zeevee
Signal Intelligence

ZyPer Management Platform Release Notes

Software 2.1.35872

January 06, 2020

Revision History

Date	Version	Fixes/Changes
January 6, 2020	2.1.35872	General Availability release

Contents

1. Supported platforms

ZyPer Management Platform

- ProServer on Ubuntu v16.0.4
- Gigabyte NUC on Ubuntu v14.04.2
- Intel NUC (Generation 2) on Ubuntu v16.0.4
- VMWare appliance on Ubuntu v14.04.2

ZyPer Management Platform **GUI web interface**

- Google Chrome
- Safari 10.3.2 for iPad (ZyPer Management Platform mobile mode)
- Android Tablet 7.0 (ZyPer Management Platform mobile mode)

Encoders and decoders

- ZyPer4K HDMI 2.0 encoders and decoders
- ZyPer4K HDMI 1.4 encoders and decoders
- ZyPerUHD
- ZyPerHD
- ZyPerUSB

2. New features

GUI Enhancements:

- Preview Video Feature mode for Source and Display panel Icons
  - ZyPer4K - HDMI2.0 hardware only. Firmware v4.0.1 required
  - ZyPerUHD - Firmware v1.1.2 required.
  - ZyPerHD - not supported

API Enhancements:

- Preview Video Control for the API
- Support for Manual Device Addition.
- Disabling Telnet and telnet/ssh password modifications

MP Server

- SNMP support

Multiview Fast Transitions and Video Wall Enhancements:

- Multiview Overlay

3. Issues resolved

Component	Issue	Other
API Command	API Zones do not support mixed device types, so ZyPer4K and ZyPerUHD devices are not allowed to be in the same Zone. The first added device decides the Type of product for the Zone.	Adding is possible now, a warning message will appear for the devices that are not compatible to the source type used.
RS232	Buffer would continuously grow if no term character used	Buffer now limited to 512

4. Issues Outstanding

Component	Issue	Workaround
ZyPer4K HDMI 2.0	Fast Switched joins at 480I/576I displays video in an improper ratio horizontally	No Workaround at this time.
ZMP GUI	One NUC two browsers - "Server is not available"	Wait until the F5 refresh occurs to continue working (generally within 3-5 seconds of receiving the message).
ZyPer4K HDMI 2.0	ZyPer 4K Charlie - Encoder - Incorrect FPS status (cosmetic) under 420 color formats	No Workaround at this time.
ZMP GUI	On occasion the custom config containing "disconnect" actions will be show no actions after saving the config.	Reset Join Config to defaults
ZyPerUHD	ZyPer UHD - HDCP does not report on the UHD encoders, in addition it allows video traffic to flow to devices that do not support the HDCP version	Restart or reboot the encoder to gain the correct information.
ZyPerUHD	ZyPer UHD - Decoder - UHD 60 8 bit 420 - When connecting a UHD60 encoder to a Decoder with a display that has only 1080 support, when rebooting the device, it does not always return video	After about two minutes the video comes back and it works.
Server Redundancy	When failing over to a new master, if the old master resumes, the fail over occurs again back to the original server	No Workaround at this time, interrupts MaestroZ function for a second.
rcServer	4K HDMI 2.0 - Some Decoders may not show receiving video set to yes when video is being received and displayed.	A connect to another encoder corrects the issue, connection to the original encoder can then be made and the state is correct.
rcServer	Encoder videoScaledStream staying enabled when it was not actually used in Multiview mode	By un-join all the other video connections involving the encoder that you are trying to connect with will clear this state. Then re-join the encoder to the same decoder in fast-switched mode.
Upgrade	VM: The previousVersion field showed as N/A in server info after upgraded the server from 1.7.4 to 1.8	No Workaround at this time

ZMP GUI	Encoder Config menu- "Video Port" does not show the port configured and in use for the device.	The API requires reference in order to see which video port is selected.
Multiview	When removing an encoder that is assigned to multiple Multiview windows in the same configuration, the video will not be removed until the encoder is removed from all windows	Deleting of the window will need to be done in the API in order to remove the video from the proper display window.
Multiview	Redundancy failover does not maintain active Multiview video on the displays.	The config remains intact, a join of the Multiview to the decoder in question is needed to restore video.
ZyPerUHD Video Wall	There is a known issue with ZyPerUHD video walls above 3X3. Changes to an active video wall of sizes larger than 3X3 cause fluctuations in video under all screens of the wall for up to 5 minutes before stabilizing.	This only happens on a modification to the video wall configurations. Unjoining all screens of the video wall with the disconnect to the video wall clears all the video. Then changes to the wall's config can be made, followed by a rejoin of the encoder to the wall.
ZyPerHD	In the ZMP GUI under the config of the encoder, the ZyPer HD Encoder shows it supports the new compressed audio option for the EDID. This feature is not supported on the ZyPer HD.	Feature if selected will do nothing as the devices have a hard coded EDID.
ZMP	Power off via shutdown on the 1st generation NUCs will no longer shutdown the server.	Manual power off on the NUC power button is required to shut it off.
Multiview	Encoder Window, sound, status is not indicated under the ZMP GUI Multiview config. The icon for the sound source of the Multiview does not show active sound if the window is selected for sound source and saved.	Checking the API is required to see the sound source for the Multiview config.
MP Upgrade ZUHD GUI	When you first upgrade from 1.7.4 or 1.8 the ZyPerUHD shows the Join config for Fast switched without the Audio. In 2.0 and 2.1 this is now required in order to get Audio to connect when using the GUI	Edit the Join config for the fast switch and add the audio to the configuration or select to reset to defaults to receive the new join config.

5. Known limitations
ZyPer4K HDMI 2.0

Component	Limitation	Workaround
Decoder	When swapping HDMI from ZyPer4K decoders with the HDMI unplugged less than 5 seconds, the decoder fails to read the new EDID. (7669)	When power Cycling or unplugging, wait 5 seconds before plugging the unit back in.
Decoder - Display port board variant	- For the Display port connections to a Monitor or TV that are to be shown at 3840 X 2160 60 FPS 8 bit 444. Video has been seen to stop and start again on the screen after a link training has been established. It is not every time and in testing varies	To work around this problem, the following guidelines must be implemented to obtain reliable 3840 X 2160 60 FPS during these particular instances of fault.

	depending on particular environment variables as up to 1 out of every 5 link training events. The event itself is specific to a disconnect of Display port connection or power event of the end points.	For Genlocked connection, sources must be using reduced blanking timing, limiting pixel clock to 550MHz. Fast switched connection may also be used as the method of joining the Encoder to the Decoder. The below advanced timing command must be used to configure the decoder for use: set decoder *decoder_name|decoder_mac* display-advanced-timing sync-front-porch 48 2 sync-width 32 5 hsync-polarity auto vsync-polarity auto total-size 4000 2222
Encoder – SDI board variant	**Genlock mode –** Audio is limited to 2 channel support (7506)	No Workaround at this time.
Encoder - Analog Board variant	During connections using VGA port on the expansion board, audio may not be available for the connection. This occurs one out of every 15 to 20 connects using the VGA port on this device.	We have found that resetting port to HDMI and then back to VGA does resolve the issue.
Multiview	Resolution of 2560 X 1440 is not supported for the Multiview window (8938)	None

