



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

How to Configure ZEN Master for Live Distribution

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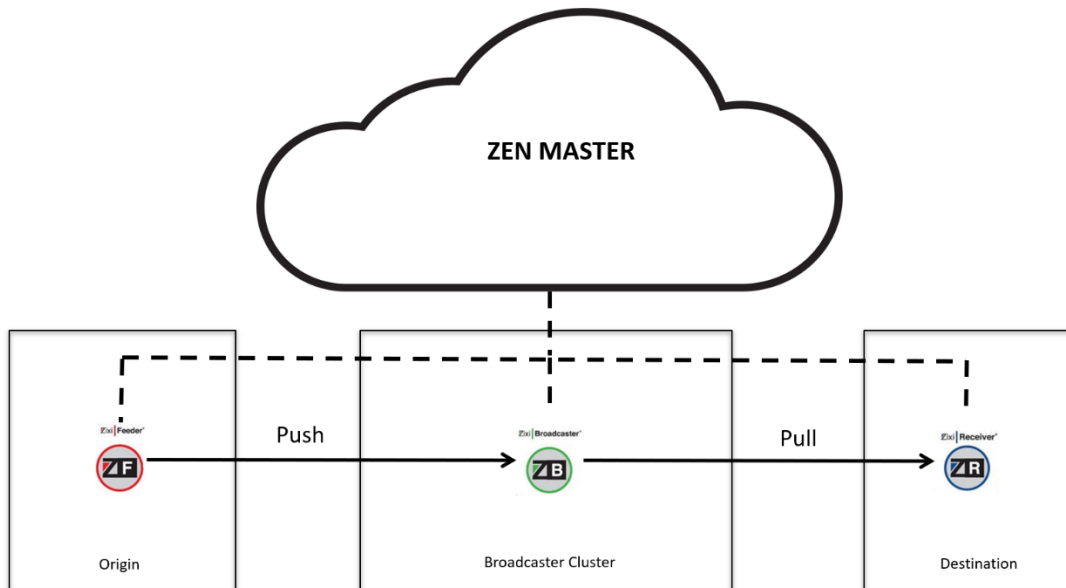
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Introduction

ZEN Master is a cloud-based orchestration platform for end-to-end live linear video streaming. The platform serves as an abstraction layer on top of the existing Zixi and Zixi-enabled components across the entire distribution network, providing a central interface for orchestrating cloud and locally installed resources, while ensuring high availability, security and optimal performance.

In this tutorial you will learn how to configure a basic end-to-end live distribution deployment. This basic setup includes configuration of a channel in Pass-Through mode with no additional processing (e.g. transcoding). For further information about additional configuration options, please refer to the *ZEN Master User Guide*.

Use Case Topology



The diagram above illustrates the basic live distribution deployment that will be used as an example throughout this tutorial. In this distribution use case, ZEN Master is used to orchestrate the following components:

- **Origin** – in the Origin site, at the point of acquisition, there is a Zixi Feeder. Zixi Feeder accepts and prepares the encoded video for transmission over standard internet connections using Zixi's UDP based transport stream protocol. The Zixi Feeders are accessed by Zixi ZEN Master through an API. As part of the configuration process, you will be required to configure the Zixi Feeder as a resource in ZEN Master and select one of the preconfigured remote access keys to enable SSH tunneling between the Zixi Feeder and the ZEN Master service. After adding a Zixi Feeder to ZEN Master, you will

need to configure the connection of the Zixi Feeder (using its Zixi Feeder UI) to ZEN Master. This will enable the actual connection using the configured SSH key.

- **Broadcaster Cluster** – Zixi Broadcaster is the central component in the Zixi Video Network. Zixi Broadcaster receives video streams from Zixi Feeder, and can process the stream, enabling transcoding, transmuxing, recording, and distribution in multiple bit rates and protocols to any device anywhere. Broadcaster clusters are groups of Zixi Broadcasters that perform a certain task or tasks (Processing clusters), such as creating adaptive channels, transcoding, or simply pass the stream to the Target. In this use case we will configure Zixi Broadcaster Clusters to perform both Ingest and Channel Processing in Pass-Through mode.
- **Destination** – in the Destination site there is a Zixi Receiver. Zixi Receiver pulls inputs from Zixi Broadcaster via standard IP networks and outputs provisional-quality video to a broad range of Integrated Receiver-Decoders (IRDs). The Zixi Receivers are accessed by ZEN Master through an API. As part of the configuration process, you will be required to configure the Zixi Receiver as a resource in ZEN Master and select one of the preconfigured remote access keys to enable SSH tunneling between the Zixi Receiver and the ZEN Master service. After adding a Zixi Receiver to 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 key.

ZEN Master Automated Authorization

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

ZEN Master Entities and Basic Workflow

The configuration of ZEN Master for basic live distribution involves the following steps:

1. **Resources Configuration** – the following resources are configured in ZEN Master:
 - **Configuration of Zixi Feeder** – a Zixi Feeder is added and the connection between the Feeder and ZEN Master is configured.
 - **Configuration of Broadcaster Cluster** – a Broadcaster Cluster is added and the connection between the Broadcaster and ZEN Master is configured.
 - **Configuration of Zixi Receiver** – a Zixi Receiver is added and the connection between the Zixi Receiver and ZEN Master is configured.

