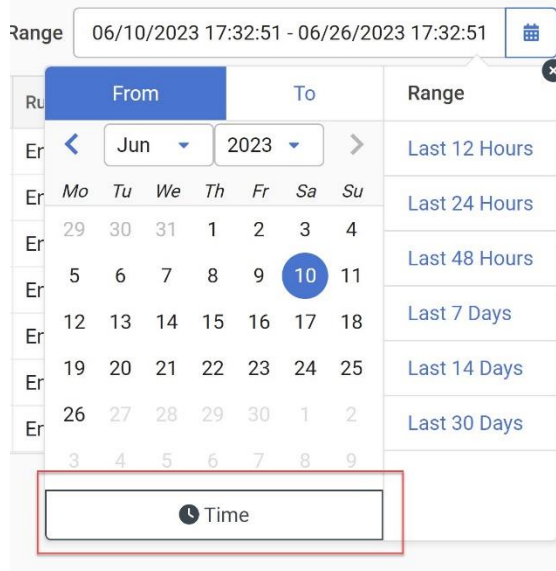
➔ To filter by predefined ranges:

1. Click the **Date Range** field.



2. Select the start date (**From** tab).

3. If you want to select a specific time, click **Time** and select the time.



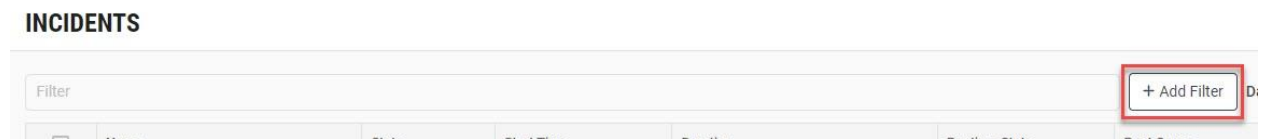
4. Click the **To** tab and select the end date.
5. If you want to select a specific time, click **Time** and select the time.
The list will be updated with incidents from the selected time range.

Adding filters to specific columns

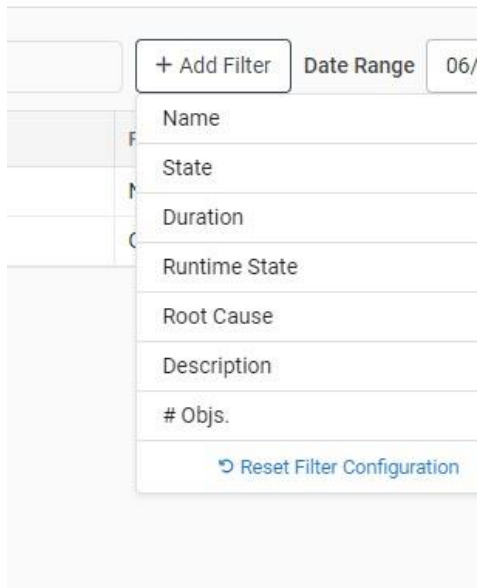
It is possible to add a variety of filters with conditions that are relevant to specific columns. For example, on the Name column, you can add a filter that matches the names to a specified string, while adding specific conditions (e.g., equals, contains, begins with) to the matching.

➔ To add a filter to specific columns:

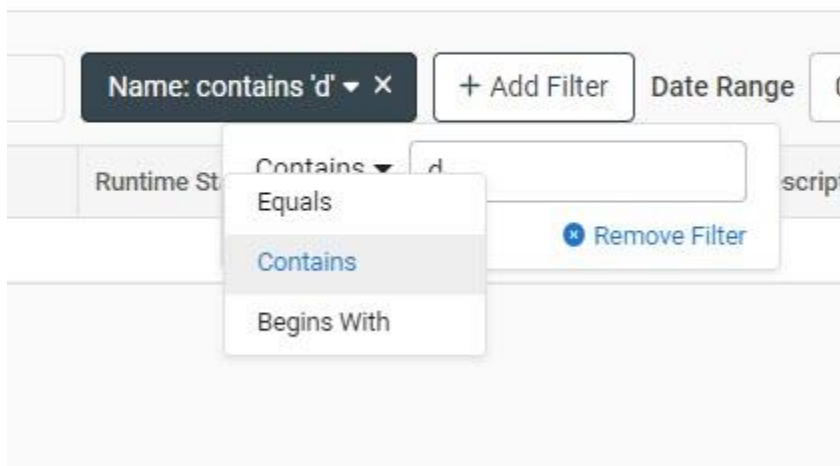
1. Click the **+ Add Filter**.