ZyPerUHD

Component	Limitation	Workaround
Decoders	When the UHD Decoder is downscaling from UHD 3840 X 2160 60 420 8 bit to 1080P 60 on a display, if a reboot (power cycle or restart command) occurs to the Decoder the Display will not return video.	To recover from this state the device needs to be rejoined to display video once more.
Decoders - CEC off|on	It has been found that on some Samsung displays, that the CEC "on" command will not returns the monitor to an active state. One monitor that experienced this issue was a Samsung 4K UN40JU6500. To activate the TV after encountering this event, a power on must be done.	Power Cycle of the TV is required
Decoders - Sleep mode	In addition, when using the sleep mode feature to set the display to sleep (regardless of the decoder connections) displays require a 10 second window if the user wants to disable this mode.	Power Reset of the Decoder will be required
Decoder	Display with standard timing first 2560x1440 showed bad video in source 720p60.The bad video appeared after changed the resolution from 1080p60 to 720p60 or changed resolution from 480p to 720p60 (after switching the resolution back and forth for about 1 minute or 2). This is a limitation for the ZyPerUHD device.	

Encoder	HDCP, interlacing state, Bit sample, Color Space and Color Format states may not report correctly on UHD encoders • HDCP status – May not report correctly • Interlacing State – Will always show "no" • Color Space – Will always report 444 • Color Format – Will Always report RGB Color bit depth – Will always report 8 bit	
Encoder	Under the Encoder information output the EDID used for the encoder may not match the decoder it is joined to. This is part of the design, as the system will load an EDID that it feels is most compatible. This could be an EDID that is either stored in its database or from an active decoder that shares the encoders connection.	Working as designed
Independent Audio routing	Joins of Audio between the encoder and the decoders or changes in the audio to the decoder, will cause a 1 to 2 second video interruption. This is because of an internal reconnect within device in order to modify this connection.	None
Independent IR routing	Due to the implementation of independent IR joins from device to device. We are no longer able to receive IR from the device to the server.	None
Resolution Support	Resolution Support for ZyPerUHD does not support 4096 resolutions and will not produce resolutions at 3840 X 2160 50 FPS/60 FPS. The ZyPerUHD encoder will not recognize any video above 3840 X 2160 60 FPS YUV 420, 8 bit (in either bit rate or color format).	None
RS232 Configuration and routing	Changes to the RS232 configuration to support the endpoint to endpoint communication require the devices to be restarted. Changes to the baud rate, connection endpoints and other rs232 communication will restart the device.	None

ZyPerUSB

Component	Limitation	Workaround
Decoder	USB Cameras that are connected to the unit when paired together will not have power to the Camera.	The Camera will need to be unplugged and reconnected in order for the camera to receive power and function.
USB Filtering (Blocking Connections Types)	No Filtering is available for ZyPerUSB - Connections will not be able to be filtered via Storage type or HID.	

ZyPer API

Component	Limitation	Workaround
API Command	The commands for "set video-wall-encoder" and "set video-wall-decoder" have been deprecated however will still function in this version.	

ZyPer GUI

Component	Limitation	Workaround
After Upgrade	After upgrading connection tool tips under the Display Panel Icons, show only video connected.	A refresh of the GUI will show all connections on the Display Panel Icons
Thumbnail	When starting Thumbnail videos, sometimes the icons show a pinwheel instead.	A stop and start of the thumbnail video by clicking on the Icon will remedy this issue. Alternatively, a refresh of the GUI will show all the videos enabled.
Video wall	If a name of a Decoder is changed and the video wall that contains said decoder is then opened for editing, the Decoder will no longer be present under the configuration.	After the Decoder name is changed but before the video wall is opened for edit, a refresh can be done. Then the video wall will contain the Decoder with the changed name.

ZMP Redundancy and VMWare

Component	Limitation	Workaround
ZyPer Management Platform	After server switched over, some Displays with video streaming color in Green showed as Yellow in new master server unless refresh the browser)	
ZMP with dual NICs	Setting the Management Interface (eth1) on a ProServer or a dual NIC NUC ZMP device to an IP not accessible to the originating ZyPer Management Platform Source machine could cause an inability to access the Management port after it is set. To correct this, the user should enter the ZyPer Management Platform under the "Video-Network" IP from a device on that network and correct the Management NIC interface address.	
ZyPer Management Platform – VMWare updates	Starting in the upgrading to 1.8, on VM Hosted machines for the ZMP will require use of the update_vm to upgrade to 1.8 and beyond. Reverting to 1.7X and 1.6 versions are possible through use of the standard update_nuc file if needed.	
VMware Redundancy Support	There is no support for virtual machines hosting the ZMP image under 1.8, only single server deployments are supported.	

6. Current device firmware

Device	File version
ZyPer4K HDMI2.0	4.0.1.0
ZyPer4K HDMI1.4	2.10.x
ZyPerUHD Encoders	1.1.2
ZyPerUHD Decoders	1.1.2
ZyPerUHD Wallplate Encoders	1.1.2
ZyPerHD Encoders	2.12.3
ZyPerHD Decoders	2.12.4

7. API Additions, changes, and deletions

Additions

SNMP

- add snmp trap-server v2c-trap ip-address <address:ip> community <string>
- add snmp user v2c access-level read-only community <newSnmpCommunity>
- add snmp user v3 access-level read-only auth MD5 encrypted no username <newSnmpUser> password <string>
- delete snmp trap-server v2c-trap <address:ip> community <string>
- delete snmp user v2c community <snmpCommunity>
- delete snmp user v3 username <snmpUser>
- show snmp trap-serversshow snmp users

Multiview

- set multiview <multiviewName> window-number <int> title none
- set multiview <multiviewName> window-number <int> title text <string>
- set multiview <multiviewName> window-number <int> title text-size <int>
- set multiview <multiviewName> window-number <int> title position top-left|top-center|top-right|bottom-left|bottom-center|bottom-right
- set multiview <multiviewName> window-number <int> title color <color-name-or-hexval> background-color <color-name-or-hexval>
- set multiview <multiviewName> window-number <int> title transparency text <percent:int> background <percent:int>
- show multiviews titles text
- show multiviews titles config

SSH/Telnet

- set server ssh password <string>
- set server telnet password <string>|none
- set server telnet mode enabled|disabled

Preview Streams
- show preview-streams
- preview-stream <encoderMac|encoderName> start jpeg|hls [width <int>|auto]
- preview-stream <encoderMac|encoderName> stop

Changes – Syntax changes are underlined

API Command Syntax changes

- NEW: delete all-configuration restart|reboot|shutdown
  - OLD: delete all-configuration reboot|shutdown
- NEW: set decoder <decoderMac|decoderName> display-resolution active-size <pixelsHoriz:int> <pixelsVert:int> fps <float>|source
  - OLD: set decoder <decoderMac|decoderName> display-resolution active-size <pixelsHoriz:int> <pixelsVert:int> fps <float>

