Zixi Installation Guide

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Introduction

This installation guide includes installation procedures for the following Zixi SDVP products on Linux and Windows environments:

- Zixi Broadcaster
- Zixi Edge Compute (ZEC)

You can also install Zixi products in a Docker container. For an explanation of how to build and use Docker containers to deploy Zixi products, see **How to Use Zixi Broadcasters/ZEC in Docker Containers**.

Network Port Settings

For the Zixi Broadcaster operating as a streaming server, the following ports must be opened on your Firewall(s) as described below:

Network Settings for Zixi Broadcaster as Streaming Server

Port	Type	Port Direction	Description	Protocol
2088/7088 ***	UDP	Inbound*	Push input from a Zixi enabled feeding software **	Zixi
2077/7077 ***	UDP	Inbound*	Pull output by Zixi enabled receiving software **	Zixi
2088/7088 ***	UDP	Outbound*	Push output to a Zixi Broadcaster or AWS MediaConnect	Zixi
2077/7077 ***	UDP	Outbound*	Pull input from a Zixi Broadcaster or AWS MediaConnect	Zixi
1935	TCP	Inbound*	Push input from RTMP enabled software	RTMP
1935	TCP	Outbound*	Push output to CDN origin server or RTMP enabled software	RTMP
7777	TCP	Inbound*	Pull output from HTML5 video player or CDN caching software	HLS or DASH
4444	TCP	Inbound *	Web management UI	HTTP

Port	Type	Port Direction	Description	Protocol
80/443	TCP	Outbound*	Communication to Zixi License server - license.zixi.com, license2.zixi.com • 52.72.218.41 • 34.195.97.223 • 3.140.62.221 • 3.137.16.26 ZEN Master Backend Servers • 18.210.103.157 • 23.20.44.73 • 34.200.88.233 • 34.238.1.65 • 35.170.111.151 • 52.4.9.203	HTTP/HTTPS
53	TCP & UDP	Outbound*	Communication to Domain Name Server	

* Return traffic must be enabled.

** The maximum recommended throughput per port is 1Gbps. If more throughput is expected through the Broadcaster, additional ports for the Zixi protocol can be defined on the **General** page under the **Settings** tab.

*** 7077 and 7088 use DTLS encryption

For ZEC operating as a feeder device to a remote Zixi Broadcaster or AWS MediaConnect, the following ports must be opened on your Firewall(s) as described below:

Network Settings for ZEC as Feeder Device

Port	Type	Port Direction	Description	Protocol
2088/7088 ***	UDP	Outbound*	Push output to a Zixi Broadcaster or AWS MediaConnect	Zixi

Port	Type	Port Direction	Description	Protocol
1935	TCP	Inbound*	Push input from RTMP enabled software	RTMP
4444	TCP	Inbound *	Web management UI	HTTP
80/443	TCP	Outbound*	Communication to Zixi License server - license.zixi.com, license2.zixi.com • 52.72.218.41 • 34.195.97.223 • 3.140.62.221 • 3.137.16.26 ZEN Master Backend Servers • 18.210.103.157 • 23.20.44.73 • 34.200.88.233 • 34.238.1.65 • 35.170.111.151 • 52.4.9.203	HTTP/HTTPS
53	TCP & UDP	Outbound*	Communication to Domain Name Server	

* Return traffic must be enabled.

** The maximum recommended throughput per port is 1Gbps. If more throughput is expected through the Broadcaster, additional ports for the Zixi protocol can be defined on the **General** page under the **Settings** tab.

*** 7077 and 7088 use DTLS encryption

For the ZEC operating as a receiver device, the following ports must be opened on your Firewall(s) as described below:

Network Settings for ZEC as Receiver Device

Port	Type	Port Direction	Description	Protocol
2077/7077 ***	UDP	Outbound*	Pull input from a Zixi Broadcaster or AWS MediaConnect	Zixi
1935	TCP	Outbound*	Push output to CDN origin server or RTMP enabled software	RTMP
7777	TCP	Inbound*	Pull output from HTML5 video player or CDN caching software	HLS or DASH
4444	TCP	Inbound *	Web management UI	HTTP
80/443	TCP	Outbound*	Communication to Zixi License server - license.zixi.com, license2.zixi.com • 52.72.218.41 • 34.195.97.223 • 3.140.62.221 • 3.137.16.26 ZEN Master Backend Servers • 18.210.103.157 • 23.20.44.73 • 34.200.88.233 • 34.238.1.65 • 35.170.111.151 • 52.4.9.203	HTTP/HTTPS
53	TCP & UDP	Outbound*	Communication to Domain Name Server	

* Return traffic must be enabled.

** The maximum recommended throughput per port is 1Gbps. If more throughput is expected through the Broadcaster, additional ports for the Zixi protocol can be defined on the **General** page under the **Settings** tab.