A list of columns is displayed:



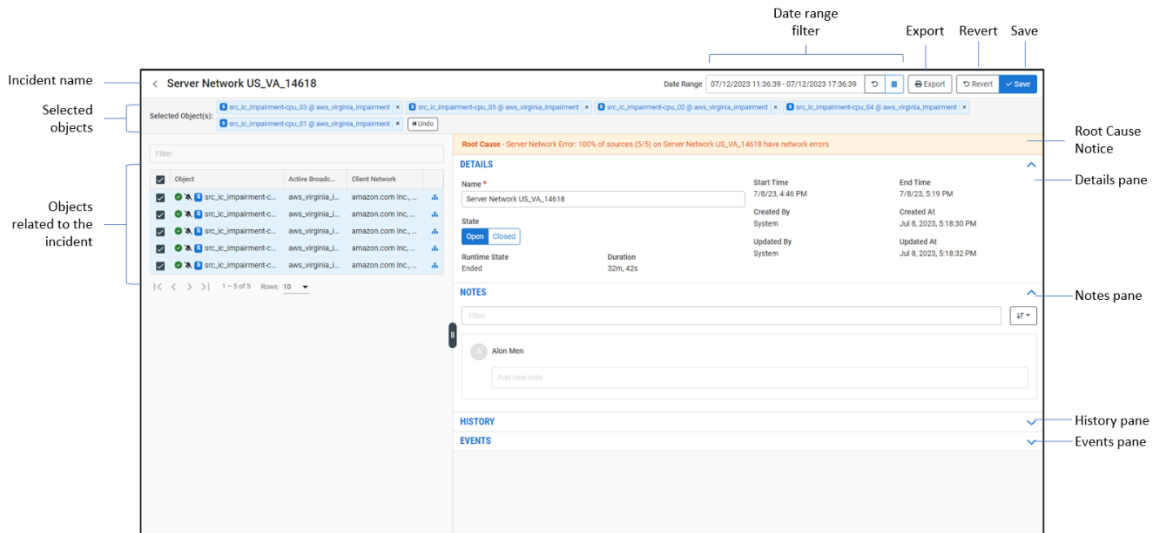
2. Select the relevant column.
3. Depending on the selected column, select the filter condition. For example, for the Name column, click on the drop-down menu to select the condition and enter a full or partial string into the field.



The list will be updated according to the filter condition.

4. To add additional filters, repeat the steps above.

Viewing the Incident Details



The incident detail's view displays, on the left pane, a **list of objects** that were involved in the incident and on the right pane, the **details of the incident, notes, and aggregated history and events** related to the selected objects. By default, all objects are selected, however it is possible to deselect/select specific objects. The **History and Events** panes will be updated accordingly.

The screen includes the following elements:

- **Incident name** - The name of the incident. The name can be edited. By default, if the incident was automatically created, the name will include the following structure - <root_cause_category> <identifier>
- **Selected objects** – list of all the objects that were selected.
- **Objects related to the incident** – list of all the objects that were involved in the incident. Select/deselect the desired object to be included in the History/Events panes. Each object includes the following information:
 - **Object** – the name of the object and the following indications:
 - **Status** - For target - OK, Error, Channel Disabled
 - **Muted/unmuted**
 - **Object type label** - T-target; S-Source; B-Broadcaster.
 - **Active Broadcaster** - The Broadcaster to which the object is connected.
 - **Client Network** - The name of the ASN related to the object's IP address.
 - **Diagram** - click the icon to open the blast radius channel diagram, which displays the object in the context of its channel, while color coding the objects that were involved in the incident. Objects that experienced warning during the date range