- NEW: set multiview <multiviewName> window-number <int> encoder-name <encoderName>|none percent-position-x <float> percent-position-y <float> percent-size-x <float> percent-size-y <float> layer <int>
  - OLD: set multiview <multiviewName> window-number <int> encoder-name <encoderName>|none percent-position-x <int> percent-position-y <int> percent-size-x <int> percent-size-y <int> layer <int>
- NEW: set multiview <multiviewName> window-number <int> position percent-position-x <float> percent-position-y <float>
  - OLD: set multiview <multiviewName> window-number <int> position percent-position-x <int> percent-position-y <int>
- NEW: set multiview <multiviewName> window-number <int> size percent-size-x <float> percent-size-y <float>
  - OLD: set multiview <multiviewName> window-number <int> size percent-size-x <int> percent-size-y <int>

Typo in the command syntax
- NEW: set device <deviceNamePart>|all|encoders send-ip-mcast-range <first:ip> [<last:ip>]
  - OLD: set device <deviceNamePart>|all|encoders send-ip-mcast-range <frist:ip> [<last:ip>]

Misc

Factory Default changes for RS232– Through the versions of ZMP 1.8 to 2.1, when ZyPerUHD devices are reset to default the following default baud rates will be applied.

- In 1.8 it adjusts the default to be 38400
- In 2.0 it adjusts the default to be 9600
- In 2.1 it adjusts the default to be 115200

Deletions

- set server api-password [<password:string>]

8. ZyPer Management Platform additions, changes, and deletions

Additions

Thumbnail (preview video)

- Preview video toggle
    - Clicking on the source or display 4k or UHD icon tooltip
    - Clicking on the center of the source or display Icon
- Viewing Modes
    - Preview Mode
    - Join Mode
- Big Preview video
   - Enable
    - Disable

Changes

Sources Panel

- Right and Left Click behavior simplified
- Right-Click anywhere in the thumbnail to call up context menu options
- Left-Click on the 4K or UHD device notation to toggle preview stream on
- Left-Click anywhere in the thumbnail to toggle preview stream off
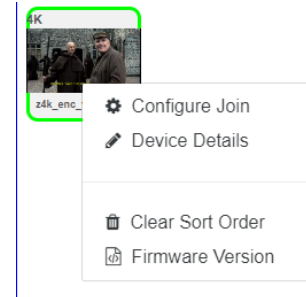
Displays Panel

- Right and Left Click behavior simplified
- Right-Click anywhere in the thumbnail to call up context menu options
- Left-Click anywhere in the thumbnail to toggle preview stream on or off
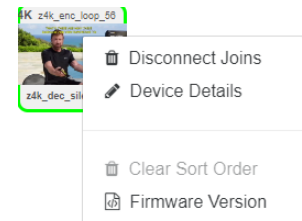
Tap-Tap Video Join

- Not supported in Preview Mode
- Must be in Join mode
    - Tap Source to select, then tap Display to Join using the default Join Config

See Appendix A – New Features for more information

9. Upgrading and Downgrading

Unique update files required for each platform

Starting with release v1.8, the ZyPer MP update file will be available in three, platform-specific versions. Please use the correct version for the hardware platform being updated.

File name examples:

- ZyPerMP NUC computer: update_nuc_2.1.35xxx.zyper
- ZyPerMP Proserver: update_proserver_2.1.35xxx.zyper
- ZyPerMP VMware: update_vm_2.1.35xxx.zyper

Known issues with upgrading and downgrading

Effected Versions	Issue	Effected Hardware	Workaround
Moving to 1.7.4 from prior versions	The ZMP Generation 2 can only be upgraded through the service rcServer update command	ZMP NUC generation 2	The process is shown below From the ZMP OS command line perform the below commands. sudo service rcServer stop sudo service rcServer update /srv/ftp/files/update_...
Moving back to 1.7.4 after being upgraded	The ZMP Generation 3 comes installed with 1.7.4.33922 pre-installed and is upgradable. However, in a downgrade scenario after upgrade, it cannot be downgraded to anything less than 1.8.34961	ZMP NUC generation 3	If downgrading, you will need to go to 1.8.34961
Downgrading to 1.7.1	Downgrading to 1.7.1X version of the software will require the user to clear the cache in order to see the "Roles or Users" panel.	ZMP NUC generation 1 and 2	Clearing the browser Cache
Upgrading from a version prior to 1.6	There is reduced support in downgrading due to the extensive additions to the newer versions. In particular the 1.3 to 1.4 versions require additional steps to recover from the change in database tables, fields and features that are not present at the time of the original version.	ZMP NUC generation 1 and 2	Due to this all 1.3 and 1.4 versions should be upgraded to 1.6 prior upgrading to the new releases
Upgrading to 1.6 and above	1.5.2 cannot upgrade to releases above 1.7.X through the GUI due to the file size limitations of the new release.	ZMP NUC generation 1 and 2	Upgrading to 1.6 first will allow GUI upgrades. Alternatively upgrading using the API will work as well.
Downgrading to 1.6 or 1.5.2	If downgrading to 1.5.2 or 1.6, you may have to clear the browser cache before logging back in to the MaestroZ – A error may occur in the browser alerting you to a cert error, this was	ZMP NUC generation 1 and 2	Clearing the browser cache

	actually due to the login to the REST server (which is not present on version prior 1.7.X), the browser may maintain this login path on the next login until the cache is cleared.		
Downgrading to 1.6 or 1.5.2	If downgrading to either 1.5.2 and 1.6, the user in MaestroZ will not be able to add zones. This is due to the "datetime" format change in the zone table when Maria DB replaces MySQL. Reverting back keeps Maria DB thus the command sent to create the zone fails because of the format mismatch of the datetime.	ZMP NUC generation 1 and 2	N/A

Other Notes: Beginning in 1.7.4 there is a saved file that includes the export from the database prior update. This can be used to restore the database to the state it was in prior the upgrade. The file is called: zyper.*zyperversion*.sql and resides on the ZMP under the folder: /srv/ftp/files. Where "zyperversion" is the version the system was on prior the upgrade.

For versions prior 1.8, please follow the below upgrade path

Starting Version	Jump 1	Jump 2	Jump 3	Jump 4
1.1.X	1.3	1.6	1.7.4	2.1
1.2.X	1.3	1.6	1.7.4	2.1
1.3.X	1.6	1.7.4	2.1	
1.4.X	1.6	1.7.4	2.1	
1.5.2.X	1.6	1.7.4	2.1	
1.6.X	1.7.4.	2.1		
1.7.4.X	2.1			

Upgrade and downgrade support for the following platforms of the management server

- ZMP Generation 1
- ZMP new Generation 2 and 3
- VMware
- ProServer

Interface IP type and internet state

- Interface IP type: Defines how the interface acquired it's IP
- Internet state: Defines whether or not the server can reach the outside internet
  - Online – can reach the internet
  - Offline – cannot reach the internet

Appendix A New Features

The following new features were added to 2.1.35872 GA to enhance several areas valued to our customers.