*** 7077 and 7088 use DTLS encryption

ZEN Master Network Settings

The following network settings are required to connect the various Zixi products to ZEN Master.

Zixi Broadcaster/ZEC – ZEN Master Network Settings

Port	Type	Direction	Description
80/443	TCP	Outbound*	ZEN Master Authentication Servers: - 18.210.103.157 - 23.20.44.73 - 34.200.88.233 - 34.238.1.65 - 35.170.111.151 - 52.4.9.203 Or <customer>.zen.zixi.com
22	SSH	Outbound*	ZEN Master to <customer>.io.zixi.com Or <customer>.zen.zixi.com
2077/2088	UDP	Outbound*	Stream authentication to <customer>.io.zixi.com Or <customer>.zen.zixi.com
7077/7088	UDP	Outbound*	DTLS communication to customer.io.zixi.com Or <customer>.zen.zixi.com

Installing Zixi Products

All Zixi SDVP products (Broadcaster and ZEC) can be installed and run on either Linux or Windows environments. The following sections describe the system requirements and installation procedures for each type of OS.

Installing Zixi Products on Linux

➡ **To install Zixi products on a Linux environment:**

1. Check that you have credentials to login to the Zixi Customer Portal. If you don't have them, please contact *Zixi Support* at support@zixi.com.
2. Check that your system meets the system requirements, see **System Requirements – Linux**.
3. Download and extract the installation file(s) using the procedures described in **Downloading and Extracting the Installation File**.
4. Activate the license through the web-based management UI using the procedures described in **Activating the License**.

System Requirements – Linux

Linux Packages

Zixi Broadcaster expects the following Linux packages to be installed on RHEL 9 or equivalent:

```
# dnf-utils net-tools wget tar ntp telnet traceroute initscripts numactl
ipcalc
```

These are RHEL package names; it may be necessary to determine equivalent package names if another OS is being used.

Hardware

- **CPU:**
  - Intel Pentium G5400 dual core, Celeron J3160 quad core, i3/i5/i7 dual core, Xeon quad core or above (Westmere and later micro architectures)
  - AMD Ryzen and EPYC quad core or above;
  - AWS Graviton2/3;
  - Other ARMv8 64-bit (Raspberry Pi, Ampere, etc.)
- **RAM:** 4GB RAM (minimum)
- **Networking:** 1 Gigabit network card (minimum)

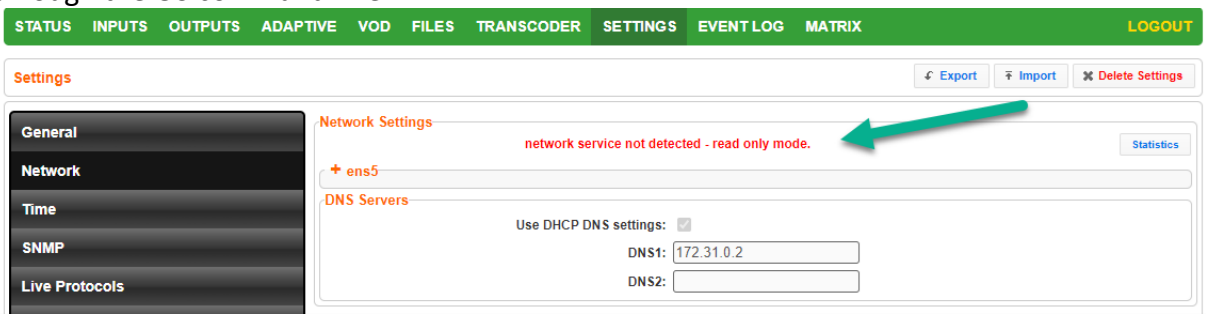
Operating System

Intel/AMD X86	• RHEL 9 or equivalent - Alma Linux 9, Rocky Linux 9, Oracle Linux 9 • RHEL/CentOS/Oracle 7/8 should work but it is recommended to upgrade due to OS end of life** • Amazon Linux 2023
Mac X86-64/m1/m2/m3	• macOS 14 (Sonoma) - versions back to 10.15 (Catalina) should work but it is recommended to upgrade due to OS end of life.
Raspberry Pi 4	• Ubuntu 20.04
Raspberry Pi 5	• Ubuntu 23.10 (until 24.04 is released) • Raspberry Pi OS Bookworm
AWS Graviton 2/3	• Amazon Linux 2023

- Zixi Broadcaster and ZEC require a 64-bit operating system; 32-bit is not supported.
- Other 64-bit Linux distributions, such as Ubuntu, Debian, or their derivatives may work as well as long they as have glibc 2.14 or newer

Network config

Zixi Broadcaster is designed to allow the user to configure networking configs using capabilities provided by the network-scripts package. If the OS includes the network-scripts package (RHEL/CentOS 7), it should be installed and the **NetworkManager** package should be removed. If the OS does not include the network-scripts package (RHEL/CentOS 8 and later), then **NetworkManager** should be installed. In the latter case, Zixi Broadcaster will not have full capability to modify network configs, as show in the image below, and the user must do that through the OS command line.