2. **ZEN Master Entities Configuration** – ZEN Master manages the following entities across the distribution flow:
 - **Configuration of Sources** – Sources are the input streams, which are managed in ZEN Master. A Source can originate from a Zixi Feeder, a Zixi Broadcaster or an external Source, such as an external encoder, or an external Zixi Feeder that has not been configured in the ZEN Master system. In our case, we will configure a Source from a Zixi Feeder that has been added to ZEN Master.
 - **Configuration of Channels** – Channels are a combination of one or more sources that are processed by the assigned Broadcaster cluster (e.g. transcoding, creation of an adaptive channel, etc.) or passed-through to a Target. In our case, we will configure the Channel as a Pass-Through Channel.
 - **Configuration of Targets** – A Target defines the destination of a Channel (e.g. to a S3 bucket, to a Zixi Receiver, to another Zixi Broadcaster). In our case, we will configure a Pull Target, which will be pulled by Zixi Receiver.

Access Control

ZEN Master features a multi-tier access control mechanism that enables granular control of the access privileges down to the object level. For this purpose, every object in the system must be associated with an Access Tag.

For the current use case, you will use the Administrator account to access all resources. You will use the *Default* Access Tag, which is pre-configured to include all entities in the system. To learn more about using Access Tags and configuring users and roles in Zen Master see [Account Management](#) in *ZEN Master User Guide*.

Logging into ZEN Master

➔ **To log in to ZEN Master:**

1. 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.



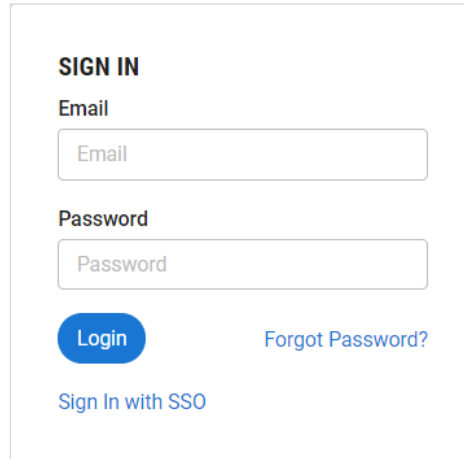
Once your email has been associated with an SSO account you are no longer able to login to that account using ZEN Master credentials.

2. 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.

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



SIGN IN

Email

Password

[Login](#) [Forgot Password?](#)

[Sign In with SSO](#)

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



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

Configuring Resources

For our use case, you will configure Zixi Feeders, Broadcaster Clusters and Receivers in ZEN Master.

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 Access Tags. After adding a Zixi Feeder to ZEN Master, you will need to follow the procedure described in [CONNECTING THE ZIXI FEEDER \(ZIXI FEEDER UI\)](#).

Adding a New Zixi Feeder

➔ **To add a Zixi Feeder:**

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

The **Create New Feeder** screen is displayed:

CREATE NEW FEEDER

INFO

Name *

Access Tags * ⓘ

CONFIGURATION

API User *

API Password *

SSH Key * ⓘ

Cancel Save

3. In the **Name** field, type a logical name for the Zixi Feeder.
4. In the **Access Tags** field, for our use case select *Default* from the drop-down list. To learn more about using Access Tags to control access to resources, see [Configuring Access Tags](#) in *ZEN Master User Guide*.

5. 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*).
6. 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.
7. 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.
8. 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 Master tab in the Zixi Feeder UI (for v12+ Feeders). For our use case, we will be using the automatic method.

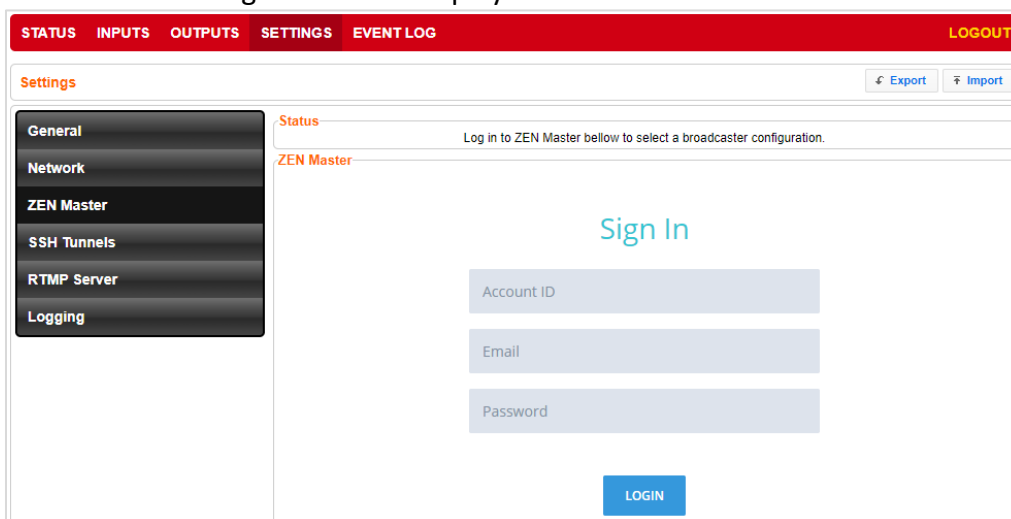
➔ To connect the Zixi Feeder Automatically (for v12 and above):

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

The Zixi Feeder UI opens.

2. Go to **Settings > ZEN Master**.

The ZEN Master login fields are displayed.



