



Version 16 of the Zixi Platform, v16.1.44331, is now generally available and includes the following new capabilities. This release cycle also introduces Zixi Edge Compute (ZEC), which replaces the Zixi Feeder and Zixi Receiver. More details on ZEC can be found below in this document.

ARM Architecture Support

The Zixi Broadcaster/ZEC is now being built for ARMv8 64-bit in addition to the existing X86 64-bit architecture on Linux; Windows builds are still only available for X86 64-bit. Currently, two unique ARM builds are being created. The first is compiled with no flags for Raspberry Pi 4. These builds can be used on Ampere VMs on GCP, Azure, and OCI, Raspberry Pi 4 devices, and other ARMv8 64-bit devices.

AWS Graviton Support

The second is compiled with the “-mcpu=neoverse-n1” flag, as recommended by AWS for Graviton2/3 VMs. These builds can be used on AWS Graviton2/3 VMs in all AWS regions with higher throughput for cost efficiencies without a degradation in feature offering.

TR-101 Analyzer

The Zixi Broadcaster/ZEC now includes an internally developed TR-101 analyzer that replaces the 3rd-party TR-101 analyzer used previously. The new analyzer has better performance and stability while producing equivalent results to the previous analyzer and can be compiled for necessary architectures, currently X86 64-bit and ARMv8.

Transport Stream Multiplexer

The Zixi Broadcaster now includes a transport stream multiplexer which combines multiple Single Program Transport Streams (SPTS) into one constant bitrate Multi Program Transport Stream (MPTS). The multiplexer supports automatic sequential PID renaming to ensure unique PIDs in the resulting MPTS. PID mapping can also be used to create user defined PID numbering. Multiplexing is a licensed feature in the Zixi Broadcaster/ZEC and may be subject to additional commercial terms. When configured in the Broadcaster UI, automatic PID renumbering will be used. Use of the Broadcaster API is required to perform multiplexing combined with PID mapping.

SCTE-35 injection

The Zixi Broadcaster/ZEC now includes the ability to inject SCTE-35 messages into transport streams created from any input type. All transport stream outputs connected to those inputs will include the SCTE-35 messages. When SCTE-35 injection is enabled, a SCTE-35 PID will be added to the transport stream. SCTE-35 injection is available via the Broadcaster API and uses the base64 binary form of SCTE-35 messages.



HTTP File Input

The Zixi Broadcaster now supports file input from an HTTP/HTTPS URL, such as an S3 bucket. Previously, file input only supported files on the local file system. When the input is started, the file will be copied from the remote server to a temporary location on the local file system and then ingested into the Broadcaster. As with local file input, the container of the remote file must be transport stream (.ts). A typical use case for file inputs is to use it as a backup in a failover group such that if the primary and secondary streams disconnect, there is a backup from the file input.

WebRTC Ingest

The Zixi Broadcaster now includes the capability to capture a WebRTC stream from a browser that has access to a user's webcam and microphone. Zixi provides sample code to be integrated into the customer's web page that captures the audio and video. This is an advanced feature. Please discuss with your Zixi representative to learn more about it.

Zixi Edge Compute

The standalone Zixi Feeder and Zixi Receiver software have been replaced by Zixi Edge Compute (ZEC) software which shares the same codebase as the Zixi Broadcaster, but functions like the Feeder and Receiver. The Zixi Feeder allowed you to ingest UDP/RTP and ASI streams and then outputs Zixi streams to a Zixi Broadcaster. Similarly, ZEC allows you to ingest UDP/RTP and ASI streams but also adds SRT, RIST, RTMP, and RTSP input streams and then outputs Zixi streams to a Zixi Broadcaster. The Zixi Receiver allowed you to pull Zixi streams from a Zixi Broadcaster and then outputs UDP/RTP and ASI streams locally. Similarly, ZEC allows you to pull Zixi streams from a Zixi Broadcaster and then output UDP/RTP and ASI streams locally but also adds SRT, RIST, and RTMP output streams.

Like the Zixi Feeder and Zixi Receiver, ZEC requires a license to be activated but is free to use. The Zixi Broadcaster and ZEC use the same installed binary in the same installation folder. The license activated determines whether the binary operates in Broadcaster mode or ZEC mode. Prior to licensing, the web UI will have a black banner at the top. After being licensed the banner will be green in Broadcaster mode and the banner will be red and blue in ZEC mode.