**CentOS EOL Guidance

In December 2020, the CentOS community and Red Hat announced the sunset of CentOS. Red Hat also announced CentOS Stream, a new, upstream development platform for the CentOS community. For more information, see Transforming the development experience within CentOS.

What does this mean for CentOS users?

CentOS 7 and 8 are the final releases of CentOS Linux. The end of life dates for CentOS 7 and 8 are as follows:

- CentOS 8 - December 31, 2021
- CentOS 7 - June 30, 2024

If you have workloads that are currently running on these CentOS versions, you might want to review what options are available to you and start migrating your workloads.

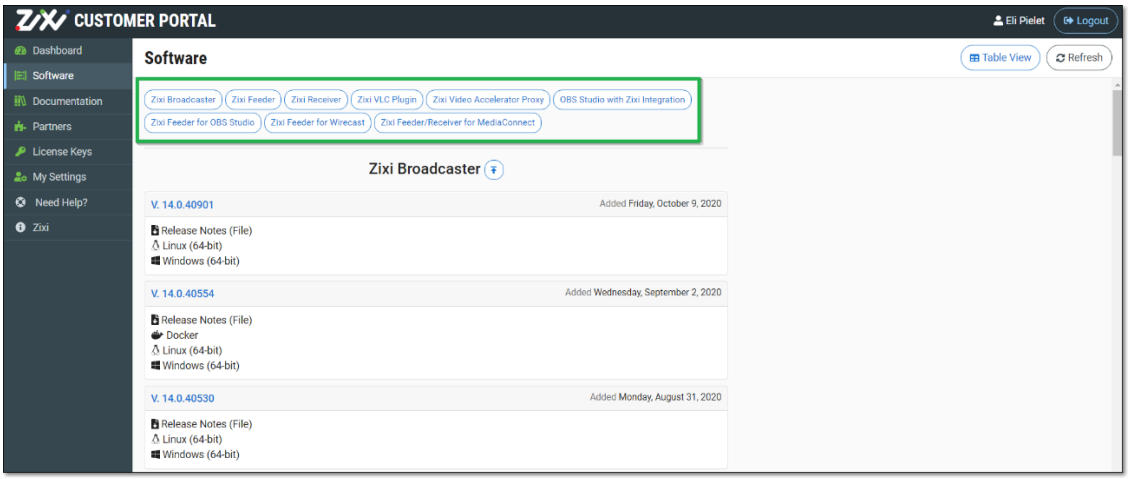
Downloading and Extracting the Installation File - Linux

All Zixi software covered by your license agreement is available for download on your Zixi Customer Portal. You can either download the files directly to your local machine or you can use a CLI command to install it on a remote server. The procedures for downloading and extracting all Zixi products (Broadcaster and ZEC) are identical.

Make sure you are logged in as a Root user.

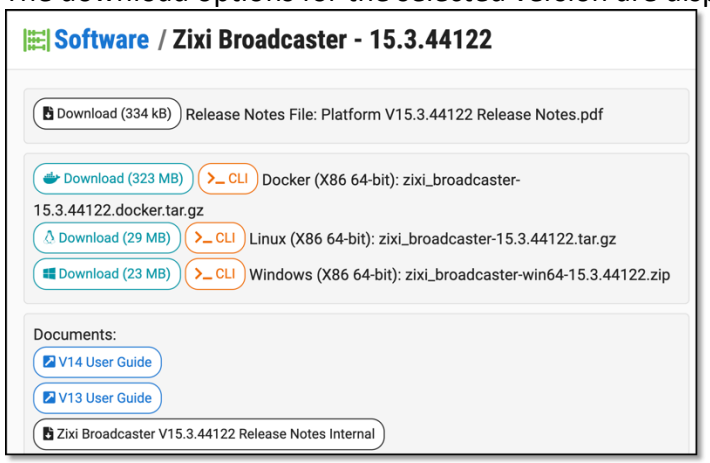
➡ **To download and extract the relevant file:**

1. Access the Zixi Customer Portal at https://portal.zixi.com.
2. Log in using your *Username* and *Password*.
3. In the Main Navigation, click **Software**.
4. At the top of the Software screen, click on the button of the product that you would like to install.



The available software versions for the selected product (which are available for your account) are displayed.

5. Click on the box of the version that you would like to install.
   The download options for the selected version are displayed.



