

# OmniStream Pro / R-Type Encoder / Decoder

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CLI Command Set  
JSON over WebSocket  
2.0.0

## Version Information

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| Version | Release Date | Notes                     |
|---------|--------------|---------------------------|
| 15      | May 2023     | Updated for 2.0 firmware. |

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## OmniStream CLI Command Set

This section covers the CLI command set for OmniStream Pro, R-Type encoders/decoders, and OmniStream Wallplate encoders.

Commands can be sent using Telnet, SSH, or RS-232, except where noted. The **Enc** (encoder) and **Dec** (decoder) columns denote the availability of the command on the unit. Some commands are available on both the encoder and decoder. Commands are *not* case-sensitive. If the command fails or is entered incorrectly, then the feedback is "! Command not found". Some commands are restricted to the SSH protocol and will be noted as such.



**IMPORTANT:** Each command must be terminated with a carriage-return (0x0d) and the feedback is terminated with a carriage-return and line-feed (0x0a). In addition, when sending multiple commands, at least 500 milliseconds should be specified between each command.

Refer to the following table for port assignments when using a control system.

| Protocol                     | Port |
|------------------------------|------|
| Telnet (with NVT support)    | 23   |
| Telnet (without NVT support) | 2323 |
| SSH                          | 22   |

### OmniStream Pro

| Command           | Enc | Dec | Description                                                           |
|-------------------|-----|-----|-----------------------------------------------------------------------|
| 8021xMode         | •   | •   | Sets the 802.1x mode for the specified interface                      |
| AnalogPowerEnable |     | •   | Enable or disable the analog power for the specified HDMI output      |
| AnalogPowerStatus |     | •   | Displays the power state for the specified HDMI output                |
| AudioActiveInput  |     | •   | Displays the active audio input for the specified HDMI output         |
| AudioActiveStatus |     | •   | Displays the audio status for the specified HDMI output               |
| AudioBackupInput  |     | •   | Sets the backup audio input for the specified HDMI output             |
| AudioBackupMode   |     | •   | Sets the backup audio mode for the specified HDMI output              |
| AudioDestIP       | •   |     | Sets the destination audio IP address for the specified session       |
| AudioDestPort     | •   |     | Sets the destination audio port for the specified session             |
| AudioEnable       | •   |     | Enable or disable the audio for the specified session                 |
| AudioInput        |     | •   | Sets the audio input for the specified HDMI output                    |
| AudioMute         |     | •   | Enable or disable muting on the specified HDMI output                 |
| AudioSapAlways    | •   |     | Enable or disable AES67 stream information over the specified session |
| AudioSource       | •   |     | Sets the HDMI audio source for the specified session                  |
| AudioToBackup     |     | •   | Assigns the active audio input as the backup audio input              |
| AudioToPrimary    |     | •   | Assigns the active audio input as the primary audio input             |
| AudioVolume       |     | •   | Sets the output volume on the specified HDMI output                   |
| AuxBidirectional  | •   |     | Enable or disable bidirectional control for the specified session     |
| AuxDecodeInput    |     | •   | Sets the auxiliary input for the specified HDMI output                |
| AuxDestIP         | •   |     | Sets the auxiliary destination IP address for the specified session   |
| AuxDestPort       | •   |     | Sets the auxiliary destination port for the specified session         |
| AuxEnable         | •   |     | Enable or disable the auxiliary channel for the specified session     |
| AuxListenPort     | •   |     | Sets the auxiliary channel listening port for the specified session   |
| AuxSource         | •   |     | Sets the serial port for the specified session                        |
| Broadcast         | •   | •   | Enable or disable broadcast mode                                      |
| DisplayBtn        | •   |     | Sends the specified command to the desired HDMI output                |

## OmniStream CLI Command Set

| Command                 | Enc | Dec | Description                                                                        |
|-------------------------|-----|-----|------------------------------------------------------------------------------------|
| Descramble              |     | •   | Enables or disables descrambling for the specified HDMI output ( <b>SSH only</b> ) |
| DescrambleKey           |     | •   | Specifies the descrambling key for the specified HDMI output ( <b>SSH only</b> )   |
| EDIDMSet                | •   |     | Sets the EDID for the specified HDMI input                                         |
| EnableAES67             | •   | •   | Enables or disables AES67 on the specified session                                 |
| EncoderBitDepth         | •   |     | Sets the bit depth for the specified encoder                                       |
| EncoderBitRate          | •   |     | Sets the bit rate for the specified encoder                                        |
| EncGroup                | •   |     | Enables or disables sessions within an encoder group.                              |
| EncGroup                | •   |     | Sets the input for the specified encoder                                           |
| EncoderScaler           | •   |     | Sets the scaler resolution for each encoder                                        |
| EncoderSubSample        | •   |     | Sets the chroma subsampling value for the specified encoder                        |
| FastSwitching           |     | •   | Enable or disable Fast Switching on the HDMI output                                |
| FrontPanelLock          | •   | •   | Locks or unlocks the buttons on the front panel of the unit                        |
| HDCPSet                 | •   | •   | Sets the version of HDCP for the specified HDMI input/output                       |
| Help                    | •   | •   | Displays the list of available commands                                            |
| Identify                | •   | •   | Flashes the LED indicators on the front panel for 10 seconds                       |
| Input                   | •   |     | Displays information about the specified HDMI input                                |
| InputBtn                | •   |     | Sets the input by emulating the front-panel INPUT button                           |
| IPCFG                   | •   | •   | Displays IP configuration for the specified interface                              |
| IPDHCP                  | •   | •   | Enable or disable DHCP mode on the specified interface                             |
| IPInputEnable           |     | •   | Enable or disable the specified input                                              |
| IPInputFilterAddr       |     | •   | Sets the filter address(es) for the specified IP input                             |
| IPInputFilterMode       |     | •   | Sets the mode for filter addresses                                                 |
| IPInputInterface        |     | •   | Sets the interface for the specified IP input                                      |
| IPInputMulticast        |     | •   | Sets the multicast address for the specified IP input                              |
| IPInputPort             |     | •   | Sets the listening port for the specified IP input                                 |
| IPLogin                 | •   | •   | Enable or disable login authentication for Telnet/NVT                              |
| IPPort                  | •   | •   | Sets the Telnet listening port for the specified interface                         |
| IPQuit                  | •   | •   | Exits the CLI                                                                      |
| IPStatic                | •   | •   | Sets the static IP address for the specified interface                             |
| IPTimeout               | •   | •   | Sets the timeout interval in seconds                                               |
| License                 | •   | •   | Installs the specified license key                                                 |
| Mclear                  | •   | •   | Resets the unit to empty configuration                                             |
| Mreset                  | •   | •   | Resets the unit to factory-default settings                                        |
| MultiviewBackground     |     | •   | Sets the multiview background color                                                |
| MultiviewSubframeConfig |     | •   | Sets the anchor point, offsets, and z-order for the specified subframe             |
| MultiviewSubframeInput  |     | •   | Assigns an IP Input to a subframe                                                  |
| Quit                    | •   | •   | Exits the CLI                                                                      |
| Reboot                  | •   | •   | Reboots the unit                                                                   |
| SapEnable               |     | •   | Enable or disable the Session Announcement Protocol (SAP)                          |
| SerialBaud              | •   | •   | Sets the baud rate for the specified serial port                                   |
| SerialData              | •   | •   | Sets the number of data bits for the specified serial port                         |
| SerialDestEnable        | •   | •   | Enable or disable bidirectional data flow for the specified serial port            |
| SerialDestIP            |     | •   | Sets the destination IP address for the bidirectional serial port                  |
| SerialDestPort          |     | •   | Sets the destination port for the bidirectional serial port                        |
| SerialInput             |     | •   | Sets the input port for the serial port                                            |
| SerialInterface         |     | •   | Sets the interface for the specified serial port                                   |