GUI Enhancements:

Preview streams

Components : ZyPer Management Platform GUI

Overview:

Under the ZyPer management platform, we have implemented preview video as a feature for ZMP 2.1.

The preview video stream originates from the ZyPerUHD or ZyPer4K encoder, this is available with the combination of the latest endpoint device firmware and ZMP 2.1 (andabove) software. After the upgrades, the feature is automatically enabled. Although this feature originates from the encoder only, we have the ability using our GUI to show the video on the decoder that the encoder is connected to. This allows the viewer to see the source video that is being sent to the device in one second increments displayed on both the encoder and decoder icons. The video appears within the source or display Icon itself and video is rendered in a rectangular space in the middle of the icon. In this new mode, video can also be enabled to show larger when hovered over with the mouse. The preview video is able to be configured for HLS under the ZyPer Management GUI. The API will allow you to also configure a JPEG format, in which can be seen from a third-party player (also in 1 second increments). The underlying control was built into the API to allow the user to enable and disable the stream and select the hls or jpeg types. When the stream is enabled, the device sends the preview video to the management server where it is then fetched by the GUI via a an embedded media player in the browser . To support the new feature, new config andstatus fields along with a new "show preview-streams" command was added.additional preview.

ZyPer Management Platform GUI Preview Video (Thumbnail)

Changes :

- Mode added to change from join to preview mode
- Preview on and off controls were added to GUI.
- Controls were added to support the big preview video on hover
- Logging added to provide output on preview changes

Details: Preview video is now supported for ZyPer4K and ZyPerUHD Encoders, with the newly added device firmware the feature is unlocked to allow a user to select devices andshow preview video from the encoder on the Source or Display Icons. A new mode was created to allow the user to turn on the video preview where by clicking on the device "type" logo or the center area of the source or display icon.

When disabling preview video on the GUI, the preview stream itself only stops when the last active source or device showing preview video from the particular encoder is stopped, otherwise the video displayed on the icon will just be stopped.

Operation:

Enabling Preview mode: To enable this new feature, the mode under the top right gear icon will need to be set to "Video Preview Mode".
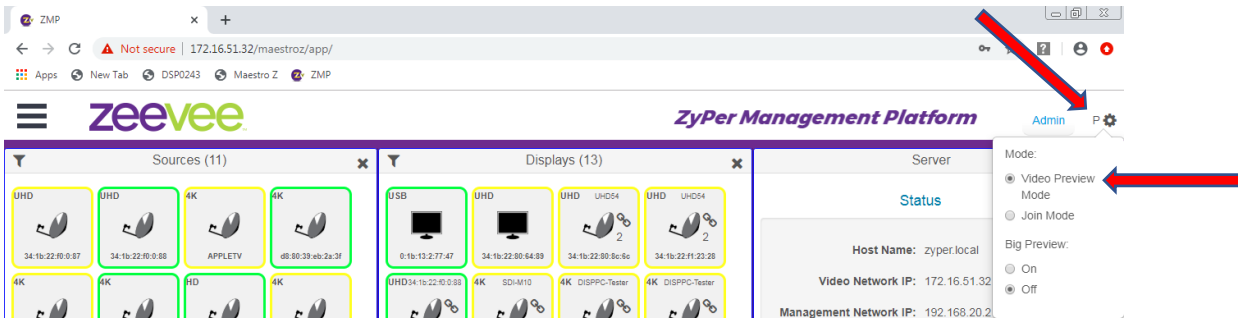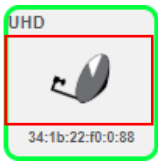
Enabling the Preview Video

Source Panel - To turn "on" the preview video for the source

- Clicking on the Hardware Type link in the top left-hand corner of the Icon.

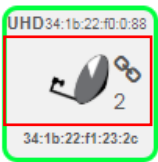Clicking the middle area of the Icon (anywhere shown in the Red box)

- Display Panel **-** To turn "on" the preview video for the Display

Clicking on the Hardware Type link in the top left-hand corner of the Icon.

Clicking the middle area of the Icon (anywhere shown in the Red box)

Disabling Preview Video

- Source Panel **–** To turn "off" the preview video for the source

  Clicking on the Hardware Type link in the top left-hand corner of the Icon.

  Clicking the middle area of the Icon (anywhere shown in the Red box)

- Display Panel **–** To turn "off" the preview video for the display

  Clicking on the Hardware Type link in the top left-hand corner of the Icon.
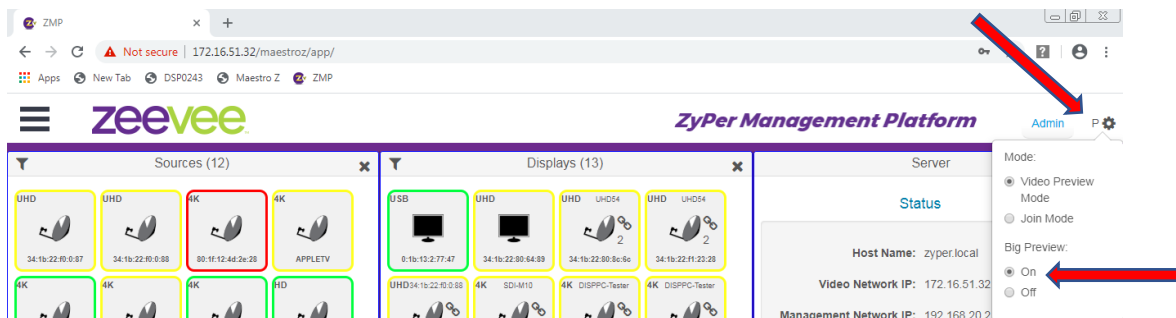

  Clicking the middle area of the Icon (anywhere shown in the Red box)
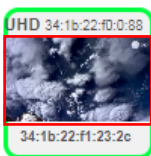
Enabling Big Preview video

By default, big preview is disabled, however if you would like to enable this, simply go to the upper right-hand side of the GUI, select the gear icon and select "Big Preview"

When you hover over the preview video, it will enlarge in size in order to show the user that they are over the particular Source or Display icon.

Before and after the hover over with the mouse with "Big Preview" enabled.

Appearance and States

- Preview video in this mode is enabled as an HLS stream from the server for the encoder device in question.
- The preview video should be displayed on the GUI under the Device it is enabled on within 8 to 10 seconds.
- The preview video will show video in approximately 1 second image intervals of the video.
- Starting the Decoder preview alone will enable the preview stream on the encoder even though the encoder preview is not running. This is because the Preview video is only present on the encoder device.
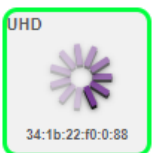
Active preview – Active video example

- Seen on the Encoder or Decoder when video is running.

Pin Wheel – Pin Wheel State

- Seen on the Encoder or Decoder when attempting to start a Preview video, usually starts within 8 to 10 seconds.
- Seen on the Encoder or Decoder when the Stream is stopped on the API or by another GUI instance.