6. Create a Zixi folder and change to that directory by typing the following commands in the Linux console:

```
# mkdir /zixi
# cd /zixi
```

7. Download the installation file using a "wget" command by clicking on the *Linux* **>_CLI** button. The complete "wget" CLI command is shown, containing all of the required information about the installation file for the selected product version.

8. Copy the "wget" and execute it in the Linux console.

Alternatively, you can download the installation file by clicking on the Linux Download button or by executing the "curl" command.

9. Extract the installation file by typing the following command:

```
# tar -xvf <zixi_product>-<version_number>.tar.gz#
```

10. Go to the newly created folder.
11. Execute the installer:
```
# ./installMe.sh
```
12. Following the installation process, you can access the Zixi product through your web browser (e.g., to access Zixi Broadcaster, go to <IP address>:<4444>.

Zixi Broadcaster/ZEC requires certain ports to be opened for management via the UI and for receiving video streams and sending video streams. Please adjust your firewall settings in firewalld, iptables, or any other firewall software you are using according to the port lists shown on Network Settings.

Following the completion of the installation, proceed to ACTIVATING THE LICENSE.

V16 Upgrade Instructions for Linux

Version 16 of the Zixi Broadcaster includes some changes that require special attention when upgrading from previous versions of the Zixi Broadcaster to V16 or downgrading from V16 back to previous versions.

There are two options for upgrading to V16:

- Upgrading to V16 Using the UI Upgrade Mechanism
- Upgrading to V16 Manually

License Server Changes

With V16 of the Zixi Broadcaster, an additional license server is being used by the Broadcaster and needs to be whitelisted in firewalls on networks hosting the Zixi Broadcaster. The new FQDN to whitelist is license2.zixi.com. The existing FQDN, license.zixi.com, is also still in use and needs to be whitelisted.

The IP addresses for the following license servers are static should be whitelisted. When whitelisting, the FQDN will not be supported:

- 52.72.218.41
- 34.195.97.223
- 3.140.62.221
- 3.137.16.26

Upgrading to V16 Using the UI Upgrade Mechanism

With the addition of ARM builds on Linux, the installation directory for Zixi Broadcaster/ZEC has been updated in V16. Previously, the Linux X86 64-bit Broadcaster was extracted to a directory named zixi_broadcaster-centos7-transcoder.

- The new directory for the Linux X86 64-bit Broadcaster is zixi_broadcaster-linux64.
- The directory for the ARM Graviton2 build is zixi_broadcaster-graviton2 .
- The directory for the ARM Raspberry Pi build is zixi_broadcaster-raspberry.
- The Graviton2 build uses the neoverse-n1 compile flag and can be used on any ARM v8 64-bit processor compatible with this compile flag.
- The Raspberry Pi build can be used on any ARM v8 64-bit processor.

When you upgrade a Broadcaster from Linux X86 64-bit V15 or prior versions to v16 using the web UI, the new installation directory will be created and the following config files will be copied over to the new directory:

- broadcaster-config.xml
- broadcaster-info.xml
- profiles.xml
- broadcaster.lic

The **./files** directory in the original installation directory**, zixi_broadcaster-centos7-transcoder**, is not copied over to the new installation directory, **zixi_broadcaster-linux64**, but instead a symlink is created from the old directory to the new directory. This directory can be very large with transport stream recordings and copying it to the new installation directory risks filling the hard drive, so the symlink is the safer option for an automated upgrade.

Currently the **./cache** directory inside the Broadcaster installation directory is not copied nor is a symlink is created in the new installation directory. This is an oversight in the upgrade mechanism and until resolved, you will need to do this manually as shown below. The cache directory is only used for time-shifting. If you are not using time-shifting, nothing needs to be done.

➡ **To copy the Broadcaster installation directory and to create the symlink in the new directory:**

1. Run the following commands:

```
$ service zixibc stop
$ cd zixi_broadcaster-linux64
$ rm -r cache
$ ln -s ../zixi_broadcaster-centos7-transcoder/cache .
$ service zixibc start tar -xvf <zixi_product>-<version_number>.tar.gz#
```

2. After moving the config files, the zixibc service, which runs the Broadcaster as a service, will be restarted to point to the v16 Broadcaster in the new “zixi_broadcaster-linux64” directory.

Because of the symlink to the ./files folder in the "zixi_broadcaster-centos7-transcoder" installation directory, that original installation directory **cannot be deleted without user intervention**. If you would like to delete the previous installation directory, you can remove the symlink and move the ./files/ directory to the "zixi_broadcaster-linux64" directory. However, once you remove the previous installation directory you will not be able to quickly switch back to the previous Broadcaster release.