The screenshot shows the Zixi Feeder UI interface. At the top, there is a navigation bar with tabs: STATUS, INPUTS, OUTPUTS, SETTINGS, and EVENT LOG. A LOGOUT button is in the top right corner. Below the navigation bar, the 'Settings' page is displayed. On the left, there is a sidebar menu with options: General, Network, ZEN Master, SSH Tunnels, RTMP Server, and Logging. The 'ZEN Master' option is selected. The main content area shows a 'Status' section with the text 'Log in to ZEN Master below to select a broadcaster configuration.' Below this is a 'ZEN Master' section with a 'Sign In' heading. There are three input fields: 'Account ID', 'Email', and 'Password'. A blue 'LOGIN' button is located at the bottom of the form.

3. In the **Account ID** field, enter the customer domain of your ZEN Master account (e.g. if you login to ZEN Master 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.

Status
Log in to ZEN Master below to select a broadcaster configuration.

ZEN Master

FEEDERS

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

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.

8. Click **Refresh**.
9. Verify that the Status is shown as **On**.

Status

Host: zixi.io.zixi.com
Port: 2829
Status: On
Refresh

Verifying Feeder Status in ZEN Master

You can verify the new Feeder is connected by checking its status on the Feeders screen. It may take a few minutes for the status to change from *Pending* to *OK*.

➔ To verify that the Feeder is connected:

1. In ZEN Master, in the main navigation, click **Feeders**.
2. Verify that the status of the newly connected Zixi Feeder has changed from *Pending* to *OK*.

FEEDERS

+ Add Refresh

Filter

<input type="checkbox"/>	Name	Status	IP	CPU	RAM	Version	
<input type="checkbox"/>	Demo_ZEN_FX01	Ok	209.95.37.240	11.06%	35.19%	13.1.35616	Open
<input type="checkbox"/>	LABFX02	Ok	199.188.233.146	23.9%	31.02%	13.1.35616	Open
<input type="checkbox"/>	VZ_DATACENTER_FX05	Ok	199.188.233.146	4.02%	15.47%	13.1.35467	Open
<input type="checkbox"/>	VZ_ONPREMISE_FX03	Ok	199.188.233.146	1.56%	11.93%	13.1.35467	Open

Showing: 1 - 4 of 4 Rows Auto

Adding a Broadcaster Cluster

Broadcaster clusters are groups of Zixi Broadcasters that perform one or more tasks. Available task types are Ingest and channel Processing. There are two scaling options available for the Broadcaster Clusters, *Manual* and *Managed*. To learn more about various types of Broadcasting Clusters, see [Creating a New Broadcaster Cluster](#) in *ZEN Master User Guide*.

For our use case, you will create a Manual cluster that performs both Ingest and Channel Processing tasks.

Adding a New 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 *

Access Tags *

Select Access Tags
▼

DNS Prefix * 🔒

Cluster Type * ⓘ

Ingest
 Channel Processing

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. Note: DTLS requires v12.2 Broadcasters!

Load Balance Pull Targets

Minimize the number of broadcasters

Uniform distribution

CONFIGURATION

Scaling Account * 🔒

Select Scaling Account
▼

ADVANCED +

✕ Cancel

✓ Save

3. In the **Name** field, type a logical name for the Zixi Broadcaster Cluster resource.
4. In the **Access Tags** field, for the current use case select **Default** from the drop-down list. To learn more about using Access Tags to control access to resources see [Configuring Access Tags](#) in *ZEN Master User Guide*.
5. In the **DNS Prefix** field, enter a unique domain name for sending the streams to/from this cluster.
6. Under **Cluster Type**, for our use case select **Ingest** and **Channel Processing**.
7. In the **Management Type** field, for our use case select **Manual**.

The manual configuration fields are shown:

CONFIGURATION

Scaling Account *

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

ADVANCED +

8. In the **Authorization Mode** field, select the desired authorization mode from the drop-down list. For our use case, verify that **ZEN Master** is selected (default). This activates the ZEN Master authorization mode (see [ZEN MASTER AUTOMATED AUTHORIZATION](#)). To learn about alternative authorization modes see [Creating a New Broadcaster Cluster](#) in *ZEN Master User Guide*.
9. When using ZEN Master authorization mode, if you would like to allow the Broadcaster cluster to access inputs and/or outputs that are not configured in ZEN Master, then select the **Push Inputs** and/or **Pull Outputs** checkboxes respectively.
10. Fill in optional fields as desired, see [Adding a Broadcaster Cluster - Manual](#) in *ZEN Master User Guide*.
11. Click **Save**.

After creating a Broadcasting Cluster with manual scaling, you must manually add Broadcasters to the cluster. To add Broadcasters, see the following section [ADDING A BROADCASTER TO A MANUAL CLUSTER](#).

Adding a Broadcaster to a Manual Cluster

Since for our use case you selected the *Manual* option under *Management Type* when configuring the Broadcaster cluster, you need to manually add Broadcasters to the Cluster.

➔ 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 the Broadcaster.

The details of the Broadcaster are displayed at the right side of the screen:

The screenshot displays the 'BROADCASTER CLUSTERS' management interface. On the left, a list of clusters is shown, including 'WLBroadcaster' (Manual), 'Gil_QA_Office' (Manual), 'HITLESS_BX_ENDPOINT' (Manual), 'IBC10_LOCAL_PRI' (Manual), 'IBC4_LOCAL_CLSTR_SEC' (Manual), 'LABBX' (Manual), 'waltham' (Manual), 'webdev' (Manual), 'GCPtest' (GCP), 'Gil-QA-10-GCP-GPU-Transcode' (GCP), 'Gil-QA-GCP' (GCP), 'Gil-QA-GCP-NVIDIA' (GCP), 'Tim-Transcode-GCP' (GCP), '1qa-gil-Azure.167' (Azure), 'AzureTestStaging' (Azure), 'Gil-QA-au-Azure' (Azure), 'Gil-QA-Azure' (Azure), 'H.e.l.l.--0' (Azure), and 'Gil-AWS-EU (Frankfurt)-P3' (AWS). The main section shows the details for the selected 'WLBroadcaster' cluster, including a table of Broadcasters, an IP Whitelist, and an Events section. The details panel on the right shows the Name, Access Tags, Cluster Type, Scaling, and Authorization Mode for the selected Broadcaster.