## OmniStream CLI Command Set

| Command            | Enc | Dec | Description                                                                  |
|--------------------|-----|-----|------------------------------------------------------------------------------|
| SerialMode         |     | •   | Sets the serial mode for the specified serial port                           |
| SerialParity       | •   | •   | Sets the parity bit for the specified serial port                            |
| SerialPort         | •   | •   | Sets the serial port to the specified port                                   |
| SerialStop         | •   | •   | Sets the number of stop bits for the specified serial port                   |
| SessionScramble    | •   |     | Enables or disables scrambling for the specified session ( <b>SSH only</b> ) |
| SessionScrambleKey | •   |     | Sets the scrambling key for the specified session ( <b>SSH only</b> )        |
| SetCmd             | •   | •   | Specifies the defined command to be sent over RS-232                         |
| SlateLogo          | •   | •   | Sets the slate logo for the specified HDMI input/output                      |
| SlateMode          | •   | •   | Sets the slate mode for the specified HDMI input/output                      |
| Temperature        | •   | •   | Displays the system and die temperature                                      |
| TrigCEC            |     | •   | Triggers the specified command over the specified HDMI output                |
| TrigRS232          |     | •   | Triggers the specified command over the desired RS-232 port                  |
| Type               | •   | •   | Displays the device type                                                     |
| Version            | •   | •   | Displays the firmware version                                                |
| VideoActiveInput   |     | •   | Displays the active input for the specified HDMI output                      |
| VideoActiveStatus  |     | •   | Displays the status of the specified HDMI output                             |
| VideoAspect        |     | •   | Sets the aspect ratio for the specified HDMI output                          |
| VideoBackupInput   |     | •   | Sets the backup input for the specified HDMI output                          |
| VideoBackupMode    |     | •   | Sets the backup mode for the specified HDMI output                           |
| VideoDestIP        | •   |     | Sets the video destination IP address for the specified session              |
| VideoDestPort      | •   |     | Sets the video destination IP port for the specified session                 |
| VideoEnable        | •   |     | Enable or disable the video for the specified session                        |
| VideoEncoder       | •   |     | Sets the encoder input for the specified session                             |
| VideoFECColumns    | •   |     | Sets the number of the FEC columns for the specified session                 |
| VideoFECEnable     | •   |     | Enable or disable FEC for the specified session                              |
| VideoFECRows       | •   |     | Sets the number of the FEC rows for the specified session                    |
| VideoInput         |     | •   | Sets the video input to the specified HDMI output                            |
| VideoRes           |     | •   | Sets the video resolution of the specified HDMI output                       |
| VideoToBackup      |     | •   | Assigns the active video input to become the backup video input              |
| VideoToPrimary     |     | •   | Assigns the active video input to become the primary video input             |
| VideoWallArray     |     | •   | Sets the video wall size in rows and columns for the specified HDMI output   |
| VideoWallEnable    |     | •   | Enable or disable the video wall for the specified HDMI output               |
| VideoWallPos       |     | •   | Sets the video wall position in rows/columns for the specified HDMI output   |
| VideoWallSize      |     | •   | Sets the total video wall size, in pixels, for the specified HDMI output     |
| VolumeBtn          | •   |     | Sends the volume-up or volume-down command                                   |

## OmniStream CLI Command Set

### OmniStream R-Type

| Command           | Enc | Dec | Description                                                           |
|-------------------|-----|-----|-----------------------------------------------------------------------|
| 8021xMode         | •   | •   | Sets the 802.1x mode for the specified interface                      |
| AudioActiveInput  |     | •   | Displays the active audio input for the specified HDMI output         |
| AudioActiveStatus |     | •   | Displays the audio status for the specified HDMI output               |
| AudioDestIP       | •   |     | Sets the destination audio IP address for the specified session       |
| AudioDestPort     | •   |     | Sets the destination audio port for the specified session             |
| AudioEnable       | •   |     | Enable or disable the audio for the specified session                 |
| AudioInput        |     | •   | Sets the audio input for the specified HDMI output                    |
| AudioMute         |     | •   | Enable or disable muting on the specified HDMI output                 |
| AudioSapAlways    | •   |     | Enable or disable AES67 stream information over the specified session |
| AudioSource       | •   |     | Sets the HDMI audio source for the specified session                  |
| AudioVolume       |     | •   | Sets the output volume on the specified HDMI output                   |
| AuxBidirectional  | •   |     | Enable or disable bidirectional control for the specified session     |
| AuxDecodeInput    |     | •   | Sets the auxiliary input for the specified HDMI output                |
| AuxDestIP         | •   |     | Sets the auxiliary destination IP address for the specified session   |
| AuxDestPort       | •   |     | Sets the auxiliary destination port for the specified session         |
| AuxEnable         | •   |     | Enable or disable the auxiliary channel for the specified session     |
| AuxListenPort     | •   |     | Sets the auxiliary channel listening port for the specified session   |
| AuxSource         | •   |     | Sets the serial port for the specified session                        |
| Broadcast         | •   | •   | Enable or disable broadcast mode                                      |
| EDIDMSet          | •   |     | Sets the EDID for the specified HDMI input                            |
| EncoderBitDepth   | •   |     | Sets the bit depth for the specified encoder                          |
| EncGroup          | •   |     | Sets the input for the specified encoder                              |
| FastSwitching     |     | •   | Enable or disable Fast Switching on the HDMI output                   |
| HDCPSet           | •   | •   | Sets the version of HDCP for the specified HDMI input/output          |
| Help              | •   | •   | Displays the list of available commands                               |
| Identify          | •   | •   | Flashes the LED indicators on the front panel for 10 seconds          |
| Input             | •   |     | Displays information about the specified HDMI input                   |
| IPCFG             | •   | •   | Displays IP configuration for the specified interface                 |
| IPDHCP            | •   | •   | Enable or disable DHCP mode on the specified interface                |
| IPInputEnable     |     | •   | Enable or disable the specified input                                 |
| IPInputFilterAddr |     | •   | Sets the filter address(es) for the specified IP input                |
| IPInputFilterMode |     | •   | Sets the mode for filter addresses                                    |
| IPInputInterface  |     | •   | Sets the interface for the specified IP input                         |
| IPInputMulticast  |     | •   | Sets the multicast address for the specified IP input                 |
| IPInputPort       |     | •   | Sets the listening port for the specified IP input                    |
| IPLogin           | •   | •   | Enable or disable login authentication for Telnet/NVT                 |
| IPPort            | •   | •   | Sets the Telnet listening port for the specified interface            |
| IPQuit            | •   | •   | Exits the CLI                                                         |
| IPStatic          | •   | •   | Sets the static IP address for the specified interface                |
| IPTimeout         | •   | •   | Sets the timeout interval in seconds                                  |
| License           | •   | •   | Installs the specified license key                                    |
| Mclear            | •   | •   | Resets the unit to empty configuration                                |
| Mreset            | •   | •   | Resets the unit to factory-default settings                           |
| Quit              | •   | •   | Exits the CLI                                                         |