Upgrading to V16 Manually

If you would like to manually upgrade from a previous Broadcaster release to V16, follow the steps below as root user:

➡ **To upgrade manually:**

1. Verify the previous Broadcaster has been installed **in zixi_broadcaster-centos7-transcoder**. The typical parent directory will be **/zixi** but it may be different.
2. In the parent directory, extract the V16 Broadcaster installation file. It will create a directory called zixi_broadcaster-linux64.

```
$ tar xvf zixi_broadcaster-16.4.44543.linux64.tar.xz
```

3. Run the Broadcaster installation script:

```
$ cd zixi_broadcaster-linux64
$ InstallMe.sh
```

4. Stop the Broadcaster service.

```
$ service zixibc stop
```

5. Copy the config and licensing files to the new installation directory:

```
$ cp ../zixi_broadcaster-centos7-transcoder/broadcaster-config.xml
$ cp ../zixi_broadcaster-centos7-transcoder/broadcaster-info.xml
$ cp ../zixi_broadcaster-centos7-transcoder/profiles.xml
$ cp ../zixi_broadcaster-centos7-transcoder/broadcaster.lic
```

6. Update Broadcaster "root" folder in broadcaster-info.xml if necessary. The default for the files root folder is **./files** which is relative to the installation folder. If the files root folder was **./files** in the previous installation directory then you can simply move the contents over:

```
$ cd ./files
$ mv ../../zixi_broadcaster-centos7-transcoder/files/*
$ cd ..
```

7. If the files root folder in the previous installation was changed to an **absolute path**, then copying broadcaster-info.xml is sufficient.
8. If time-shifting is being used the time-shift data files need to be moved over:

```
$ cd ./cache
$ mv ../../zixi_broadcaster-centos7-transcoder/cache/*
$ cd ..
```

9. Restart the broadcaster service:

```
$ service zixibc restart
```

Installing Zixi Products on Windows

➡ **To install Zixi products on a Windows environment:**

1. Check that you have credentials to sign in to your account on the Zixi Customer Portal. If you don't have them, please contact *Zixi Support* at support@zixi.com.
2. Check that your system meets the system requirements, see **SYSTEM REQUIREMENTS – WINDOWS**.
3. Download and extract the installation file(s) using the procedures described in **DOWNLOADING AND RUNNING THE INSTALLATION**.
4. Activate the license through the web-based management UI using the procedures described in **ACTIVATING THE LICENSE**.

System Requirements – Windows

Hardware

- CPU:
  - Intel Pentium G5400 dual core, Celeron J3160 quad core, i3/i5/i7 dual core, Xeon quad core or above (Westmere and later micro architectures)
  - AMD Ryzen and EPYC quad core or above;
- RAM: 4GB RAM (minimum)
- Networking: 1Gigibit network card (minimum)

Operating System

- Windows® Server 2016/2019, 32-bit or 64-bit
- Windows 10/11, 32-bit or 64-bit
- Windows releases are supported per the Microsoft support schedule. Windows Server OS is preferred for 24/7 if Windows is a requirement. However, Zixi recommends Linux for workflows requiring high availability. Windows desktop OS, if used, should be configured to disable auto updates and prefer background service priority.

Network Management

- Broadcaster GUI: TCP 4444
- SSH Remote Tunnel: If enabled, the device reaches out on port 22 to the remote access server.

Network Streaming

- See Network Port Settings.

Unsupported Features in Windows OS

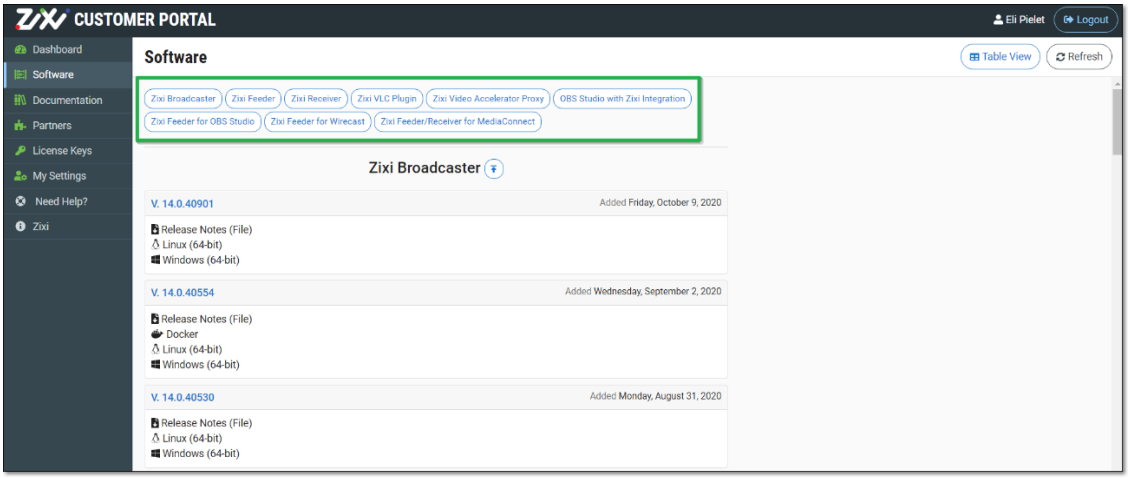
- WebRTC preview, WebRTC input
- ARM/AWS Graviton Processor Support
- AgentZ Telemetry and Statistics Collection for ZEN Master
- Trace Route network path analysis
- High Performance Network Stack

Downloading and Running the Installation

All Zixi software covered by your license agreement is available for download on your Zixi Customer Portal. The procedures for downloading and extracting all Zixi products (Broadcaster and ZEC) are identical.