Status	Name	IP	SSH Key	Streams	CPU	RAM	Version	Actions
Disconnected	bx1	-	demo_ssh_key	-	0%	0%	-	Info Edit Delete

CIDR	Ports Range	Description	Date Added	Actions
127.0.0.1	2077 - 2088	localhost	Jul 24, 2018, 7:41 PM	Delete
38.111.41.194	2077 - 2088	us office	Jul 24, 2018, 7:43 PM	Delete

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 *

Name

CONFIGURATION

API User * API Password *

admin API Password

SSH Key * ⓘ

Select SSH Key

Type ⓘ

Primary Backup

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

ADVANCED +

Cancel Save

4. In the **Name** field, type a logical name of the Broadcaster. This name is internal, so you don't necessarily need to use exactly the same name used to configure the Zixi Broadcaster.
5. In the **API User** field, enter the username for accessing the Zixi Broadcaster via API. (Default value: *admin*)
6. 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.
7. 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.
8. 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).
9. Click **Save**.

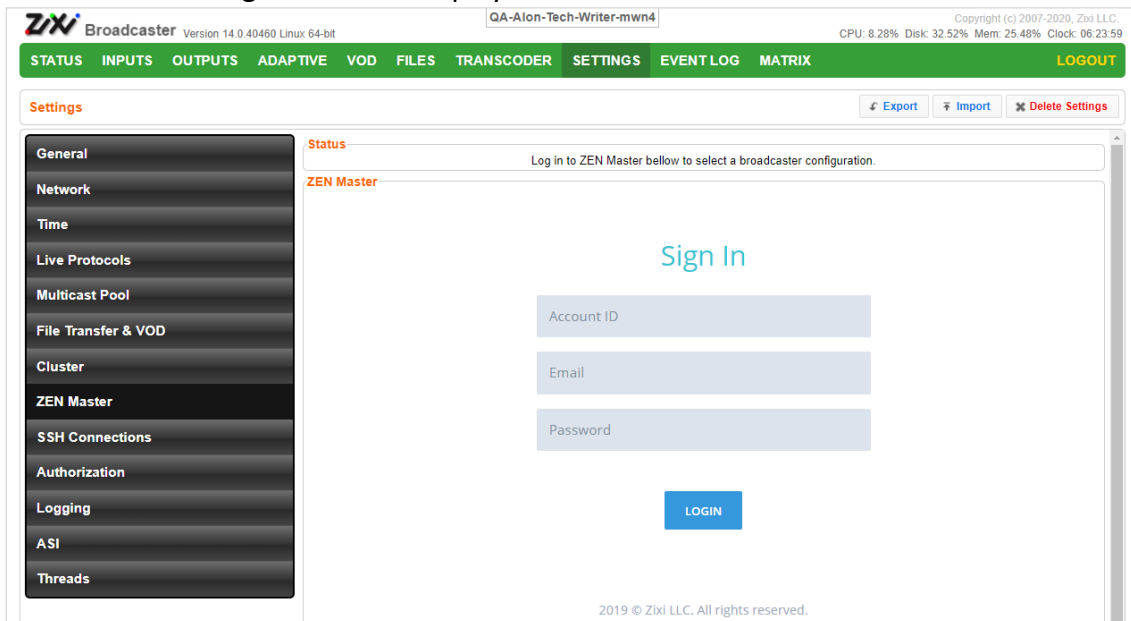
The Broadcaster is configured and will remain in *Pending* state until you configure the initial connection to the Zixi Broadcaster, see the following section [CONNECTING THE ZIXI BROADCASTER \(ZIXI BROADCASTER UI\)](#).

Connecting the Zixi Broadcaster (Zixi Broadcaster UI)

For each Zixi Broadcaster component that has been added to the cluster, 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 Master tab in the Zixi Broadcaster UI (for v12+ Broadcasters). For our use case, we will be using the automatic 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. Go to **Settings > ZEN Master**.
The ZEN Master login fields are displayed.



5. In the **Account ID** field, enter the customer domain of your ZEN Master account (e.g. if you login to ZEN Master 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 is titled "BROADCASTER CLUSTERS" and contains a table with the following data:

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

The bottom section is titled "PRODMGMT_BX_MANUAL_CLUSTER" and contains a table with the following data:

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

- 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 information:

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

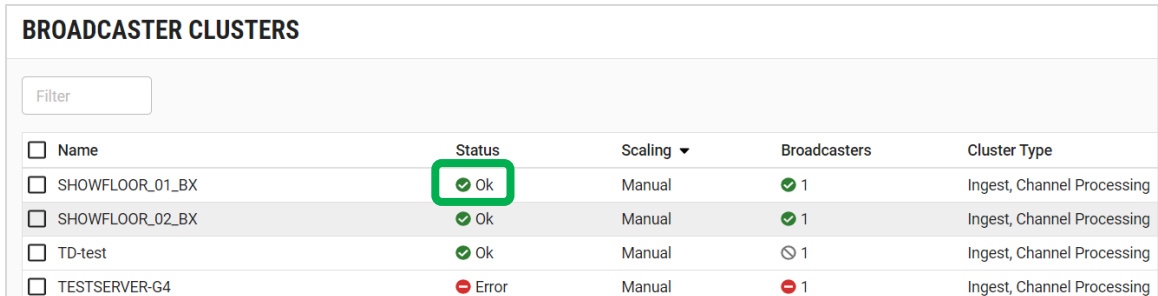
Below the status information is a blue "Refresh" button.