## OmniStream CLI Command Set

| Command           | Enc | Dec | Description                                                                |
|-------------------|-----|-----|----------------------------------------------------------------------------|
| Reboot            | •   | •   | Reboots the unit                                                           |
| SapEnable         |     | •   | Enable or disable the Session Announcement Protocol (SAP)                  |
| SerialBaud        | •   | •   | Sets the baud rate for the specified serial port                           |
| SerialData        | •   | •   | Sets the number of data bits for the specified serial port                 |
| SerialDestEnable  |     | •   | Enable or disable bidirectional data flow for the specified serial port    |
| SerialDestIP      |     | •   | Sets the destination IP address for the bidirectional serial port          |
| SerialDestPort    |     | •   | Sets the destination port for the bidirectional serial port                |
| SerialInput       |     | •   | Sets the input port for the serial port                                    |
| SerialInterface   |     | •   | Sets the interface for the specified serial port                           |
| SerialMode        |     | •   | Sets the serial mode for the specified serial port                         |
| SerialParity      | •   | •   | Sets the parity bit for the specified serial port                          |
| SerialPort        | •   | •   | Sets the serial port to the specified port                                 |
| SerialStop        | •   | •   | Sets the number of stop bits for the specified serial port                 |
| SetCmd            | •   | •   | Specifies the command to be send over RS-232                               |
| SlateLogo         | •   | •   | Sets the slate logo for the specified HDMI input/output                    |
| SlateMode         | •   | •   | Sets the slate mode for the specified HDMI input/output                    |
| Temperature       | •   | •   | Displays the system and die temperature                                    |
| TrigCEC           |     | •   | Triggers the specified command over the specified HDMI output              |
| TrigRS232         |     | •   | Triggers the specified command over the desired RS-232 port                |
| Type              | •   | •   | Displays the device type                                                   |
| Version           | •   | •   | Displays the firmware version                                              |
| VideoActiveInput  |     | •   | Displays the active input for the specified HDMI output                    |
| VideoActiveStatus |     | •   | Displays the status of the specified HDMI output                           |
| VideoAspect       |     | •   | Sets the aspect ratio for the specified HDMI output                        |
| VideoDestIP       | •   |     | Sets the video destination IP address for the specified session            |
| VideoDestPort     | •   |     | Sets the video destination IP port for the specified session               |
| VideoEnable       | •   |     | Enable or disable the video for the specified session                      |
| VideoEncoder      | •   |     | Sets the encoder input for the specified session                           |
| VideoInput        |     | •   | Sets the video input to the specified HDMI output                          |
| VideoRes          |     | •   | Sets the video resolution of the specified HDMI output                     |
| VideoWallArray    |     | •   | Sets the video wall size in rows and columns for the specified HDMI output |
| VideoWallEnable   |     | •   | Enable or disable the video wall for the specified HDMI output             |
| VideoWallPos      |     | •   | Sets the video wall position in rows/columns for the specified HDMI output |
| VideoWallSize     |     | •   | Sets the total video wall size, in pixels, for the specified HDMI output   |

## OmniStream CLI Command Set

### OmniStream Wallplate

The OmniStream Wallplate (AT-OMNI-111-WP) is only available as an encoder. Therefore, the **Enc** and **Dec** columns have been removed from the table below.

| Command          | Description                                                         |
|------------------|---------------------------------------------------------------------|
| 8021xMode        | Sets the 802.1x mode for the interface                              |
| AudioDestIP      | Sets the destination audio IP address for the specified session     |
| AudioDestPort    | Sets the destination audio port for the specified session           |
| AudioEnable      | Enable or disable the audio for the specified session               |
| AudioSapAlways   | Sends AES67 stream information on the specified session             |
| AudioSource      | Sets the HDMI audio source for the specified session                |
| AuxBidirectional | Enable or disable bidirectional control for the specified session   |
| AuxDestIP        | Sets the auxiliary destination IP address for the specified session |
| AuxDestPort      | Sets the auxiliary destination port for the specified session       |
| AuxEnable        | Enable or disable the auxiliary channel for the specified session   |
| AuxListenPort    | Sets the auxiliary channel listening port for the specified session |
| AuxSource        | Sets the serial port for the specified session                      |
| Broadcast        | Enable or disable broadcast mode                                    |
| EDIDMSet         | Sets the EDID for the HDMI input                                    |
| EnableAES67      | Enables or disables AES67 on the specified session                  |
| EncoderBitDepth  | Sets the bit depth for the encoder                                  |
| EncoderBitRate   | Sets the bit rate for the encoder                                   |
| EncGroup         | Sets the input for the encoder                                      |
| EncoderSubSample | Sets the chroma subsampling value for the encoder                   |
| HDCPSet          | Sets the version of HDCP for the HDMI input                         |
| Help             | Displays the list of available commands                             |
| Identify         | Flashes the LED indications on the front panel for 10 seconds       |
| Input            | Displays information about the HDMI input                           |
| IPCFG            | Displays the IP configuration                                       |
| IPDHCP           | Enable or disable DHCP mode                                         |
| IPLogin          | Enable or disable login authentication for Telnet/NVT               |
| IPPort           | Sets the Telnet listening port                                      |
| IPQuit           | Exits the CLI                                                       |
| IPStatic         | Sets the static IP address for the interface                        |
| IPTimeout        | Sets the timeout interval in seconds                                |
| License          | Installs the specified license key                                  |
| Mclear           | Resets the unit to empty configuration                              |
| Mreset           | Resets the unit to factory-default settings                         |
| Quit             | Exits the CLI                                                       |
| Reboot           | Reboots the unit                                                    |
| SlateLogo        | Sets the slate logo for the HDMI input                              |
| SlateMode        | Sets the slate mode for the HDMI input                              |
| Temperature      | Displays the system and die temperature                             |
| Type             | Displays the device type                                            |
| Version          | Displays the firmware version                                       |
| VideoDestIP      | Sets the video destination IP address for the specified session     |

## OmniStream CLI Command Set

| Command         | Description                                                  |
|-----------------|--------------------------------------------------------------|
| VideoDestPort   | Sets the video destination IP port for the specified session |
| VideoEnable     | Enable or disable the video for the specified session        |
| VideoEncoder    | Sets the encoder input for the specified session             |
| VideoFECColumns | Sets the number of the FEC columns for the specified session |
| VideoFECEnable  | Enable or disable FEC for the specified session              |
| VideoFECRows    | Sets the number of the FEC rows for the specified session    |

## OmniStream CLI Command Set

### Commands

#### 8021xMode

Sets the 802.1x mode for the specified interface. Specify the `sta` argument to display the current setting.



**IMPORTANT:** Connecting an 802.1X-enabled encoder to a network without an active or operational authentication server, will result in an encoder that does not function until the expected message is returned from a RADIUS server. If it is unclear as to whether the network uses 802.1X authentication, consult the IT administrator for assistance.

##### Syntax

```
8021xModeX Y
```

| Parameter | Description | Range                             |
|-----------|-------------|-----------------------------------|
| X         | Interface   | 0, 1                              |
| Y         | Mode        | none, PEAP/MSCHAPv2, EAP-TLS, sta |

##### Example

```
8021xMode1 EAP-TLS
```

##### Feedback

```
8021xMode1 EAP-TLS set
```

#### AnalogPowerEnable

**This command is only available on Pro units.** Enable or disable the analog power for the specified HDMI output. Specify the `sta` argument to display the current setting.

##### Syntax

```
AnalogPowerEnableX Y
```

| Parameter | Description | Range        |
|-----------|-------------|--------------|
| X         | HDMI output | 1, 2         |
| Y         | State       | on, off, sta |

##### Example

```
AnalogPowerEnable1 on
```

##### Feedback

```
AnalogPowerEnable1 on set
```

## OmniStream CLI Command Set

### AnalogPowerStatus

*This command is only available on Pro units.* Displays the status of the analog output for the specified HDMI output port.