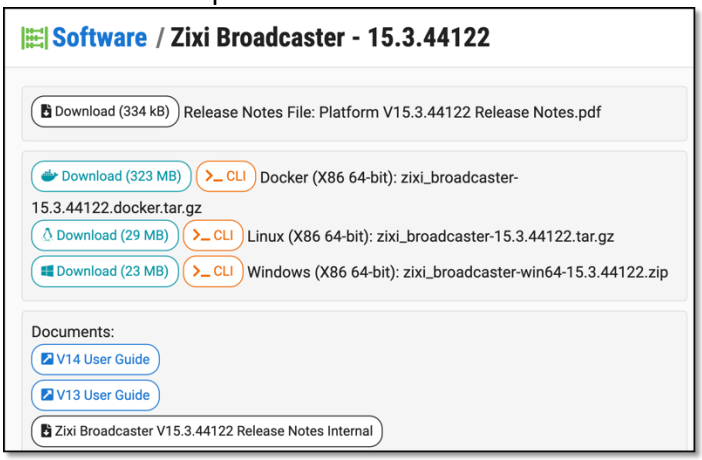
➡ **To download and run the installation:**

1. Access the Zixi Customer Portal at https://portal.zixi.com.
2. Log in using your *Username* and *Password*.
3. In the Main Navigation, click **Software**.
4. At the top of the Software screen, click on the button of the product that you would like to install.



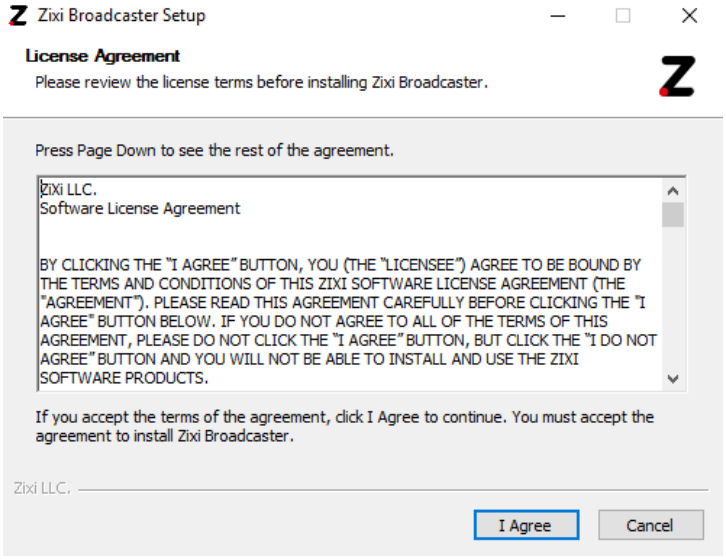
The available software versions for the selected product (which are available for your account) are displayed.

5. Click on the box of the version that you would like to install.
   The download options for the selected version are displayed.

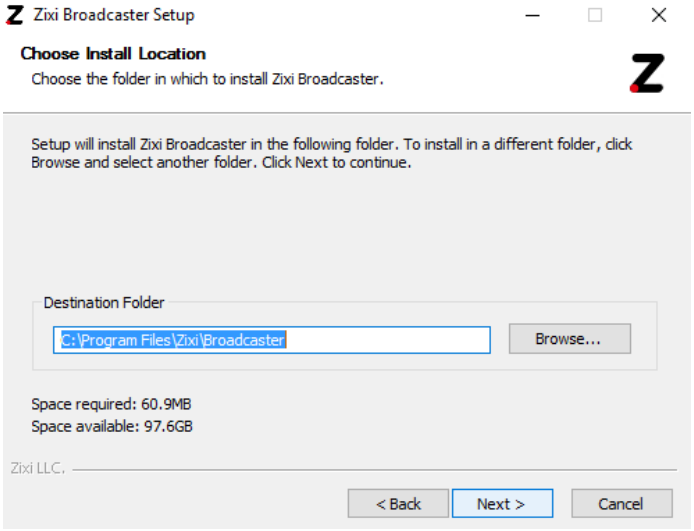


To download the file, click on the *Windows* **Download** button and navigate to the location where you would like to save the file.