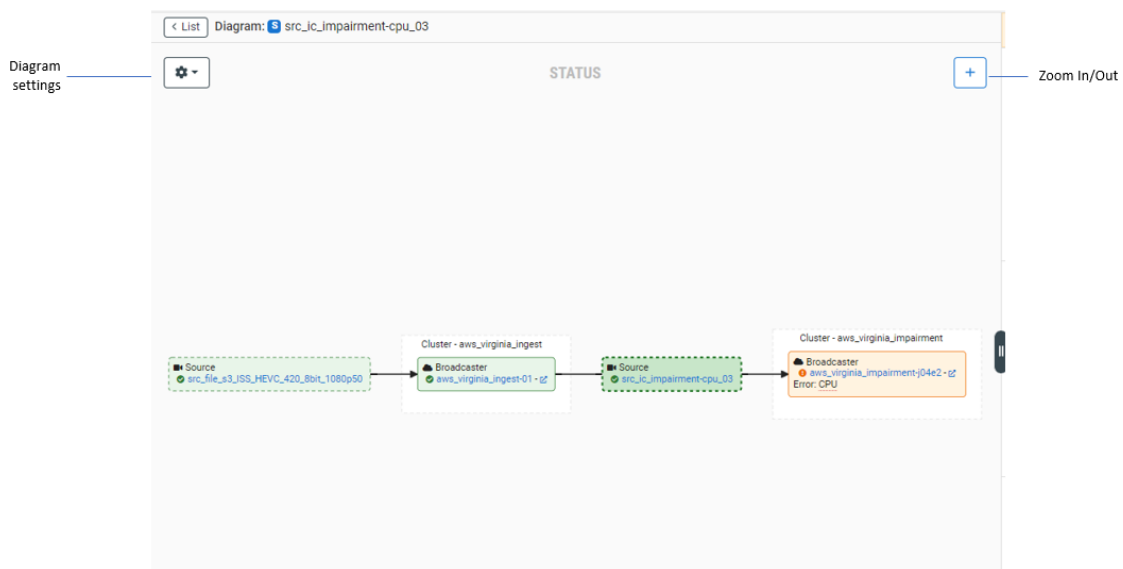
Incidents

are colored in orange; Errors in red; No errors or warnings in green. See [Viewing the Object Diagram](#).

- **Root cause notice** - in case of an auto-generated incident, this notice includes the reason for generating the event. It includes the following structure:
 - The name of the root cause category.
 - An indication of the number of components in the network that have experienced error events/unrecovered packets events around the same time.
 - The name of the network these objects share.

Viewing the Object Diagram

From the **Objects related to the incident** list it is possible to click on the diagram icon to view the object diagram. The diagram is a network graph that displays all the related objects for the selected incident across the network. Selected objects are indicated in darker color and their details are displayed on the right pane.



The graph includes the following controls:

- **Zoom In/Out** – Click to zoom in and click again to zoom out.
- **Diagram settings** – click to open the diagram settings menu:
 - Display
 - Details – select the checkbox to display more details on each object.
 - Color by – select the coloring scheme:

Incidents

- Status – the colors indicate the status of the object:
 - green – object is in an OK status
 - yellow - object has warnings
 - red - object has errors
 - gray – object is disabled/pending
- Blast radius - the colors indicate the following:
 - green – object did not experience any errors or warnings during the incident time period.
 - red - object has experienced errors or warnings during the incident time period.
- Orientation – sets the orientation of the objects on the diagram.

Details Pane


Root Cause - Server Network Error: 100% of sources (6/6) on Server Network US_VA_14618 have network errors

DETAILS

Name *	Start Time	End Time
Server Network US_VA_14618	7/27/23, 1:31 AM	7/27/23, 2:30 AM
State	Created By	Created At
<input checked="" type="button" value="Open"/> <input type="button" value="Closed"/>	System	Jul 27, 2023, 2:29:00 AM
Runtime State	Updated By	Updated At
Ended	System	Jul 27, 2023, 2:29:00 AM
Duration		
58m, 43s		