#### Syntax

```
AnalogPowerStatusX
```

| Parameter | Description | Range |
|-----------|-------------|-------|
| X         | HDMI output | 1, 2  |

#### Example

```
AnalogPowerStatus1
```

#### Feedback

```
AnalogPowerStatus1 active
```

### AudioActiveInput

*This command is only available on Pro units.* Displays the active audio input for the specified HDMI output.

#### Syntax

```
AudioActiveInputX
```

| Parameter | Description | Range |
|-----------|-------------|-------|
| X         | HDMI output | 1, 2  |

#### Example

```
AudioActiveInput1
```

#### Feedback

```
AnalogInputStatus1 3
```

### AudioActiveStatus

*This command is only available on Pro units.* Displays the audio status for the specified HDMI output.

#### Syntax

```
AudioActiveStatusX
```

| Parameter | Description | Range |
|-----------|-------------|-------|
| X         | HDMI output | 1, 2  |

#### Example

```
AudioActiveStatus1
```

#### Feedback

```
AudioActiveStatus1 Inactive
```

## OmniStream CLI Command Set

### AudioBackupInput

Sets the backup audio input for the specified HDMI output. Specify the `sta` argument to display the current setting.

#### Syntax

```
AudioBackupInputX Y
```

| Parameter | Description        | Range    |
|-----------|--------------------|----------|
| X         | HDMI output        | 1, 2     |
| Y         | Audio backup input | 1 ... 16 |

#### Example

```
AudioBackupInput1 4
```

#### Feedback

```
AudioBackupInput1 4 set
```

### AudioBackupMode

Sets the backup audio mode for the specified HDMI output. Specify the `sta` argument to display the current setting.

#### Syntax

```
AudioBackupModeX Y
```

| Parameter | Description        | Range                              |
|-----------|--------------------|------------------------------------|
| X         | HDMI output        | 1, 2                               |
| Y         | Audio backup input | off, join active, join always, sta |

#### Example

```
AudioBackupMode2 join active
```

#### Feedback

```
AudioBackupMode2 join active set
```

### AudioDestIP

Sets the backup audio mode for the specified HDMI output. Specify the `sta` argument to display the current setting.

#### Syntax

```
AudioDestIPX
```

| Parameter | Description | Range                 |
|-----------|-------------|-----------------------|
| X         | HDMI output | 1, 2                  |
| Y         | IP address  | 0 ... 255 (per octet) |

#### Example

```
AudioDestIP1 192.168.11.10
```

#### Feedback

```
AudioDestIP1 192.168.11.10 set
```

## OmniStream CLI Command Set

### AudioDestPort

Sets the destination audio port for the specified session. Specify the `sta` argument to display the current setting.

#### Syntax

```
AudioDestPortX Y
```

| Parameter | Description | Range       |
|-----------|-------------|-------------|
| X         | Session     | 1 ... 6     |
| Y         | Port        | 0 ... 65535 |

#### Example

```
AudioDestPort1 1100
```

#### Feedback

```
AudioDestPort1 1100 set
```

### AudioEnable

Enable or disable the audio for the specified session. The number of available sessions varies between units. Specify the `sta` argument to display the current setting.

#### Syntax

```
AudioEnableX Y
```

| Parameter | Description | Range        |
|-----------|-------------|--------------|
| X         | Session     | 1 ... 6      |
| Y         | State       | on, off, sta |

#### Example

```
AudioEnable2 on
```

#### Feedback

```
AudioEnable2 on set
```

### AudioInput

**This command is not available on R-Type units.** Sets the audio input for the specified HDMI output. Specify the `sta` argument to display the current setting.

#### Syntax

```
AudioInputX
```

| Parameter | Description | Range    |
|-----------|-------------|----------|
| X         | HDMI output | 1, 2     |
| Y         | Audio input | 1 ... 16 |

#### Example

```
AudioInput1 3
```

#### Feedback

```
AudioInput1 3 set
```

## OmniStream CLI Command Set

### AudioMute

***This command is not available on R-Type units.*** Enable or disable muting on the specified HDMI output. Specify the `sta` argument to display the current setting.

#### Syntax

```
AudioMuteX Y
```

| Parameter | Description | Range        |
|-----------|-------------|--------------|
| X         | HDMI output | 1, 2         |
| Y         | State       | on, off, sta |

#### Example

```
AudioMute1 on
```

#### Feedback

```
AudioMute1 on set
```

### AudioSapAlways

Enables or disables the transmission of AES67 audio information on the specified session. When set to `on`, AES67 stream information will be sent, even if there is no source present (and AES67 is not being sent). Specify the `sta` argument to display the current setting.

#### Syntax

```
AudioSapAlwaysX Y
```

| Parameter | Description | Range        |
|-----------|-------------|--------------|
| X         | Session     | 1 ... 6      |
| Y         | State       | on, off, sta |

#### Example

```
AudioSapAlways4 on
```

#### Feedback

```
AudioSource4 on
```

### AudioSource

Sets the HDMI audio source for the specified session. Specify the `sta` argument to display the current setting.

#### Syntax

```
AudioSourceX Y
```

| Parameter | Description       | Range     |
|-----------|-------------------|-----------|
| X         | Session           | 1 ... 6   |
| Y         | HDMI audio source | 1, 2, sta |

#### Example

```
AudioSource4 2
```

#### Feedback

```
AudioSource4 2
```

## OmniStream CLI Command Set

### AudioToBackup

Switches the active audio input, for the specified HDMI output, to the backup audio input. Before executing this command, the audio backup must be set using the AudioBackupMode command.

#### Syntax

```
AudioToBackupX
```

| Parameter | Description | Range |
|-----------|-------------|-------|
| X         | HDMI output | 1, 2  |

#### Example

```
AudioToBackup1
```

#### Feedback

```
AudioToBackup1 set
```

### AudioToPrimary

Switches the active audio input, for the specified HDMI output, to the primary audio input. Before executing this command, the audio backup must be set using the **AudioBackupMode** command.

#### Syntax

```
AudioToPrimaryX
```

| Parameter | Description | Range |
|-----------|-------------|-------|
| X         | HDMI output | 1, 2  |

#### Example

```
AudioToPrimary1
```

#### Feedback

```
AudioToPrimary1 set
```

### AudioVolume

**This command is only available on Pro units.** Sets the output volume on the specified HDMI output. Specify the *sta* argument to display the current setting.

#### Syntax

```
AudioVolumeX Y
```

| Parameter | Description | Range    |
|-----------|-------------|----------|
| X         | HDMI output | 1, 2     |
| Y         | Level       | 0 ... 15 |

#### Example

```
AudioVolume2 10
```

#### Feedback

```
AudioVolume2 10 set
```

## OmniStream CLI Command Set

### AuxBidirectional

Enables bidirectional data transfer on the Aux channel (IR / RS-232) for the specified session. Specify the `sta` argument to display the current setting.

#### Syntax

```
AuxBidirectionalX Y
```

| Parameter | Description | Range        |
|-----------|-------------|--------------|
| X         | Session     | 1 ... 6      |
| Y         | State       | on, off, sta |

#### Example

```
AuxBidirectional1 on
```

#### Feedback

```
AuxBidirectional1 on set
```

### AuxDecodeInput

**This command is only available on Pro units.** Sets the auxiliary input for the specified HDMI output. Specify the `sta` argument to display the current setting.