6. Double-click on the Zixi Broadcaster/ZEC installation file.
   The **License Agreement** window appears.

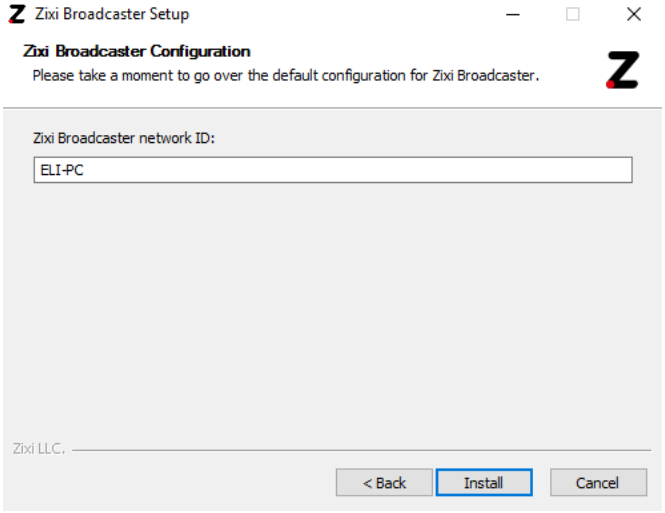


7. After reading the license agreement, click **I Agree**.
   The **Installation Location** window appears.

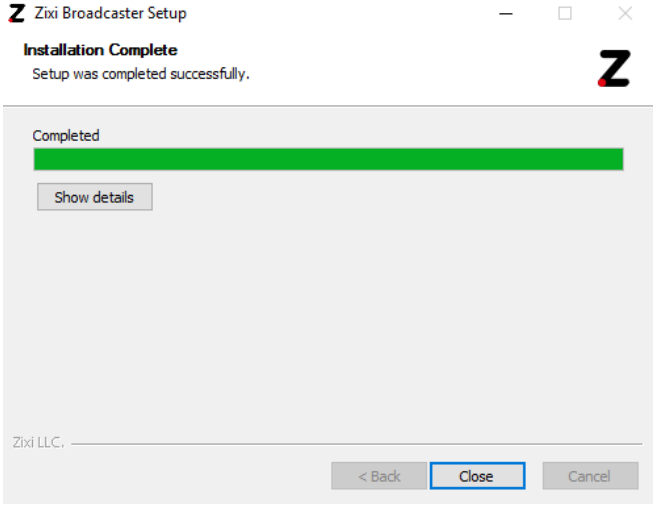


8. Select the folder in which the Broadcaster/ZEC files will be installed. The default location is in the Zixi folder which is in the Program Files folder.

9. Click **Next**.
   The **Broadcaster/ZEC ID** window appears.



10. Enter a name for the **Broadcaster/ZEC ID**. The default name is the local host.
11. Click **Install**.
    The installation progress window appears.



12. The Zixi Broadcaster/ZEC requires certain ports to be opened for management via the UI and for receiving video streams and sending video streams. Please adjust your firewall settings in firewalld, iptables, or any other firewall software you are using according to the port lists shown on **Network Port** Settings
13. When the installation is complete, click **Close**.
    The Broadcaster/ZEC Login page opens in your browser.

Following the completion of the installation, proceed to **ACTIVATING THE LICENSE**.

V16 Upgrade Instructions for Windows

Version 16 of the Zixi Broadcaster includes some changes that require special attention when upgrading from previous versions of the Zixi Broadcaster to V16 or downgrading from V16 back to previous versions.

To upgrade to a V16 Broadcaster on Windows, reach out to your Zixi representative or Zixi Support.

Activating the License for Broadcaster/ZEC

Activation of the licenses is performed in the relevant web-based management UI. For all Zixi products (Broadcaster and ZEC), the installation can be done online using a *License Key* or offline using a *License File*.

To activate Zixi license online, ensure connection to URL: license.zixi.com via TCP port 80. If you cannot open this connection, you can activate your license through a "License File". To obtain a license file, please contact *Zixi Support* at support@zixi.com.

Logging in to Zixi Broadcaster/ZEC

➡ **To log in to Zixi Broadcaster/ZEC:**

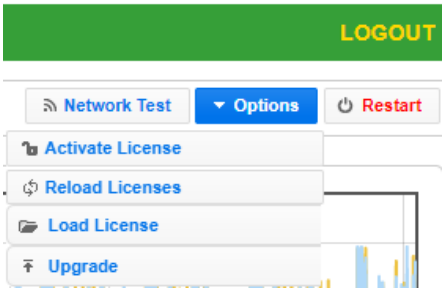
1. In your web browser, navigate to http://localhost:4444.
   A user authentication window opens.
2. In the **User Name** field, enter '**admin**'.
3. In the **Password** field, enter '**1234**'.
4. Click **OK**.
   The Broadcaster/ZEC UI opens on the **Status** page. After logging in to a Zixi Broadcaster/ZEC for the first time, you must activate the Zixi license as described in the following section.