The following device states will respond on the GUI as if they were in "Join Mode" even when "Video Preview Mode" is enabled.

- Devices that are non-preview enabled like ZyPerUSB type or ZyPerHD.
- Decoders not connected to any Encoder devices
- Encoders that do not receive any video from the source.
- Devices with HDMI cable connected status of false (Yellow)
- Offline preview enabled devices

Logging: Logging was added to indicate the following for this feature

- Turning on or off the preview streams
- When a preview video is turned on or off for a device
- When the max preview streams have been started.

Limitations:

- Video will be about 10 seconds slower than what is coming from the source to the encoder.
- Maximum preview videos at a time enabled: 20 per Source panel, 20 per Display panel.
- Without internet access on the ZyPer Management Platform GUI machine, the react player will not be accessible for download for the GUI. This will prevent preview video from being displayed. The user will have to connect the machine to the internet to allow the react player to load. Doing so requires the user to attempt to enable a preview video on the GUI's devices while internet is assessable. Once loaded, disconnecting from the internet is possible, however if the Browser cache ever becomes cleared the same steps above will be needed to download the player once more.
- In the API, a user can execute a command to stop a preview stream which the GUI will not detect. This places the GUI into a state that shows the Pinwheel for a device that had the video enabled. Upon stopping and starting the preview using the GUI will bring the video back. In addition, if another GUI starts the stream again, or if the API starts the stream again, the GUI will recover the preview video on the Icon automatically.
- Multiview connections on the ZyPer4K decoders are not available as preview video due to their nature.

Known issues:

- Sometimes the preview video will not start in the GUI, the pinwheel will appear or the icon will appear blank for the video being played. If this happens the user may either stop and start the preview again or refresh the browser to display the video.

API Enhancements

Preview Stream Control for the API

Components: ZyPer Management Platform API

Overview: API commands were added to control preview stream start and stopping. Along with these commands, additional status and config fields were added in order to provide feedback for the feature. A dedicated "show preview-streams" command was added to summarize the state of all previews on the system.

Changes:

- Added new command to start and stop preview stream
- Added new command to select the preview stream type (hls or jpeg)
- Added new fields for config and status show device command output
- Added new show preview-streams commands to show the preview stream status

Operation:

Turning on the Preview stream

To turn on a preview stream use the below command to enable it on the encoder.

preview-stream <encoderMac|encoderName> start jpeg|hls

Turning off the Preview stream

preview-stream <encoderMac|encoderName> stop

Specifying the type of video stream

Under the start function the user will have to choose either jpeg or hls, the GUI only shows hls streams only

Show device config update

device.preview-stream; mode=enabled, type=hls, width=auto

- **mode:** whether or not the stream is enabled, disabled is off, however could also mean not supported if older firmware.
- **Type:** the type of stream selected to be started, options are hls or jpeg.
- **width:** if the user decides to specify a width (default is auto)

Show device status update

device.preview-stream; status=up, recvData=true

- **status:** if the stream is detected
- **recvData:** if the video data is being received. If false below are the possible states
  - preview stream is stopped
  - source video stopped or the source is offline.
  - hdmi cable on the encoder is disconnected
  - no video data is being sent from the encoder.

Show preview-streams command

The below command can be used to output all the preview data for all encoders.

show preview-streams

device UHD54; mode=disabled; status=down; recvData=false; type=hls; width=auto
device 34:1b:22:f0:0:88; mode=enabled; status=up; recvData=true; type=hls; width=auto
device UHDDF; mode=disabled; status=down; recvData=false; type=hls; width=auto
device SDI-M10; mode=disabled; status=down; recvData=false; type=hls; width=auto
device APPLETV; mode=disabled; status=down; recvData=false; type=hls; width=auto
device FIOS-VGA-LG; mode=enabled; status=up; recvData=true; type=hls; width=auto

Preview Stream JPEG example with a third-party player.

In order to use the jpeg format for the preview stream, you will need to use a third-party player like "VLC" in order to view the jpeg files stored on the management platform.

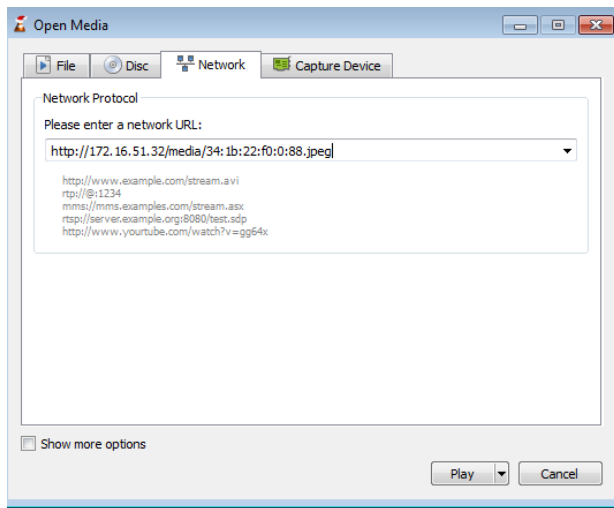**To view the preview stream open VLC player and follow the below steps.**
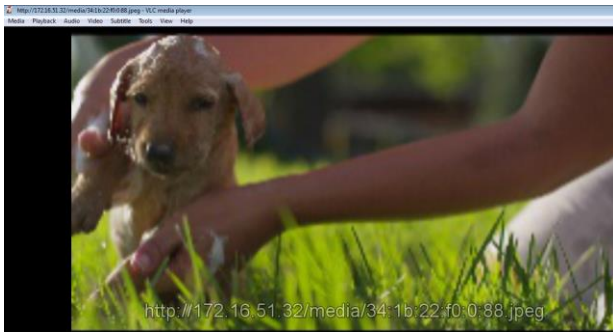
1) **Open VLC, and select Play**
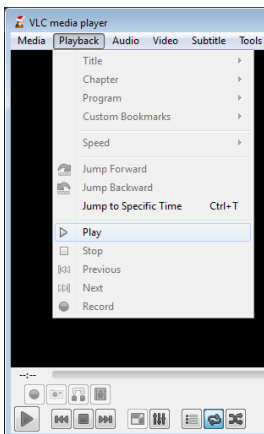
2) Select the network tab and place the URL for the jpeg file under the URL.

The path will contain the IP of the MP followed by the media folder and the name of encoder that has the preview video enabled for jpeg

http://172.16.51.32/media/34:1b:22:f0:0:88.jpeg

2) **Click play and the jpeg file should be shown.**

Manual Device Add Support

Components: API management, ZyPerUHD and ZyPer4K endpoint devices.

Overview: In this release we now have the ability to manual add devices. This was provided to support the addition of devices on other subnet, allowing the system to control and allocate these device resources**.**

Devices will need to obtain an IP address on the subnet which the user will need to obtain from the DHCP server lease (cross referencing the MAC to the provided IP) or configured for a static IP address then disconnected from the network and reconnected on the remote subnet.