#### Syntax

```
AuxDecodeInputX Y
```

| Parameter | Description | Range    |
|-----------|-------------|----------|
| X         | HDMI output | 1, 2     |
| Y         | Input       | 1 ... 16 |

#### Example

```
AuxDecodeInput1 7
```

#### Feedback

```
AuxDecodeInput1 7 set
```

### AuxDestIP

Sets the destination IP address for the auxiliary channel for the specified session. Specify the `sta` argument to display the current setting.

#### Syntax

```
AuxDestIPX Y
```

| Parameter | Description | Range                 |
|-----------|-------------|-----------------------|
| X         | Session     | 1 ... 6               |
| Y         | IP address  | 0 ... 255 (per octet) |

#### Example

```
AuxDestIP3 192.168.11.154
```

#### Feedback

```
AuxDestIP3 192.168.11.154 set
```

## OmniStream CLI Command Set

### AuxDestPort

Sets the destination port for the auxiliary channel for the specified session. Specify the `sta` argument to display the current setting.

#### Syntax

```
AuxDestPortX Y
```

| Parameter | Description | Range       |
|-----------|-------------|-------------|
| X         | Session     | 1 ... 6     |
| Y         | Port        | 0 ... 65535 |

#### Example

```
AuxDestPort2 2000
```

#### Feedback

```
AuxDestPort2 2000 set
```

### AuxEnable

Enable or disable the auxiliary channel for the specified session. Specify the `sta` argument to display the current setting.

#### Syntax

```
AuxEnableX Y
```

| Parameter | Description | Range        |
|-----------|-------------|--------------|
| X         | Session     | 1 ... 6      |
| Y         | State       | on, off, sta |

#### Example

```
AuxEnable1 on
```

#### Feedback

```
AuxEnable1 on set
```

### AuxListenPort

Sets the auxiliary channel listening port for bidirectional control for the specified session. Specify the `sta` argument to display the current setting.

#### Syntax

```
AuxListenPortX Y
```

| Parameter | Description | Range       |
|-----------|-------------|-------------|
| X         | Session     | 1 ... 6     |
| Y         | Port        | 0 ... 65535 |

#### Example

```
AuxListenPort2 1204
```

#### Feedback

```
AuxListenPort2 1204 set
```

## OmniStream CLI Command Set

### AuxSource

Sets the serial port source for the specified session. Specify the `sta` argument to display the current setting.

#### Syntax

```
AuxSourceX Y
```

| Parameter | Description | Range   |
|-----------|-------------|---------|
| X         | Session     | 1 ... 6 |
| Y         | Serial port | 1, 2    |

#### Example

```
AuxSource1 2
```

#### Feedback

```
AuxSource1 2 set
```

### Broadcast

Enable or disable broadcast mode. Specify the `sta` argument to display the current setting.

#### Syntax

```
Broadcast X
```

| Parameter | Description | Range        |
|-----------|-------------|--------------|
| X         | State       | on, off, sta |

#### Example

```
Broadcast on
```

#### Feedback

```
Broadcast on set
```

### DisplayBtn

*This command is only available on Pro units.* Sends the specified command to the desired HDMI input.

#### Syntax

```
DisplayBtnX Y
```

| Parameter | Description | Range           |
|-----------|-------------|-----------------|
| X         | HDMI input  | 1, 2            |
| Y         | Command     | on, off, toggle |

#### Example

```
DisplayBtn1 on
```

#### Feedback

```
DisplayBtn1 on set
```

## OmniStream CLI Command Set

### Descramble

***This command is only available through SSH.*** Enables or disables descrambling on the specified HDMI output. Specify the `sta` argument to display the current setting.

#### Syntax

```
DescrambleX Y
```

| Parameter | Description | Range        |
|-----------|-------------|--------------|
| X         | HDMI input  | 1, 2         |
| Y         | State       | on, off, sta |

#### Example

```
DescrambleKey1 on
```

#### Feedback

```
DescrambleKey1 on set
```

### DescrambleKey

***This command is only available through SSH.*** Sets the descrambling key for the specified HDMI output.

#### Syntax

```
DescrambleKeyX Y
```

| Parameter | Description | Range       |
|-----------|-------------|-------------|
| X         | HDMI input  | 1, 2        |
| Y         | Key         | String, sta |

#### Example

```
DescrambleKey1 e39f2de467ce7c9c
```

#### Feedback

```
DescrambleKey1 e39f2de467ce7c9c set
```

### EDIDMSet

Sets the EDID for the specified HDMI input. Specify the `list` argument to display a list of available EDID settings. Note that the list of available EDID settings will depend upon the current system mode. Specify the `sta` argument to display the current setting.

#### Syntax

```
EDIDMSetX Y
```

| Parameter | Description | Range     |
|-----------|-------------|-----------|
| X         | HDMI input  | 1, 2      |
| Y         | EDID name   | EDID, sta |

#### Example

```
EDIDMSet1 1080p 2ch
```

#### Feedback

```
EDIDMSet1 1080p 2ch set
```

## OmniStream CLI Command Set

### EnableAES67

***This command is only available on Pro units.*** Enables or disables AE67 audio on the specified encoder session. When the command is run on the decoder, it is used to enable or disable AES67 on the specified HDMI output. Specify the `sta` argument to display the current setting.

#### Syntax

```
EnableAES67X Y
```

| Parameter | Description                                          | Range                                                                            |
|-----------|------------------------------------------------------|----------------------------------------------------------------------------------|
| X         | Session (encoder only)<br>HDMI output (decoder only) | Integer value (session number, encoder only)<br>1, 2 (HDMI output, decoder only) |
| Y         | State                                                | on, off, sta                                                                     |

#### Example

```
EnableAES672 on
```

#### Feedback

```
EnableAES672 on set
```

### EncoderBitDepth

Sets the bit depth for the specified encoder. Specify the `sta` argument to display the current setting.

#### Syntax

```
EncoderBitDepthX Y
```

| Parameter | Description | Range     |
|-----------|-------------|-----------|
| X         | Encoder     | 1, 2      |
| Y         | Bit depth   | 8, 10, 12 |

#### Example

```
EncoderBitDepth1 10
```

#### Feedback

```
EncoderBitDepth1 10 set
```

## OmniStream CLI Command Set

### EncoderBitRate

**This command is only available on Pro units.** Sets the bit rate for the specified encoder. This value is in megabits-per-second (Mbps). The recommended bandwidth for 1080p60 video is 450 Mbps, and 4K/UHD streams should be set to 900 Mbps. Setting this field below these recommended values will result in lower-quality video. Specify the `sta` argument to display the current setting.

#### Syntax

```
EncoderBitRateX Y
```

| Parameter | Description | Range    |
|-----------|-------------|----------|
| X         | Encoder     | 1, 2     |
| Y         | Bit rate    | 15...900 |

#### Example

```
EncoderBitRate1 450
```

#### Feedback

```
EncoderBitRate1 450 set
```

### EncGroup

Enables or disables sessions within an encoder group. No space should exist between the command the first parameter (the session). The second parameter specifies the action: `enable` = adds the session to the encoder group; `disable` = removes the specified session from the group; `active` = adds the specified session to the encoder group and make it the active session.

#### Syntax

```
EncGroupX
```

| Parameter | Description | Range                   |
|-----------|-------------|-------------------------|
| X         | Session     | Integer value           |
| Y         | Action      | enable, disable, active |

#### Example

```
EncoderInput2 HDMI1
```

#### Feedback

```
EncoderInput2 HDMI1 set
```

## OmniStream CLI Command Set

### EncoderInput

Sets the input for the specified encoder. Specify the `sta` argument to display the current setting.