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Incidents

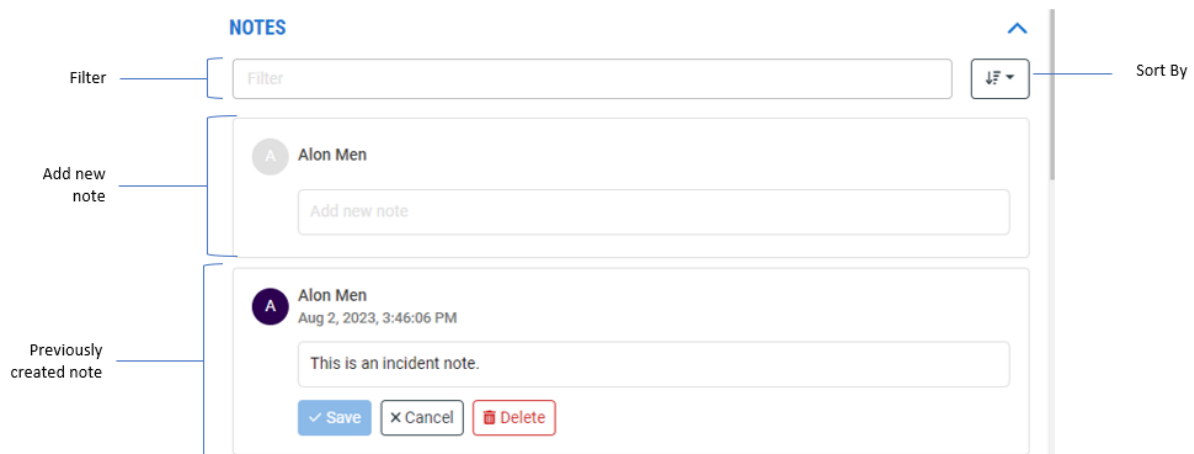
The following table describes the information shown on the Details screen.

Parameter	Description	Action
Name	<p>The name of the incident. By default, if the incident was automatically created, the name will include the following structure - <root_cause_category> <identifier></p> <ul style="list-style-type: none">• Root cause category - the name of the root cause category. See Root Cause column description below. For example, 'Server Network'• Identifier - for networks, the identifier used is the network's ASN.	<p>It is possible to change the name of the incident by entering the new name and clicking Save.</p>
State	<p>The state of the incident:</p> <ul style="list-style-type: none">• Open – the incident is still occurring (i.e., errors are still generated within the timeout period) and/or the incident was not closed manually.• Closed – the incident was closed.	<p>Click Close to close the incident and then click Save.</p>
Runtime State	<p>Indicates whether the incident is ongoing, or it has ended. By default, the window duration for checking if it has ended or it's ongoing is 20 minutes (i.e., if no issues occurred during 20 minutes then it has ended). This is relevant for automatically generated incidents.</p>	
Duration	<p>The overall time from the creation of the incident until now.</p>	
Start Time	<p>The time in which the incident has been first created.</p>	
End Time	<p>If the incident has ended, the time in which the incident has ended.</p>	
Created By	<p>Who created the incident. Username - if it was created manually; System - if it was created automatically.</p>	

Incidents

Updated By	Who has last updated the incident. Username - if it was updated manually; System - if it was updated automatically.
Created At	When it was created
Updated At	When it was updated.