Installation Directory Changes

With the addition of ARM builds on Linux, the installation directory name for Zixi Broadcaster/ZEC has been updated. 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 Graviton2 build is "zixi_broadcaster-graviton2" and the directory for the Raspberry Pi build is "zixi_broadcaster-raspberry".

When you upgrade a Broadcaster from Linux X86 64-bit V15 to v16 using the web UI, the new directory will be created and the necessary config files will be copied over to the new directory.

The previous “zixi_broadcaster-centos7-transcoder” directory is not removed. Also, the zixibc service which runs the Broadcaster as a service will be updated to point to the v16 Broadcaster in the “zixi_broadcaster-linux64” directory.

If you need downgrade back to V15, the original “zixi_broadcaster-centos7-transcoder” directory will be used again and the zixibc service needs to be updated to point to the v15 Broadcaster in this directory. Also, if you made any changes to the Broadcaster configuration while using v16, the configuration files need to be copied over to the v15 Broadcaster directory. If you made any license changes to the Broadcaster configuration while using v16, the license file needs to be copied over to the v15 Broadcaster directory. The following steps will downgrade your installation from the v16 Broadcaster to the original v15 Broadcaster:

```
$ service zixibc stop
$ cd zixi_broadcaster-centos7-transcoder
$ cp ../zixi_broadcaster-linux64/*.xml .
$ cp ../zixi_broadcaster-linux64/broadcaster.lic .
$ ./installMe.sh
```

Protocol Updates

Listed below are improvements and bug fixes to the various protocols supported by the Zixi Broadcaster.

- Zixi
 - Added FEC only mode in the Zixi protocol
- UDP/RTP
 - Added selection between "Arrival time" or "RTP timestamps" for RTP input dejittering. Default is 20ms dejitter in RTP/UDP inputs."
 - Fixed RTP input misfiring high bitrate alerts because of FEC bitrate
- HLS
 - Fixed missing CC line in main manifest when closed captions are present in the stream
 - Added index to HLS input name in case there are streams with duplicate bandwidth values
- DASH
 - Fixed issue with DASH live playlist not recorded when adaptive recording enabled
- RTSP
 - Fixed incorrect counter of disconnections for RTSP inputs

Transcoder Updates

Improvements to the transcoding capability provided by the Zixi Broadcaster are described below.

- The Zixi Broadcaster now supports encoding audio to Dolby Digital Plus, also known as Enhanced AC-3, during transcoding in addition to the existing AAC and OPUS audio encoding.

Performance/Memory Improvements

Improvements to the performance of Zixi Broadcaster are listed below.

- Significantly improved total throughput. Note, on AWS EC2 instances it is now possible to exceed the egress limits on compute optimized VMs and you may need to switch to network optimized VMs for high throughput workflows.
- Improved load time with large configuration files)
- Improve the Broadcaster service restart time by about 50%
- Reduced memory allocation of Pull inputs and outputs
- Changed authentication queue to LIFO to prevent long recovery after Broadcaster restart when authentication is slow
- Improved server side connection speed for many simultaneous connections
- Added pagination for Broadcaster inputs/outputs listing in the UI and API enabling larger quantity of inputs and outputs

Additional Improvements

Additional improvements to the Zixi Broadcaster are listed below.

- Added ability to customize ciphers on DTLS server. A new field for DTLS ciphers is available in the web UI in advanced mode.
- Thumbnail extraction is now portable across different CPU
- Higher quality thumbnails are now created when the input stream is higher quality
- Added PID mapping for MPTS sources
- Added ability to output logs to STDOUT

Bugs

Bugs fixed in the Zixi Broadcaster are listed below.

- Fixed issue where PID mapping by stream type/category did not adjust to new PAT & PMT tables when failing over to different stream in a failover group
- Fixed PID mapping error where default action was set to remove/null PIDS when stream has standalone PCR PID and program was set to passthrough or map
- Fixed PID mapping of NIT table
- Fixed "compression error" when a packet is wrongly marked as compressed
- Fixed detection of the number of logical cores on QEMU VMs
- Fixed disabled Maximal DTS-PCR and Smoothing buffer when editing a transcoded stream with a non 0 value transport stream bitrate



- Fixed issue with PID MAP source using hardcoded value for max-bitrate, now it uses its origin source max-bitrate instead
- Fixed missing name attribute for Push output links in configuration file

Known Issues

Known issues in the Zixi Broadcaster are listed below.

- CQA audio analysis for silent audio and audio clipping will not support MP1 audio due to an issue with the current audio decoder library. This will be resolved in an upcoming release by replacing the audio decoder library.

Downgrading from V16 to V15

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