#### Syntax

```
EncoderInputX Y
```

| Parameter | Description | Range                               |
|-----------|-------------|-------------------------------------|
| X         | Encoder     | 1, 2                                |
| Y         | Input       | HDMI1, HDMI2, VidGen1, VidGen2, sta |

#### Example

```
EncoderInput2 HDMI1
```

#### Feedback

```
EncoderInput2 HDMI1 set
```

### EncoderScaler

***This command is only available on the AT-OMNI-111 and AT-OMNI-111-WP.*** Set the scaler resolution (including disable), for each encoder. Specify the `sta` argument to display the current scaler settings.

#### Syntax

```
EncoderScalerX Y
```

| Parameter | Description  | Range                 |
|-----------|--------------|-----------------------|
| X         | Encoder      | 1, 2                  |
| Y         | Scaler value | Refer to tables below |

#### Example

```
EncoderScaler1 1920x1080
```

#### Feedback

```
EncoderScaler1 1920x1080 set
```

| Encoder 1 |          |
|-----------|----------|
| disable   | 1440x816 |
| 3840x2160 | 1280x736 |
| 2880x1584 | 1280x720 |
| 2592x1440 | 960x544  |
| 2560x1440 | 960x528  |
| 1920x1104 | 864x480  |
| 1920x1080 | 640x368  |
| 1920x1072 | 640x360  |
| 1792x960  | 480x272  |
| 1728x960  |          |

| Encoder 2 |         |
|-----------|---------|
| 1920x1080 | 960x544 |
| 1920x1072 | 960x528 |
| 1792x960  | 864x480 |
| 1728x960  | 640x368 |
| 1440x816  | 640x360 |
| 1280x736  | 480x272 |
| 1280x720  |         |

## OmniStream CLI Command Set

### EncoderSubSample

**This command is only available on Pro units.** Sets the chroma subsampling value for the specified encoder. Specify the `sta` argument to display the current setting.

#### Syntax

```
EncoderSubSampleX Y
```

| Parameter | Description       | Range              |
|-----------|-------------------|--------------------|
| X         | Encoder           | 1, 2               |
| Y         | Subsampling value | 444, 422, 420, sta |

#### Example

```
EncoderSubSample1 420
```

#### Feedback

```
EncoderSubSample1 420 set
```

### FastSwitching

Enables or disables Fast Switching on the decoder. Specify the `sta` argument to display the current setting.

#### Syntax

```
FastSwitchingX Y
```

| Parameter | Description | Range        |
|-----------|-------------|--------------|
| X         | HDMI output | 1, 2         |
| Y         | State       | on, off, sta |

#### Example

```
FastSwitching1 on
```

#### Feedback

```
FastSwitching1 on set
```

### FrontPanelLock

**This command is only available on Pro units.** Locks or unlocks the buttons on the front panel of the unit. When the buttons on the front panel are lock, the LED backlight on each button will be disabled. Specify the `sta` argument to display the current setting.

#### Syntax

```
FrontPanelLock X
```

| Parameter | Description | Range             |
|-----------|-------------|-------------------|
| X         | Status      | lock, unlock, sta |

#### Example

```
FrontPanelLock lock
```

#### Feedback

```
FrontPanelLock lock set
```

## OmniStream CLI Command Set

### HDCPSet

Sets the version of HDCP for the specified HDMI input/output. Specify the `sta` argument to display the current setting. To disable HDCP, specify `none` or `off` for the second parameter.

#### Syntax

```
HDCPSetX Y
```

| Parameter | Description       | Range                   |
|-----------|-------------------|-------------------------|
| X         | HDMI input/output | 1, 2                    |
| Y         | HDCP version      | none/off, 1.4, 2.2, sta |

#### Example

```
HDCPSet HDMI1 2.2
```

#### Feedback

```
HDCPSet HDMI1 2.2 set
```

### Help

Displays the list of available commands. To obtain help on a specific command, enter this command followed by the name of the command.

#### Syntax

```
Help X
```

| Parameter | Description             | Range   |
|-----------|-------------------------|---------|
| X         | Command name (optional) | Command |

#### Example

```
help
```

#### Feedback

```
Help, Quit, IPTimeout, IPQuit, ...
```

### Identify

Flashes the LED indicators on the front panel of the unit for 10 seconds.

#### Syntax

```
Identify
```

**This command does not require any parameters**

#### Example

```
Identify
```

#### Feedback

```
[none]
```

## OmniStream CLI Command Set

### Input

Displays whether or not an input signal exists on the specified HDMI input. The `sta` argument is required.

#### Syntax

```
InputX sta
```

| Parameter | Description | Range |
|-----------|-------------|-------|
| X         | HDMI input  | 1, 2  |

#### Example

```
Input1 sta
```

#### Feedback

```
Input1 yes
```

### InputBtn

***This command is only available on Pro units.*** Sets the input. This command is identical to pressing the **INPUT** button on the front panel. Specify the `tog` argument to toggle to the opposite input.

#### Syntax

```
InputBtn X
```

| Parameter | Description | Range     |
|-----------|-------------|-----------|
| X         | Input       | 1, 2, tog |

#### Example

```
InputBtn 1
```

#### Feedback

```
InputBtn 1 set
```

### IPCFG

Displays IP configuration for the specified interface.

#### Syntax

```
IPCFGX
```

| Parameter | Description | Range |
|-----------|-------------|-------|
| X         | Interface   | 1, 2  |

#### Example

```
IPCFG1
```

#### Feedback

```
IP Addr: 10.0.1.110  
Netmask: 255.255.255.0  
Gateway: 10.0.1.1  
IP Port: 23
```

## OmniStream CLI Command Set

### IPDHCP

Enable or disable DHCP and the version on the specified interface. Specify the `sta` argument to display the current setting.

#### Syntax

```
IPDHCPX Y
```

| Parameter | Description | Range        |
|-----------|-------------|--------------|
| X         | Interface   | 1, 2         |
| Y         | Mode        | on, off, sta |

#### Example

```
IPDHCP1 on
```

#### Feedback

```
IPDHCP1 on set
```

### IPInputEnable

Enable or disable the specified IP input. Specify the `sta` argument to display the current setting.

#### Syntax

```
IPInputEnableX Y
```

| Parameter | Description | Range        |
|-----------|-------------|--------------|
| X         | Input       | 1 ... 16     |
| Y         | State       | on, off, sta |

#### Example

```
IPInputEnable off
```

#### Feedback

```
IPInputEnable off set
```

### IPInputFilterAddr

Sets the filter address for the specified IP input. Specify the comma delimiter to specify multiple IP addresses. IP addresses cannot be multicast addresses. Specify the `sta` argument to display the current setting.

#### Syntax

```
IPInputFilterAddrX Y
```

| Parameter | Description    | Range                      |
|-----------|----------------|----------------------------|
| X         | Input          | 1 ... 16                   |
| Y         | IP address(es) | 0 ... 255 (per octet), sta |

#### Example

```
IPInputFilterAddr1 192.168.11.100,  
192.168.11.58
```

#### Feedback

```
IPInputFilterAddr1 192.168.11.100,  
192.168.11.58 set
```

## OmniStream CLI Command Set

### IPInputFilterMode

Sets the mode for filter addresses. Specify the `sta` argument to display the current setting.

#### Syntax

```
IPInputFilterModeX Y
```

| Parameter | Description | Range                 |
|-----------|-------------|-----------------------|
| X         | Input       | 1 ... 16              |
| Y         | Mode        | include, exclude, sta |

#### Example

```
IPInputFilterMode1 exclude
```

#### Feedback

```
IPInputFilterMode1 exclude set
```

### IPInputInterface

Sets the interface for the specified IP input. Specify the `sta` argument to display the current setting.