Once the commands to add the device are made, the device should be seen by the server and be configurable.

Changes:

- New command to add a device manually via IP address
- New "show device" command to show user added devices only

Adding a manual device can be done as follows through the API.

- Make sure that you have a routable network from the ZyPer Management platform to the endpoint device
- Record the IP of the manual added endpoint device
- Execute the following command

add device ip-address <ip>

After the add of the device the below information will appear under the device status and config until the device is found on the network.

Zyper$ add device ip-address 172.16.51.222
Success

Appearance and States:

Output of the config command

Zyper$ show device config 172.16.51.222
device(0:0:0:0:0:0);
  device.gen; model=Zyper4K, type=unknown, name=unknown, state=undiscovered, lastChangeId=0
  device.ip; address=172.16.51.222
lastChangeIdMax(964530);

Output of the status command

Zyper$ show device status 172.16.51.222
device(0:0:0:0:0:0);
  device.gen; model=Zyper4K, type=unknown, name=unknown, state=undiscovered, lastChangeId=0
  device.ip; address=172.16.51.222
lastChangeIdMax(643781);

In addition to the status and config output a new command was added to the show device command to show all user added devices.

Output of the show user added devices

Zyper$ show device user-added
device(0:0:0:0:0:0);
  device.gen; model=Zyper4K, type=unknown, name=unknown, state=undiscovered, lastChangeId=0
  device.ip; address=172.16.51.222

After the Device discovered and device information is found.

Output of the config command

Zyper$ show device config 172.16.51.222
device(d8:80:39:9b:9:a2);
  device.gen; model=Zyper4K, type=encoder, name=DISPPC-Tester, state=Up, lastChangeId=964564
  device.gen; firmware=4.0.1.0
  device.gen; ethernetManagementPortMode=enabled
  device.hdmi; hdcpMode=enabled
  device.ports; videoPort=auto

  device.ip; mode=static, address=172.16.51.222, mask=255.255.255.0, gateway=172.16.51.1
  device.rs232; sendingToMacOrIp=Large-SAM(172.16.51.53), terminationChars=\x0A\x0D, baudrate=57600, dataBit=8,
stop_Bit=1, parity=none
  device.ir; sendingToMacOrIp=none(0.0.0.0)
  device.source; iconImageName=GenericVideoSource, manufacturer=Unknown, model=Unknown, location=Unknown,
serialNumber=Unknown
  device.audioOutSourceType; analogOutSourceType=none
  device.hdmiAudioIn; format=server-default
  device.usb; filter=none
  device.usbDownlinks; [none]
  device.sendIpMcastRange; first=224.1.1.1, last=224.1.3.255
  device.videoStream; ipMcastAddr=224.1.1.4, mode=enabled
  device.videoScaledStream; ipMcastAddr=0.0.0.0, mode=disabled
  device.analogAudioIpMcast; ipAddr=0.0.0.0, mode=disabled
  device.hdmiAudioIpMcast; ipAddr=224.1.1.9, mode=enabled
  device.preview-stream; mode=disabled
lastChangeIdMax(964747);

Output of the status command

Zyper$ show device status 172.16.51.222
device(d8:80:39:9b:9:a2);
  device.gen; model=Zyper4K, type=encoder, name=DISPPC-Tester, state=Up, uptime=6d:0h:51m:9s,
lastChangeId=48041
  device.temperature; main=58C
  device.firmwareUpdate; status=idle, loadingFile=none, percentComplete=0
  device.hdmiInput; cableConnected=disconnected, hdcp=NA, hdcpVersion=NA, hdmi2.0=NA, horizontalSize=NA,
verticalSize=NA, fps=NA, interlaced=NA
  device.hdmiInput; hTot=NA, hBlank=NA, hFront=NA, hSync=NA, hPol=NA
  device.hdmiInput; vTot=NA, vBlank=NA, vFront=NA, vSync=NA, vPol=NA
  device.hdmiInput; pixelClock=NA, colorEncoding=NA, colorDepth=NA, colorSpace=NA, colorQuantRange=NA
  device.autoEdid; mode=enabled
  device.edid; sourceType=file, sourceFilename=zyper4k60-hdr
  device.edid; edidStatus=valid, edidMonitorName=z4k60Hdr
  device.edid; firstDescriptorPreferredResolution=yes
  device.edid; maxFps=61.00, maxPixelClockMhz=600.00, maxDeepColorPixelClockMhz=600.00, rgbColorDepth=12,
yuv420ColorDepth=12
  device.edid; only420=none, also420=3840-60+3840-50+3840-30+4096-60+4096-30+4096-50, yuvQuantRange=default,
rgbQuantRange=from-avi-info-frame
  device.edid.audio.PCM; channels=8, sampleRates=48hz-44.1hz-32hz, sampleBits=16-20
  device.edid.preferredResolution; pixelClockMhz=594.00, sizeX=4096, sizeY=2160, fps=60.00
  device.edid.maxResolution; pixelClockMhz=594.00, sizeX=4096, sizeY=2160, fps=60.00
  device.videoStream; inputFps= 0.00, inputDatarate=6967Mbps, compressionFactor= 1.00, streamFps= 0.00,
streamDatarate=0Mbps
  device.videoScaledStream; inputFps= 0.00, inputDatarate=6967Mbps, streamFps= 0.00, streamDatarate=0Mbps
  device.preview-stream; status=down, recvData=false
lastChangeIdMax(643953);

Output of the show user added devices

```
Zyper$ show device user-added
device(d8:80:39:9b:9:a2);
  device.gen; model=Zyper4K, type=encoder, name=DISPPC-Tester, state=Up, uptime=6d:0h:51m:25s,
lastChangeId=48041
  device.ip; address=172.16.51.222
```

Deletion of Manual Added devices

To delete a manual added device, the user has the below options.

Delete using the IP

delete device 172.16.51.222

Delete using the MAC

delete device d8:80:39:9b:9:a2

Delete using the name

delete device DISPPC-Tester

Known issues

Under the delete of a manual added device, the IP of the device is not shown under the auto complete until the device is discovered, to delete the device via IP you will need to obtain the IP from the config or status outputs.

Disabling Telnet on the Management platform

Components: Zyper Management API

Overview: To Increase Security under this version we are providing the ability to disable telnet under the management platform, change the telnet passrd and alter the SSH password.

This is available under all server types we offer.

Details: Disabling the Telnet on the MP will prevent the access to the Zyper Management Server through Telnet. This was made available in order to reduce security risks for certain customers. To re-enable the telnet server, access to the server via ssh would need to be made and the proper credentials entered. From here resets can be made. There is also a sftp file placement that can be made to reset the configuration for telnet.

Currently there are the below access controls on the Management servers.

- Telnet login password enablement and configuration – Allows the user to configure a password for the zyper user for telnet access to the server API.
- SSH login password configuration – Allows the user to configure a password for SSH access to the Management Server. (4 to 64 characters)
- Telnet disable/enable control.