Verifying Broadcaster Status in ZEN Master

You can verify that the new Broadcaster cluster is activated and that the Broadcasters are connected by checking their status on the Broadcasters screen. It may take a few minutes for the Broadcasters' status to change from *Pending* to *OK*.

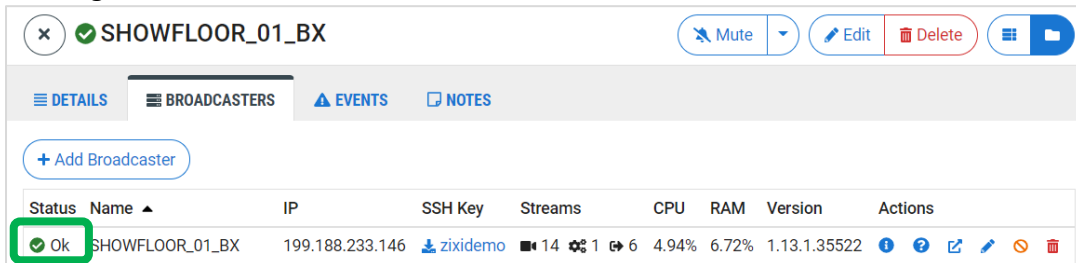
➔ **To verify that the Broadcasters are connected:**

1. In ZEN Master, in the main navigation, click **Broadcasters**.
2. Verify that the status of the newly configured Broadcaster cluster is *OK*.



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

3. Select the new Broadcaster cluster. In the Broadcaster section in the Info pane, verify that the status of each 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	

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 Access Tags. After adding a Zixi Receiver to ZEN Master, you will need to follow the procedure described in [CONNECTING THE ZIXI RECEIVER \(ZIXI RECEIVER UI\)](#).

Adding a New Zixi Receiver

➔ **To add a Zixi Receiver:**

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

The **Create New Receiver** screen is displayed:

CREATE NEW RECEIVER

INFO

Name *

Access Tags *

CONFIGURATION

API User *

API Password *

SSH Key * ⓘ

Cancel Save

3. In the **Name** field, enter a logical name for the Zixi Receiver.
4. In the **Access Tags** field, for the current use case, select *Default* from the drop-down list. To learn more about using Access Tags to control access to resources see [Configuring Access Tags](#) in *Zen Master User Guide*.
5. 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*).

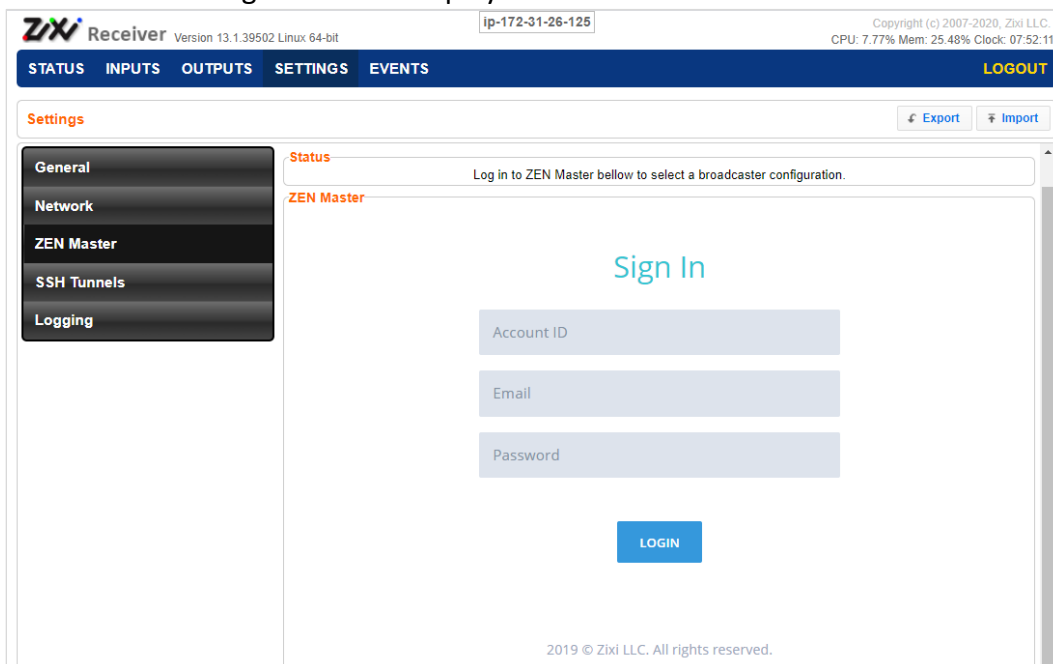
6. In the **API Password** field, enter the password for accessing the Zixi Receiver. The default password on Zixi Receivers is *1234*. Unless you have changed the password for this Receiver, enter *1234* in this field.
7. In the **SSH Key** field, select from the drop-down list one of the existing remote access keys to be used for SSH tunneling between the Zixi Receiver and ZEN Master.
8. Click **Save**.
The Receiver is configured and will remain in *Pending* state until you configure the initial connection to the Zixi Receiver, see the following section [CONNECTING THE ZIXI RECEIVER \(ZIXI RECEIVER UI\)](#).