Online Activation (License Key)

The following procedure requires connectivity to the Internet. If you are not able to connect, you can activate the Broadcaster/ZEC using the procedure described in **Offline Activation (License File)**.

➡ **To Activate the License online using a License Key:**

1. In the **Status** page of the Zixi Broadcaster/ZEC UI, click **Options** in the menu bar.
   The drop-down menu is displayed.



2. Click **Activate License.**
   The **Activate License** window appears.

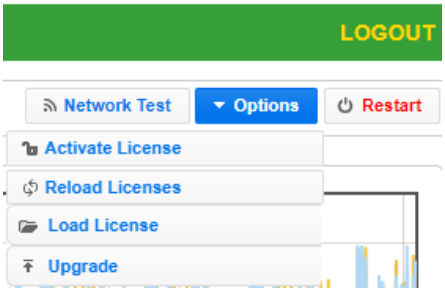
3. In the **Key** field, enter your Activation Key.
4. Click **Activate**.
   The Zixi Broadcaster/ZEC is enabled.

Offline Activation (License File)

If you want to activate your license without an internet connection, you can upload a License File. To obtain a license file, please contact *Zixi Support* at support@zixi.com.

➡ **To Load the License File:**

1. In the **Status** page of the Zixi Broadcaster/ZEC UI, click **Options** in the menu bar.
   The drop-down menu is displayed.



2. Click **Load License.**
   The directory of the local drive opens.
3. Navigate to the License File and click **Open**.
   A prompt window instructs you to Reload the license to activate the license.
4. Click again on **Options** and select **Reload Licenses** from the dropdown menu.
   The Zixi Broadcaster/ZEC is enabled.

1.

Uninstalling Zixi Broadcaster/ZEC on Linux

It is vital to uninstall AgentZ if you are uninstalling and /or migrating a Zixi Broadcaster to a new machine. For further instructions, see Uninstalling AgentZ.

➡ **To uninstall Zixi Broadcaster/ZEC:**

1. As a Root user, run the following command to stop the service:
```
# systemctl stop zixibc.service
```
2. Run the following commands:
```
# systemctl disable zixibc.service
# rm /etc/systemd/system/zixibc.service
# systemctl daemon-reload
# systemctl reset-failed
```
3. Delete the directory where Broadcaster/ZEC was installed, for example:
```
# /zixi/zixi_broadcaster-centos7-transcoder
```

Uninstalling AgentZ

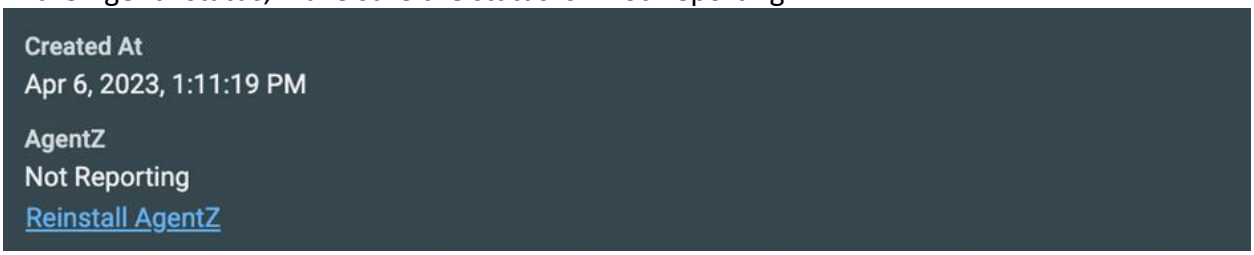
It is vital to uninstall AgentZ if you are uninstalling and /or migrating a Zixi Broadcaster to a new machine. It is necessary to ensure that the original AgentZ software does not continue to report, while simultaneously preventing an AgentZ on the new Broadcaster from connecting and correctly reporting to ZEN Master.

➡ **To uninstall AgentZ:**

1. As a Root user, run the following command to stop the service:
```
systemctl stop agentz.service
```
2. Run the following commands:
```
systemctl disable agentz.service
rm /lib/systemd/system/agentz.service
systemctl daemon-reload
systemctl reset-failed
```

➡ **To confirm the AgentZ is no longer reporting:**

1. From the Zen Master User Interface, go to the relevant Broadcaster details screen.
2. In the AgentZ status, make sure the status is: 'Not Reporting'.



Agent Z is now uninstalled. Any further Broadcaster migration work can be completed with the knowledge that the correct AgentZ is connecting to ZEN Master.

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