Changes:

- New commands under the "set server" for telnet to set mode or set the telnet password
  - Mode: Sets telnet to enabled or disabled
  - Password: sets the telnet password, is alphanumerical and can contain special characters
- Support added to the server to read in files placed in the /srv/ftp/files folder for resetting the default telnet settings and config.
  - defaults ← Resets all config including Telnet mode
  - defaultPasswords ← Resets all Passwords to default (Telnet is set to no password, ssh is set back to zyper).
- New command added to the "set server" for ssh to set the password for ssh zyper login.
  - set server ssh password
- Deprecated command
  - set server api-password <pw>

Operation:

Telnet enable and disable

- **In order to disable telnet, the below API command will need to be executed:**
  - set server telnet mode disabled
- **In order to enable telnet, the below steps will be required:**
  - Login to the server using ssh (zyper login and password)
  - Set server telnet mode enabled
- **In order to enable telnet using the "defaults" ftp file method: (WARNING this will clear all configurations on the server including device, multiview, wall and zones.**
  - ftp the empty file named "defaults" to the MP
  - If the MP is power cycled within 1 minute, when it comes back the full config including telnet mode to enabled will be reset.

Setting Telnet Password

- **In order to set the telnet password, execute the below command under the API**
  - set server telnet password <desired password>
- **In order to set the telnet password to no password (default), execute the below command under the API**
  - set server telnet password none
- **In order to reset the telnet password using the "defaultPasswords" ftp file method:**
  - ftp the empty file named "defaultPasswords" to the MP
  - If the MP is power cycled within 1 minute, when it comes back the telnet and ssh passwords should be reset to default.

Setting SSH Password

- **In order to set the ssh password, execute the below commands under the API**
  - set server ssh password <desired password>
- **In order to set the ssh password back to "zyper" (default), execute the below command under the API**
  - set server ssh password zyper
- **In order to reset the ssh password using the "defaultPasswords" ftp file method:**
  - ftp the empty file named "defaultPasswords" to the MP
  - If the MP is power cycled within 1 minute, when it comes back the telnet and ssh passwords should be reset to default.

Appearance and States

When telnet is disabled it will appear in the "show server config" output as shown below by a ssh session to the server.

Zyper$ show server config
server(172.16.51.32);
  server.gen; autoEdidMode=enabled, redundancy=enabled
  server.ip-server-address; mode=dhcp, address=172.16.51.32
  server.ip-management-address; mode=static, address=192.168.20.2, mask=255.255.255.0, gateway=none
  server.telnetAccess; mode=disabled
  server.encoder-defaults; hdmi-audio-format=force-pcm
  server.data-transfer; telnet=telnet-handshake-mode
  server.logging; level=1

During testing the below results were exhibited

Telnet

- **Test Case - Setting the Telnet Password and attempt to login with a different password –** Error shows "incorrect password" times out after 3 attempts.
- **Test Case - Attempted to login with a blank password –** Error shows "incorrect password" times out after 3 attempts.
- **Test Case - Set the password back to "none" and login –** Success, login remotely and locally functions as expected.
- **Test Case - Turn off Telnet and try to login –** Message indicates that the server needs to be rebooted to complete disabling telnet. After reboot, telnet access was refused, the ssh connection functioned, confirmed under the "show server config" output that the telnet was disabled.
- **Test Case - Turn on Telnet and try to login again –** Turning on Telnet was successful and did not require a reboot of the server. Logging in was permitted and the "show server config" showed the telnet was enabled.
- **Test Case - Try above testing after a power cycle of the Management Server testing enabled or disabled modes-** Confirmed that the Telnet mode held after reboot or power cycle of the server.
- **Test Case - Test restore Password to default with ftp'd file** – Recovered Passwords for ssh and telnet to default enabled mode.
- **Test Case - Test restore config defaults with ftp'd file** – Telnet password was reset, server configuration was reset
- **Test Case - Data connect with Telnet disabled –** With Telnet disabled the teraterm was able to connect and send the hex file. I believe this to be working as expected, because only the telnet to the rcSserver is turned off.

SSH

- **Test Case - Changed the SSH password and attempt to login with the correct login and password -** Successful.
  - **Tried special characters -** most work, open params and closed params do not, Quotations are able to be set, but ending spaces are trimmed off the password.
  - **Tried spaces –** Found that spaces are trimmed at the end or beginning of the password. Spaces entered in between are seen as a new argument, so they generate an error informing the user.
  - **Tried Max Limit (64) –** Max Characters set works, if you enter, more than the maximum, a message occurs regard max length being 64
  - **Tried Min Limit (4) –** Produced an error if under minimum explaining it was too short
- **Test Case - Attempt to login with a different login -** Failed login as expected.
- **Test Case - Attempt to login with a different password –** Received access denied on password entry
- **Test Case - Attempt to login with a blank login –** Received access denied on password entry
- **Test Case - Attempt to login with a blank password -** Received access denied on password entry

Limitations:

for this feature to take full effect.

Multiview Enhancement: Overlays

Components: Zyper Management API, Multiview

Overview: In 2.1 we have added the functionality to display overlays under each of the multiview encoders video. This feature is accessible through the API, along with new commands to configure, label and position the overlay. The text properties consist of the below settings.

- The Text itself
- Title position
- Text size
- Text color (foreground and background)
- Text Transparency (foreground and background)

Details: The feature is enabled upon the upgrade to 2.1 and the latest end point device firmware. Upon upgrade the feature will be automatically available and the user can begin to configure overlay text to the multiview windows. The overlay is applied to the encoder side, if the specified encoder is shared with other multiviews, the last multiview configuration joined will applythe overlay to the encoder.

Changes: The below changes were made to support the overlay

- Changes to the multiview status window to reflect the addition of "titleStatus" .
- Changes to the multiview window command to allow the overlay to be added and configured.
- Added a new parameter to "show multiview" for title config and text for each configured window.

Operation:

To configure overlay on multiview windows the below steps should be considered.

Assigning text to a multiview encoder window.

set multiview <multiview_name> window-number <window_number> title text <desired text>

Assigning position

set multiview <multiview_name> window-number <window_number> title position <desired position>

Valid values

- bottom-center
- bottom-left
- bottom-right
- top-center
- top-left
- top-right

Assigning Text Size

set multiview <multiview_name> window-number <window_number> title text-size

Valid values

- 1 to 10

Assigning color for the foreground and background

set multiview <multiview_name> window-number <window_number> title color <color> background-color <color>

Valid values

- Any Hex Designation for basic color identification or one of the following predefined colors.