Notes Pane



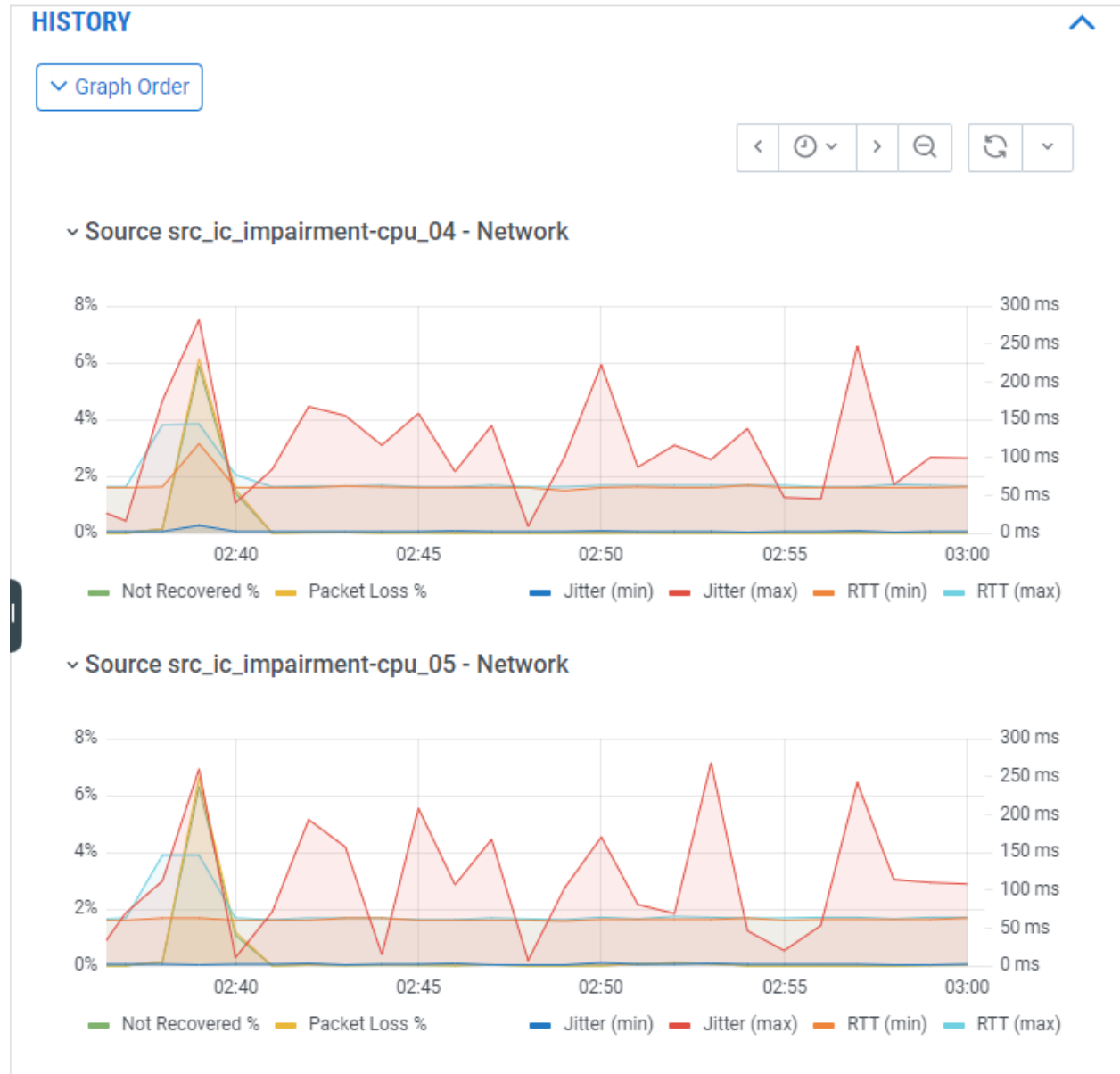
The notes pane allows you to view and add notes to the incident. These notes are typically used to share insights and findings related to the incident.

The notes pane includes the following elements:

- **Add new note** - To add a note type into the **Add new note** field and click **Save**.
- **Previously created notes** – notes that were previously created.
- **Filter** - To filter the notes, type into the **Filter** field. Notes that match the text will be displayed.
- **Sort** – Click the **Sort** button to sort by the user who created the note or by the time it was created.

History Pane


The **History** tab shows a graphic display of the object's activity and performance over time. Data is shown on separate line graphs for each topic that is relevant for the object. For more information, see [SOURCE HISTORY](#) and [TARGET HISTORY](#). You can disable/enable graph data by clicking the legend. Hover your mouse to see the exact measurement at any point in time.