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 Master tab in the Zixi Receiver UI (for v12+ Receivers). For our use case, we will be using the automatic method.

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

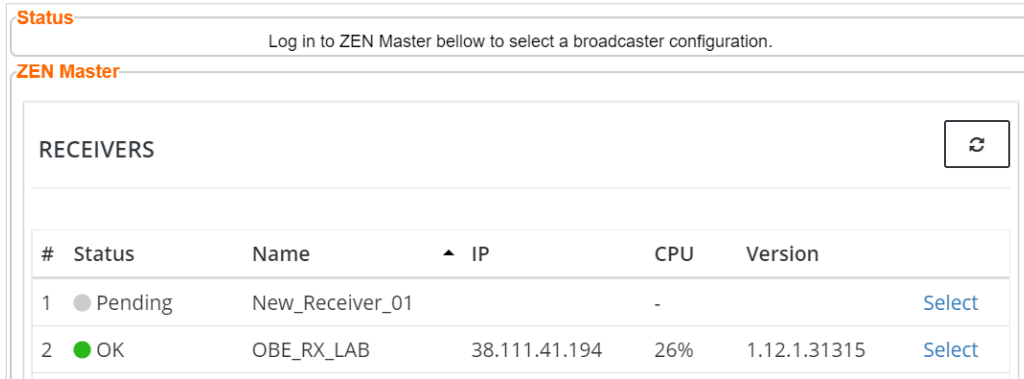
1. Login to the **Zixi Receiver UI** (it could be a locally installed Zixi Receiver, e.g. <http://localhost:4200> or a remote Zixi Receiver).
The Zixi Receiver UI opens.
2. Go to **Settings > ZEN Master**.
The ZEN Master login screen is displayed.



Configuring Resources

3. In the **Account ID** field, enter the customer domain of your ZEN Master account (e.g. if you login to ZEN Master 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**.

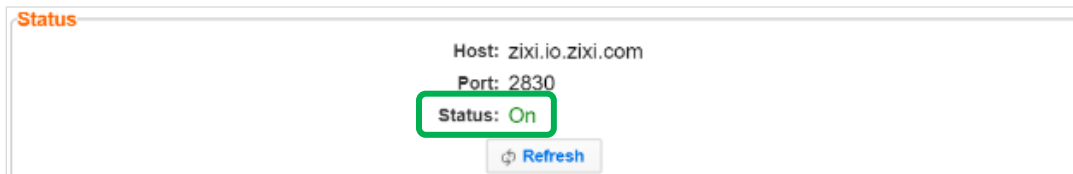
A list of Receivers configured in ZEN Master is displayed.



The screenshot shows the ZEN Master interface. At the top, there is a 'Status' section with a message: 'Log in to ZEN Master below to select a broadcaster configuration.' Below this is the 'ZEN Master' section, which contains a 'RECEIVERS' table. The table has columns for '#', 'Status', 'Name', 'IP', 'CPU', and 'Version'. There are two rows of data. The first row shows a receiver with status 'Pending', name 'New_Receiver_01', and a 'Select' button. The second row shows a receiver with status 'OK', name 'OBE_RX_LAB', IP '38.111.41.194', CPU '26%', and version '1.12.1.31315', with a 'Select' button. A refresh icon is visible in the top right corner of the receivers list.

#	Status	Name	IP	CPU	Version	
1	Pending	New_Receiver_01		-		Select
2	OK	OBE_RX_LAB	38.111.41.194	26%	1.12.1.31315	Select

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**.



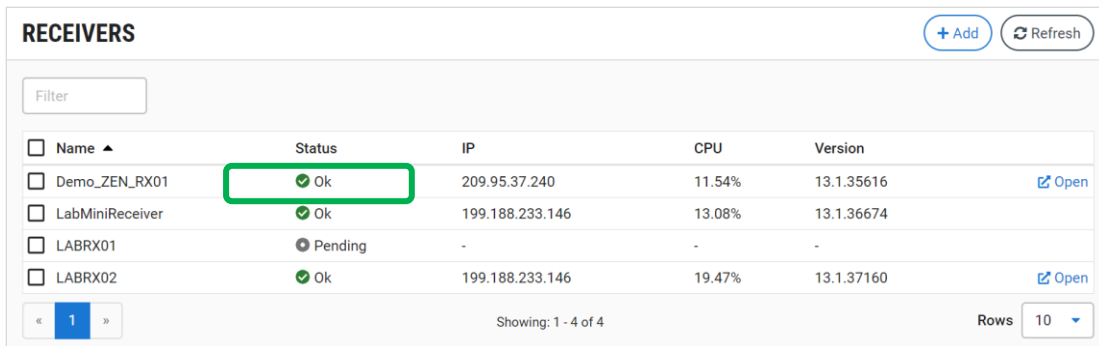
The screenshot shows the 'Status' section for a receiver. It displays the following information: Host: zixi.io.zixi.com, Port: 2830, and Status: On. The 'Status: On' text is highlighted with a green box. Below the status information is a 'Refresh' button.

Verifying Receiver Status in ZEN Master

You can verify that the new Receiver is connected by checking its status on the Receivers screen. It may take a few minutes for the status to change from *Pending* to *OK*.

➔ **To verify that the Receiver is connected:**

1. In ZEN Master, in the main navigation, click **Receivers**.
2. Verify that the status of the newly connected Zixi Receiver has changed from *Pending* to *OK*.