#### Syntax

```
IPInputInterfaceX Y
```

| Parameter | Description | Range           |
|-----------|-------------|-----------------|
| X         | Input       | 1 ... 16        |
| Y         | Interface   | eth1, eth2, sta |

#### Example

```
IPInputInterface1 eth2
```

#### Feedback

```
IPInputInterface1 eth2 set
```

### IPInputMulticast

Sets the multicast IP address for the specified IP input. The multicast address must be specified in dot-decimal notation. Specify the `sta` argument to display the current setting.

#### Syntax

```
IPInputMulticastX Y
```

| Parameter | Description | Range                      |
|-----------|-------------|----------------------------|
| X         | Input       | 1 ... 16                   |
| Y         | IP address  | 0 ... 255 (per octet), sta |

#### Example

```
IPInputMulticast1 226.0.0.10
```

#### Feedback

```
IPInputMulticast1 226.0.0.10 set
```

## OmniStream CLI Command Set

### IPInputPort

Sets the listening port for the specified IP input. Note that the input range differs between single-channel and dual-channel decoders. Specify the `sta` argument to display the current setting.

#### Syntax

```
IPInputPortX Y
```

| Parameter | Description | Range            |
|-----------|-------------|------------------|
| X         | Input       | 1 ... 16         |
| Y         | Port        | 0 ... 65535, sta |

#### Example

```
IPInputPort1 2012
```

#### Feedback

```
IPInputPort1 2012 set
```

### IPLogin

Enable or disable the authentication for Telnet and/or NVT. Specify the `sta` argument to display the current setting. If the authentication for Network is enabled and the other Network is disabled, then a value of `mixed` will be returned.

#### Syntax

```
IPLoginX Y
```

| Parameter | Description | Range        |
|-----------|-------------|--------------|
| X         | Interface   | 1, 2         |
| Y         | Mode        | on, off, sta |

#### Example

```
IPLogin on
```

#### Feedback

```
IPLogin on set
```

### IPPort

Sets the Telnet listening port for the specified interface. Specify the `sta` argument to display the current setting.

#### Syntax

```
IPPortX Y
```

| Parameter | Description | Range            |
|-----------|-------------|------------------|
| X         | Interface   | 1, 2             |
| Y         | Port        | 0 ... 65535, sta |

#### Example

```
IPInputPort1 2012
```

#### Feedback

```
IPInputPort1 2012 set
```

## OmniStream CLI Command Set

### IPQuit

Exits the CLI.

#### Syntax

```
IPQuit
```

This command does not require any parameters

#### Example

```
IPQuit
```

#### Feedback

```
[none]
```

### IPStatic

Sets the static IP address for the specified interface. Once a static IP address is assigned to the interface, the network mode for that interface will automatically be set to **Static**. Add a space between the IP address, subnet mask, and gateway arguments.

#### Syntax

```
IPStaticW X Y Z
```

| Parameter | Description | Range                 |
|-----------|-------------|-----------------------|
| X         | Interface   | 1, 2                  |
| Y         | IP address  | 0 ... 255 (per octet) |
| Y         | Subnet mask | 0 ... 255 (per octet) |
| Z         | Gateway     | 0 ... 255 (per octet) |

#### Example

```
IPStatic1 192.168.11.154 255.255.255.0  
192.168.11.1
```

#### Feedback

```
IPStatic1 192.168.11.154 255.255.255.0  
192.168.11.1 set
```

### IPTimeout

Sets the session timeout interval in seconds.

#### Syntax

```
IPTimeout X
```

| Parameter | Description         | Range         |
|-----------|---------------------|---------------|
| X         | Time interval (sec) | Integer value |

#### Example

```
IPTimeout 5000
```

#### Feedback

```
IPTimeout 5000 set
```

## OmniStream CLI Command Set

### License

Installs the specified license key. Execute this command without an argument to display the installed licenses.

#### Syntax

```
License X:Y
```

| Parameter | Description | Range  |
|-----------|-------------|--------|
| X         | Key type    | String |
| Y         | Key         | String |

#### Example

```
License 4K:e5d533...
```

#### Feedback

```
License 4K:e5d533... set
```

### Mclear

Resets the unit to empty configuration.

#### Syntax

```
Mclear
```

**This command does not require any parameters**

#### Example

```
Mclear
```

#### Feedback

```
[none]
```

### Mreset

Resets the unit to factory-default settings.

#### Syntax

```
Mreset
```

**This command does not require any parameters**

#### Example

```
Mreset
```

#### Feedback

```
[none]
```

## OmniStream CLI Command Set

### MultiviewBackground

Sets the multiview background color. The `multiview#` keyword must be included before specifying all other parameters. *Do not* include a space before the `multiview#` keyword and the first argument (the name of the multiview). The name of the multiview is case-sensitive and cannot be `multiview` (all lower-case). Additionally, spaces within the multiview name must be substituted with the `#` character. To display the current background color, specify the room name followed by the `sta` argument. If an invalid element is referenced, then `not found` will be returned.

#### Syntax

```
MultiviewBackground multiview#W X Y Z
```

| Parameter | Description           | Range                                      |
|-----------|-----------------------|--------------------------------------------|
| W         | Name of the multiview | String (cannot be <code>multiview</code> ) |
| X         | Red component         | 0 ... 255                                  |
| Y         | Green component       | 0 ... 255                                  |
| Z         | Blue component        | 0 ... 255                                  |

#### Examples

```
MultiviewBackground multiview#Overflow#Room 20 20 30
MultiviewBackground multiview#Overflow#Room sta
```

In this example, the name of the multiview is `Overflow Room`. However, since the name of this multiview contains a space, a `#` character must be added to correctly reference the multiview name: `Overflow#Room`.

Multiview **Overflow Room**

Resolution

3840x2160

Background color

red

0

green

0

Choose color

blue

0

ADD SUBFRAME

DELETE

SAVE

#### Feedback

```
MultiviewBackground multiview#Overflow#Room 20 20 30 set
MultiviewBackground multiview#Overflow#Room 20 20 30
```