- black
- blue
- brown
- cyan
- darkBlue
- gray
- green
- lightBlue
- lightGray
- lime
- magenta
- maroon
- olive
- orange
- purple
- red
- silver
- white
- yellow

Assigning Transparency for the foreground and background

set multiview JMV window-number 1 title transparency text <percentage> background <percentage>

Valid values

- 0 to 100

Removing Overlay title from a multiview window.

set multiview JMV window-number 1 title none

Appearance and States

2X2 - Note the Red, Cyan, purple and white test at the top center of the screen

Zyper$ show multiviews titles config
multiview(JMV);
  multiview.gen; audioSourceWindow=none, canvas-width=3840, canvas-height=2160
  multiview.window1; position=top-center, textSize=7, textColor=red, backgroundColor=black, textTransparency=0, backgroundTransparency=0
  multiview.window2; position=top-center, textSize=7, textColor=cyan, backgroundColor=black, textTransparency=0, backgroundTransparency=0
  multiview.window3; position=top-center, textSize=7, textColor=purple, backgroundColor=yellow, textTransparency=0, backgroundTransparency=0
  multiview.window4; position=top-center, textSize=7, textColor=white, backgroundColor=green, textTransparency=0, backgroundTransparency=0
Success

Zyper$ show multiviews titles text
multiview(JMV);
  multiview.gen; audioSourceWindow=none, canvas-width=3840, canvas-height=2160
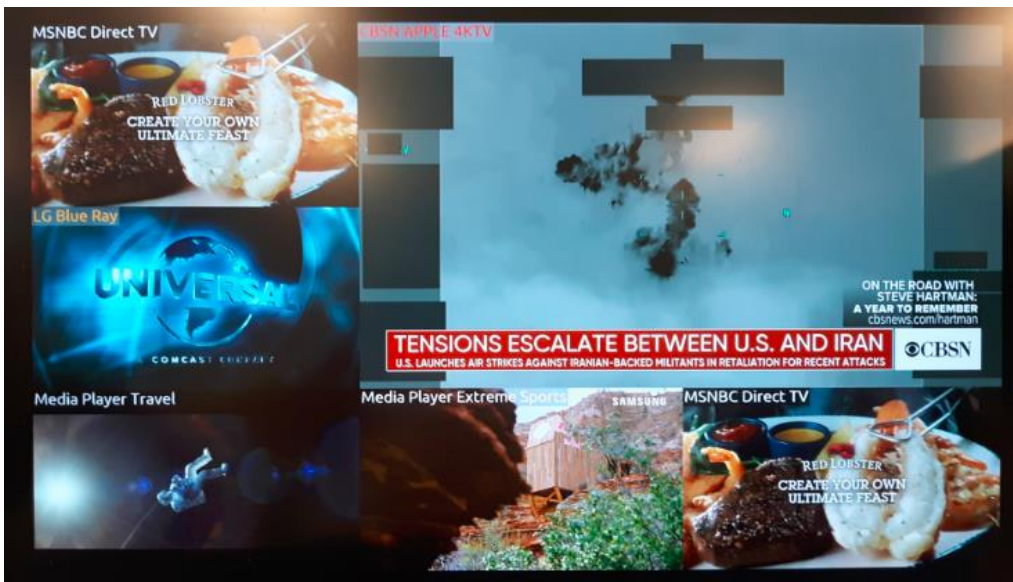 multiview.window1; title=MSNBC Direct TV
  multiview.window2; title=LG Blue Ray
  multiview.window3; title=Media Player Extreme Sports
  multiview.window4; title=CBSN APPLE 4KTV

L-shape

Picture in picture

show multiviews status

Zyper$ show multiviews status
multiview(JMV);
  multiview.gen; totalDatarate=6198Mbps
  multiview.window1; encoder-name=d8:80:39:eb:52:73, encoder-mac=d8:80:39:eb:52:73, streamType=video, datarate=1631Mbps, multicast=224.1.1.4,
titleStatus=active, status=active
  multiview.window2; encoder-name=d8:80:39:ea:ce:8d, encoder-mac=d8:80:39:ea:ce:8d, streamType=video, datarate=1304Mbps, multicast=224.1.1.1,
titleStatus=active, status=active
  multiview.window3; encoder-name=d8:80:39:9a:ac:9a, encoder-mac=d8:80:39:9a:ac:9a, streamType=video, datarate=1632Mbps, multicast=224.1.1.10,
titleStatus=active, status=active
  multiview.window4; encoder-name=d8:80:39:9a:b0:62, encoder-mac=d8:80:39:9a:b0:62, streamType=video, datarate=1631Mbps, multicast=224.1.1.19,
titleStatus=active, status=active

show multiviews title

Limitations:

- Text supported to 132 characters with 1-9 numerical support.
- Once an overlay is applied, any other multiview containing the encoder for the window it was configured for will contain the overlay text. It is because of this the last multiview applied to the decoder will apply it's assigned titles to the shared encoder.

SNMP

Components: Server, API endpoint Devices

Overview: Under this release of ZMP, SNMP has been enabled for use. This includes the configuration of SNMP users, access levels and traps.

Changes: Addition of the below commands were made to support this feature**.**

- add snmp trap-server v2c-trap ip-address <address:ip> community <string>
- add snmp user v2c access-level read-only community <newSnmpCommunity>
- add snmp user v3 access-level read-only auth MD5 encrypted no username <newSnmpUser> password <string
- delete snmp trap-server v2c-trap <address:ip> community <string>
- delete snmp trap-server v3-inform <address:ip> username <string>
- delete snmp user v2c community <snmpCommunity>
- delete snmp user v3 username <snmpUser>
- show snmp trap-servers

- show snmp users

Operation:

Zyper$ add snmp trap-server v2c-trap ip-address 172.16.5.180 community 2
Success

Zyper$ show snmp trap-servers
snmp(172.16.51.32);
  snmp.trap: server=172.16.5.180, community=2

Zyper$ add snmp user v2c access-level read-only community 2
Success

Zyper$ show snmp users
snmp(172.16.51.32);
  snmp.user: version=v2c, community=2

Limitations:

- If redundant ZMP or ProServer configurations exist, any adds, deletes or changes to the snmp configurations needs to be done on both servers.

Appendix B ZyPer Management Platform API commands additions
Alphabetical order

Additions

- add snmp trap-server v2c-trap ip-address <address:ip> community <string>
- add snmp user v2c access-level read-only community <newSnmpCommunity>
- add snmp user v3 access-level read-only auth MD5 encrypted no username <newSnmpUser> password <string
- delete snmp trap-server v2c-trap <address:ip> community <string>
- delete snmp trap-server v3-inform <address:ip> username <string>
- delete snmp user v2c community <snmpCommunity>
- delete snmp user v3 username <snmpUser>
- set multiview <multiviewName> window-number <int> title none
- set multiview <multiviewName> window-number <int> title text <string>
- set multiview <multiviewName> window-number <int> title text-size <int>
- set multiview <multiviewName> window-number <int> title position top-left|top-center|top-right|bottom-left|bottom-center|bottom-right
- set multiview <multiviewName> window-number <int> title color <color-name-or-hexval> background-color <color-name-or-hexval>
- set multiview <multiviewName> window-number <int> title transparency text <percent:int> background <percent:int>
- set server telnet password
- set server telnet mode disabled|enabled
- set server ssh password
- show multiviews titles text
- show multiviews titles config
- show preview-streams
- show snmp trap-servers
- show snmp users
- preview-stream <encoderMac|encoderName> start jpeg|hls [width <int>|auto]
- preview-stream <encoderMac|encoderName> stop