The screenshot shows the 'RECEIVERS' management interface. At the top right, there are '+ Add' and 'Refresh' buttons. Below is a 'Filter' input field. The main content is a table with columns: Name, Status, IP, CPU, and Version. The 'Status' column for the first row, 'Demo_ZEN_RX01', is highlighted with a green box and shows a green checkmark and the text 'Ok'. Other rows include 'LabMiniReceiver' (Ok), 'LABRX01' (Pending), and 'LABRX02' (Ok). At the bottom, there is a pagination control showing '1' and 'Showing: 1 - 4 of 4', and a 'Rows' dropdown set to '10'.

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

Configuring Sources

For our use case you will use Managed Sources which you have already configured as described in section [ADDING A ZIXI FEEDER](#).

Adding a Source

You can add a Source through the Sources screen, designating the originating Zixi Feeder and the Ingest Cluster for the Source. Before you can configure a Source in ZEN Master, the relevant input stream must already be configured on the Feeder.

➔ **To add a Source:**

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

The **Create New Source** selection 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.
- MediaConnect**
Create a Source to use with an AWS MediaConnect Flow.
- Monitor Only**
Monitor an existing input on a ZEN Master enabled Broadcaster. Limited functionality.
- Hitless Failover**
Combine existing Sources into a single Source that will seamlessly 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.
- 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

✕ Cancel

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

CREATE ZIXI SOURCE

INFO

Name *

Access Tags *

Select Access Tags

INPUT

Mode

Push Pull

Application

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

Select PID Mapping Profile

Public Output

Allow

Alert on PID Changes

Enable Content Analysis

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

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.

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).

Configuring Sources

4. In the **Info** section, in the **Name** field, type a logical name for the Zixi Source.
5. In the **Access Tags** field, for the current use case select *Default* from the drop-down list. To learn more about using Access Tags to control access to system entities see [Configuring Access Tags](#) in *Zen Master User Guide*.
6. In the **Input** section, verify under **Mode** that **Push** is selected (default), and under **Application** that the **Feeder** radio button is selected (default).
7. In the **Feeder** field, select from the drop-down list one of the available Feeders.



For our use case, you will be creating a Source from a single input with no Bonding.

8. Verify that the **Create multiple Sources from multiple Inputs** checkbox *is not* selected.
9. In the **Feeder Input** field, select from the drop-down list one of the available Inputs.
10. Under **Bonding**, verify that *None* is selected.
11. 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.
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. Fill in optional fields as desired, see [Adding a Source - Zixi Feeder](#) in *ZEN Master User Guide*.
14. Click **Save**.

Verifying Source Status

You can verify that the new Source is connected and streaming without errors by checking its status on the Sources screen. It may take a few minutes for the status to change from *Pending* to *OK*.

➔ To verify that the Source status is OK:

1. In the main navigation, click **Sources**.
2. Verify that the status of the newly configured Source has changed from *Pending* to *OK*.

SOURCES									+ Add	Refresh
Name	Status	Ingest Cluster	Type	Input	TR101	IP	Bitrate	Up Time [HH:mm:ss]		
<input type="checkbox"/> qa-max-source-78	● PMT Error	QA-max-v14-sanity-40140	Broadcaster	QA-max-v14-sanity-40140-nwjr / so...	P1: ● P2: ●	18.191.141.248	5,228 kbps	10:37:09		
<input type="checkbox"/> qa-max-source-79	● PMT Error	QA-max-v14-sanity-40140	Broadcaster	QA-max-v14-sanity-40140-nwjr / so...	P1: ● P2: ●	18.191.141.248	10,511 kbps	10:37:09		
<input type="checkbox"/> qa-max-source-0	● OK	QA-max-Jira-02	Broadcaster	QA-max-Jira-02-9y0w / source1	-	-	0 kbps	-		
<input type="checkbox"/> qa-max-source-41	● OK	QA-max-v14-sanity-40140	Broadcaster	QA-max-v14-sanity-40140-nwjr / so...	-	-	0 kbps	-		
<input type="checkbox"/> appt4	● Pending	webdev	Monitor Only	-	-	-	0 kbps	-		
<input type="checkbox"/> appt5	● Pending	webdev	Monitor Only	-	-	-	0 kbps	-		

Configuring Channels

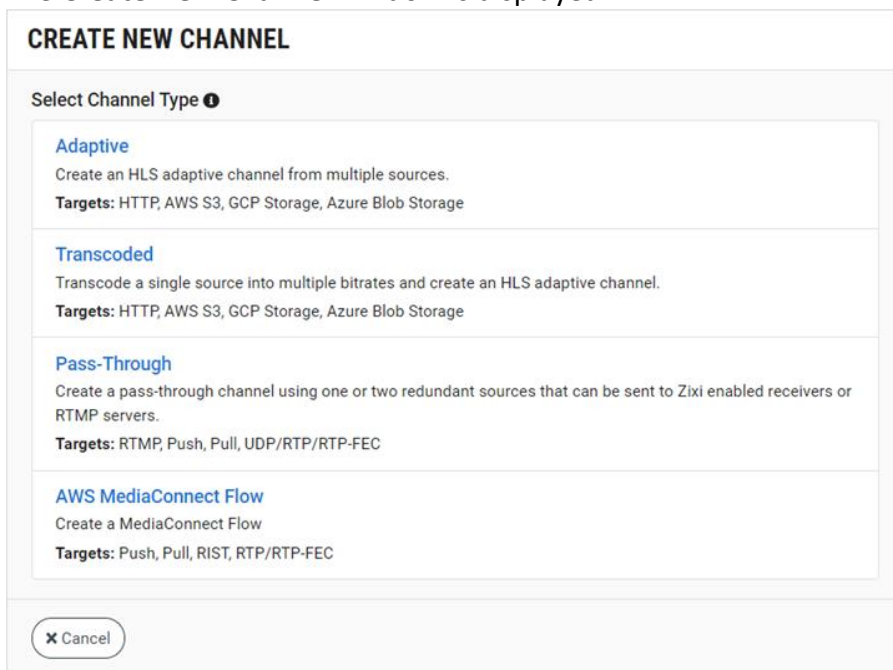
For our use case, you will create Pass-Through channels to send Sources to Zixi enabled Receivers or RTMP servers.