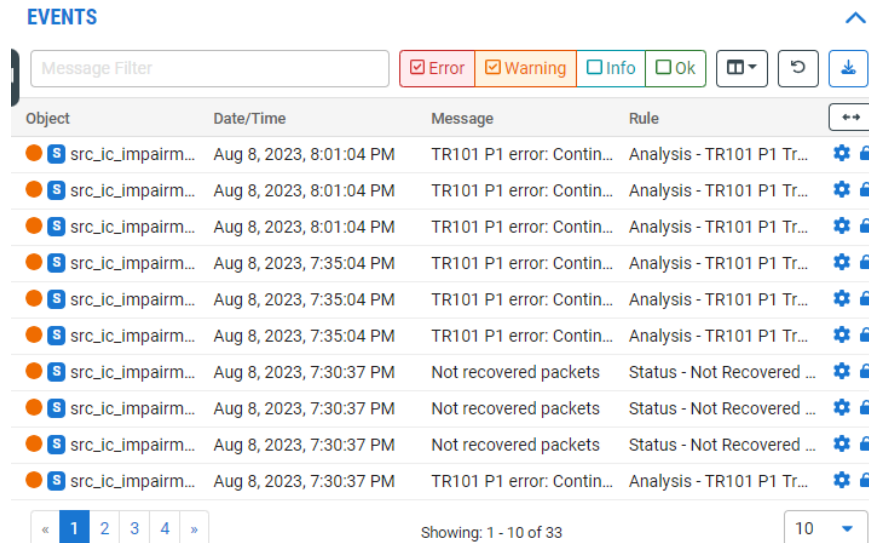


The History Pane includes the following controls:

- **Left/right arrows** – moves the time range forwards and backwards in 20 minute increments.
- **Clock icon** – click to select a specific time range or select from a list of relative time ranges (e.g., last 5 minutes, last 15 minutes, etc.).
- **Zoom** – click to expand or narrow the time range.
- **Refresh** - Manually refresh graph data or set the automatic refresh frequency.
- **Graph order** – click the Graph Order to set the graphs order. To change the order of a graph, click the lock icon and then drag it to a new location. Click **Apply** to save.

Events Pane

The **Events** pane shows all Events that occurred for the specified object during the Incident time range. This helps identify causal relationships between Events. For more information see [EVENTS](#). You can click the  icon at the end of a log entry to pin that entry in the display so it is still shown when you select a different object in the object's diagram.



EVENTS

Message Filter Error Warning Info Ok

Object	Date/Time	Message	Rule	
src_ic_impairm...	Aug 8, 2023, 8:01:04 PM	TR101 P1 error: Contin...	Analysis - TR101 P1 Tr...	
src_ic_impairm...	Aug 8, 2023, 8:01:04 PM	TR101 P1 error: Contin...	Analysis - TR101 P1 Tr...	
src_ic_impairm...	Aug 8, 2023, 8:01:04 PM	TR101 P1 error: Contin...	Analysis - TR101 P1 Tr...	
src_ic_impairm...	Aug 8, 2023, 7:35:04 PM	TR101 P1 error: Contin...	Analysis - TR101 P1 Tr...	
src_ic_impairm...	Aug 8, 2023, 7:35:04 PM	TR101 P1 error: Contin...	Analysis - TR101 P1 Tr...	
src_ic_impairm...	Aug 8, 2023, 7:35:04 PM	TR101 P1 error: Contin...	Analysis - TR101 P1 Tr...	
src_ic_impairm...	Aug 8, 2023, 7:30:37 PM	Not recovered packets	Status - Not Recovered ...	
src_ic_impairm...	Aug 8, 2023, 7:30:37 PM	Not recovered packets	Status - Not Recovered ...	
src_ic_impairm...	Aug 8, 2023, 7:30:37 PM	Not recovered packets	Status - Not Recovered ...	
src_ic_impairm...	Aug 8, 2023, 7:30:37 PM	TR101 P1 error: Contin...	Analysis - TR101 P1 Tr...	

« 1 2 3 4 » Showing: 1 - 10 of 33 10 ▾

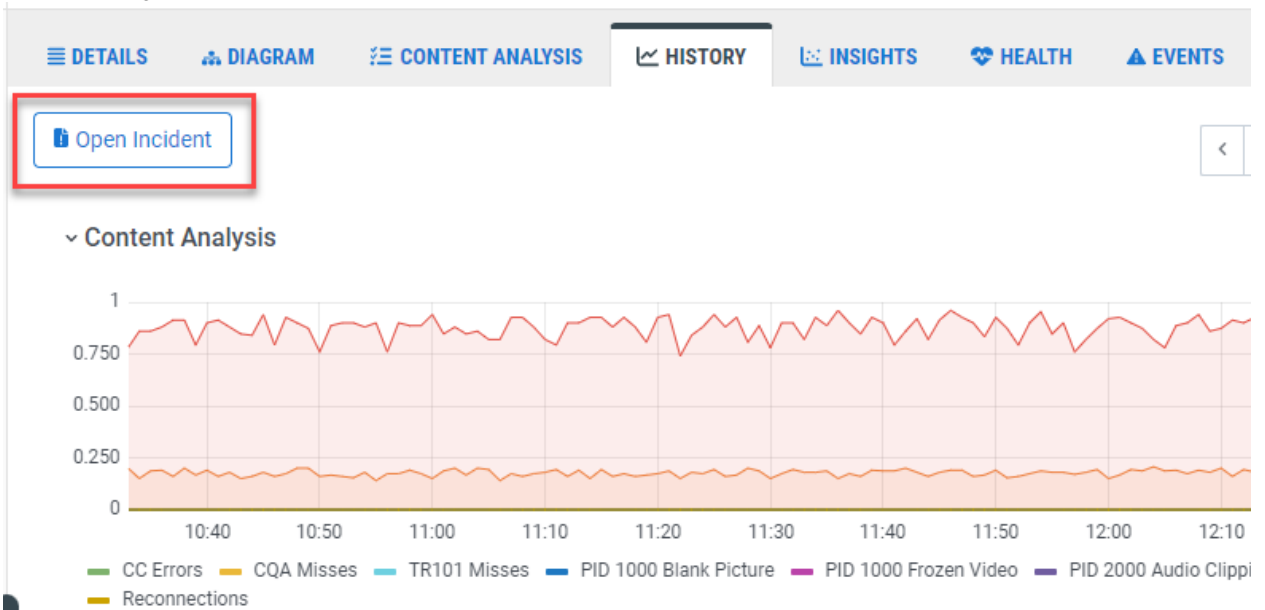
The Events Pane includes the following controls:

- **Message filter** - enter a string of characters. If this condition is enabled, only events that match this string will be displayed.
- **Event type selection** - click on an event type to select/deselect that type
- **Column selection** – click on the column selection button and then select/deselect the relevant column to be displayed.
- **Refresh** - refresh the events data.
- **Download** – click to download the events in Excel format.
- **Configure** - opens the Edit Rule screen for the Events Profile that generated the event. From this panel, you can optionally modify the Event Profile. You can overwrite the existing Events Profile (which will apply to all objects using the profile) or save the changes as a new Events Profile:
 - **To overwrite the existing profile** - perform the modifications (see [CONFIGURING EVENTS PROFILES](#) for more details), under **Update Current Profile**, select **Overwrite**, click **Update Current Profile**.
 - **To create a new profile** - perform the modifications (see [CONFIGURING EVENTS PROFILES](#) for more details), under **Update Current Profile**, select **Create New**, click **Update Current Profile**.

Creating an Incident Manually

➔ To create an incident:

1. In the main navigation, click **Sources** or **Targets**.
2. In the **History** section of the desired source or target, click and drag on the graph to select a specific time period.
3. Click the **Open Incident** button.



The **Open Incident** window is shown.

The 'Open Incident' dialog box is shown with the following fields and options:

- Add To:** Two buttons, 'New' (selected) and 'Existing'.
- Incident Name:** A text input field with a red asterisk indicating it is required.
- Root Cause:** A dropdown menu currently set to 'Content Analysis'.
- Start Time:** Thursday, August 10, 2023 10:33 AM
- End Time:** Thursday, August 10, 2023 1:16 PM
- Buttons:** 'Cancel' and 'Save' buttons at the bottom right.

4. In the **Add To** section, select whether this is a **New** incident, or if you are adding to an **Existing** incident.
5. For an existing incident, in the **Incident** field, select the name of the incident to which you are adding this selection.

6. For a new incident, in the **Incident Name** field, enter a name for the incident and select a **Root Cause** from the dropdown menu. The following options are available:
 - **Server network** - the network where the Broadcaster resides.
 - **Client network** - the network where the Target or Source resides.
 - **Broadcaster** - indicates that although this is not a network related incident, a Broadcaster may be the root cause of the incident.
 - **Content analysis** – the incident is related to errors detected in the audio and video content itself.
 - **Performance** – the incident is related to performance issues.
 - **Other** - the incident is related to other issues.
7. Click **Save** and then click **Close** in the confirmation window.