Adding a Pass-Through Channel

➔ To add a Pass-Through channel:

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

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



3. Click on **Pass-Through**.

The **Create Pass-Through Channel** window is displayed.

CREATE PASS-THROUGH CHANNEL

INFO

Name *

Access Tags * ⓘ

CONFIGURATION

Processing Cluster * ⓘ

Primary Source *

Secondary Source

< Back X Cancel v Save

4. In the **Info** section, in the **Name** field, enter a logical name for the Channel.
5. In the **Access Tag** field, for the current use case select *Default* from the drop-down list. To learn more about using Access Tags to control access to resources see [Configuring Access Tags](#) in *Zen Master User Guide*.
6. 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.

7. In the **Primary Source** field, select from the drop-down list the desired primary Source.
8. Click **Save**.

Verifying Channel Status

You can verify that the new channel is activated and that all related Sources are streaming without errors by checking its status on the Channels screen. It may take a few minutes for the status to change from *Pending* to *OK*.

➔ **To verify that the channel status is OK:**

1. In the main navigation, click **Channels**.
2. Verify that the status of the newly configured channel is *OK*.
3. Verify that the status of the related Sources is *OK*.

Name	Status	Proc. Cluster	Type	Sources	Targets
Push-DPS-J-BX-Test	No Source	SHOWFLOOR_01_BX	Pass-Through	Elemental_50L_10Mbps @ aws-el-lab-ingest	1
QVC Demo	OK	AWS_DEMO_CLUSTER	Pass-Through	BBBforQVCdemo @ aws-demo-cluster	1
QVCLive	Disabled	SHOWFLOOR_01_BX	Pass-Through	GCSHOW_01 @ showfloor-01-bx	2

Adding Targets

For our use case, you will create a Pull Target to a Zixi Receiver. The Zixi Receiver thereafter will be able to pull the Pass-Through channel. It is recommended to configure the relevant output in the Receiver before configuring the target in ZEN Master. However, it is also possible to add the output later.

Adding a Zixi Pull Target

➔ **To add a Zixi Pull Target:**

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

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

The screenshot shows a window titled "CREATE NEW TARGET". At the top, it says "Select Target Type". Below this, there are several options, each with a title, a description, and a list of supported channels:

- 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
- SRT**: Create a SRT output on a Broadcaster. Channels: Pass-Through
- NDI**: Enable NDI output on a Channel Source. Channels: Pass-Through

At the bottom left of the window, there is a "Cancel" button with an 'x' icon.

3. Click on **Pull**.

The **Create New Zixi Target** configuration window is displayed.

CREATE NEW ZIXI TARGET

INFO

Name *

Access Tags * ⓘ

CONFIGURATION

Type

Channel Type

Channel ⓘ

Device

Receiver *

Receiver Output

Input NIC

Password

Latency [ms]

Encryption

Failover Mode

ADVANCED +

< Back × Cancel ✓ Save

4. In the **Info** section, in the **Name** field, enter a logical name for the Pull Target.
5. In the **Access Tags** field, for the current use case select *Default* from the drop-down list. To learn more about using Access Tags to control access to resources see [Configuring Access Tags](#) in *Zen Master User Guide*.

Adding Targets

6. In the **Type** section, verify that **Pull** is selected (default).
7. Under **Channel Type**, verify that **ZEN Master Channel** is selected (default).
8. 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 **Device** section, select the device type of the Pull Target. For the current use case, you will be using the **Receiver** device type.
10. In the **Receiver** field, select from the drop-down list a Receiver that is managed by ZEN Master.
11. Fill in optional fields as desired, see [Adding Zixi Pull Targets](#) in *ZEN Master User Guide*.
12. Click **Save**.

Verifying Target Status

You can verify that the new target is connected and streaming without errors by checking its status on the Targets screen. It may take a few minutes for the status to change from *Pending* to *OK*.

➔ To verify that the target status is OK:

1. In the main navigation, click **Targets**.
2. Verify that the status of the newly configured target is *OK*.

Name	Status	Type	Target	Channel
<input type="checkbox"/> HPVZ-EU-US-ASIA-RECEIVE-01	Pending	Pull	BX-130 @ OnPREM-EDGE-CLSTR	HPVZ-HITLESS-01-02-ASIA_DIST_CH...
<input type="checkbox"/> HPVZFX-HITLESS-01-02_EU-ASIA	Ok	Pull	ASIA-CLUSTER-kq6o @ ASIA-CLUSTER	HPVZFX-HITLESS-01-02_EU @ EU-DE...
<input type="checkbox"/> HPVZFX-HITLESS-01-02_USW-ASIA	Ok	Pull	ASIA-CLUSTER-kq6o @ ASIA-CLUSTER	HPVZFX-HITLESS-01-02_US @ US-DE...