Multiview Overflow Room

Resolution

3840x2160

Background color

red

20

green

20

Choose color

blue

30

ADD SUBFRAME

DELETE

SAVE

## OmniStream CLI Command Set

### MultiviewSubframeConfig

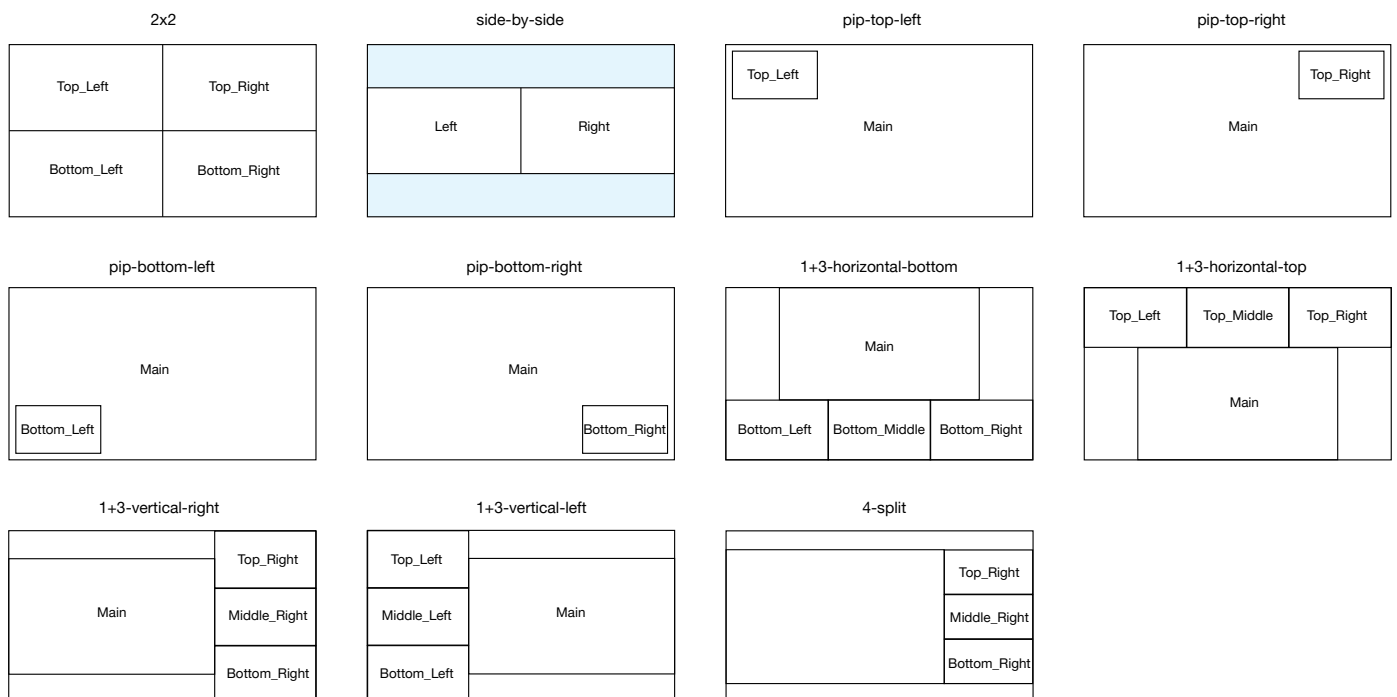
Sets the anchor point, offsets, and z-order for the specified multiview subframe. The `multiview#` keyword must be included before specifying all other parameters. *Do not* include a space before the `multiview#` keyword and the first argument (the name of the multiview). The name of the multiview is case-sensitive and cannot be `multiview` (all lower-case). Additionally, spaces within the multiview name must be substituted with the `#` character. Refer to [MultiviewBackground](#) for an example of referencing the name of the multiview. The subframe identifier that is specified is dependent on the multiview layout that is being configured. Refer to *Illustration 1.1* below. To display the current subframe configuration, specify both the room name and the subframe identifier followed by the `sta` argument. If an invalid element is referenced, then `not found` will be returned.

#### Syntax

```
MultiviewSubframeConfig multiview#U V W X Y Z
```

| Parameter | Description           | Range                                                                                                                   |
|-----------|-----------------------|-------------------------------------------------------------------------------------------------------------------------|
| U         | Name of the multiview | String                                                                                                                  |
| V         | Subframe identifier   | main, left, right, top_left, top_middle, top_right, bottom_left, bottom_middle, bottom_right, middle_left, middle_right |
| W         | Anchor                | toleft, topright, bottomleft, bottomright, center                                                                       |
| X         | X offset              | Integer                                                                                                                 |
| Y         | Y offset              | Integer                                                                                                                 |
| Z         | Z-order               | 1 ... 8                                                                                                                 |

*Illustration 1.1* - Subframe identifiers for each multiview layout.



Refer to the next page for command examples and feedback.

## OmniStream CLI Command Set

### Examples

```
MultiviewSubframeConfig multiview#Overflow#Room top_left topleft 0 0 2
MultiviewSubframeConfig multiview#Overflow#Room sta
```

### Feedback

```
MultiviewSubframeConfig multiview#Overflow#Room top_left topleft 0 0 2 set
MultiviewSubframeConfig multiview#Overflow#Room top_left topleft 0 0 2
```

## MultiviewSubframeInput

Assigns an ip\_input to the specified subframe. The `multiview#` keyword must be included before specifying all other parameters. Do not include a space before the `multiview#` keyword and the first argument (the name of the multiview). The name of the multiview is case-sensitive and cannot be `multiview` (all lower-case). Additionally, spaces within the multiview name must be substituted with the `#` character. Refer to [MultiviewBackground](#) for an example of referencing the name of the multiview. The subframe identifier that is specified is dependent on the multiview layout that is being configured. Refer to [MultiviewSubframeConfig](#) for more information. To display the IP input assigned to a subframe, specify both the room name and the subframe identifier, followed by the `sta` argument. If an invalid element is referenced, then `not found` will be returned.

### Syntax

```
MultiviewSubframeInput multiview#U V W X Y Z
```

| Parameter | Description           | Range                                                                                                                   |
|-----------|-----------------------|-------------------------------------------------------------------------------------------------------------------------|
| X         | Name of the multiview | String                                                                                                                  |
| Y         | Subframe identifier   | main, left, right, top_left, top_middle, top_right, bottom_left, bottom_middle, bottom_right, middle_left, middle_right |
| Z         | IP input              | 1 ... 16                                                                                                                |

### Examples

```
MultiviewSubframeInput multiview#Overflow#Room bottom_left 1
MultiviewSubframeInput multiview#Overflow#Room bottom_left sta
```

### Feedback

```
MultiviewSubframeInput multiview#Overflow#Room bottom_left 1 set
MultiviewSubframeInput multiview#Overflow#Room bottom_left 1
```

## OmniStream CLI Command Set

### Quit

Exits the CLI.

#### Syntax

Quit

This command does not require any parameters

#### Example

Quit

#### Feedback

[none]

### Reboot

Reboots the unit.

#### Syntax

Reboot

This command does not require any parameters

#### Example

Reboot

#### Feedback

[none]

### SapEnable

Enable or disable the Session Announcement Protocol (SAP). Specify the `sta` argument to display the current setting.

#### Syntax

SapEnable X

| Parameter | Description | Range        |
|-----------|-------------|--------------|
| X         | State       | on, off, sta |

#### Example

SapEnable on

#### Feedback

SapEnable on set

## OmniStream CLI Command Set

### SerialBaud

Sets the baud rate for the specified serial port. Specify the `sta` argument to display the current setting.

#### Syntax

```
SerialBaudX Y
```

| Parameter | Description | Range       |
|-----------|-------------|-------------|
| X         | Serial port | 1, 2        |
| Y         | Baud Rate   | 9600, 19200 |

#### Example

```
SerialBaud1 19200
```

#### Feedback

```
SerialBaud1 19200 set
```

### SerialData

Sets the number of data bits for the specified serial port. Specify the `sta` argument to display the current setting.

#### Syntax

```
SerialDataX Y
```

| Parameter | Description | Range   |
|-----------|-------------|---------|
| X         | Serial port | 1, 2    |
| Y         | Data bits   | 6, 7, 8 |

#### Example

```
SerialData1 7
```

#### Feedback

```
SerialData1 7 set
```

### SerialDestEnable

Enable or disable bidirectional flow for the specified serial port. Specify the `sta` argument to display the current setting.

#### Syntax

```
SerialDestEnableX Y
```

| Parameter | Description | Range        |
|-----------|-------------|--------------|
| X         | Serial port | 1, 2         |
| Y         | State       | on, off, sta |

#### Example

```
SerialDestEnable on
```

#### Feedback

```
SerialDestEnable on set
```

## OmniStream CLI Command Set

### SerialDestIP

Sets the destination IP address for the bidirectional serial port. Specify the `sta` argument to display the current setting.

#### Syntax

```
SerialDestIP X Y
```

| Parameter | Description | Range                 |
|-----------|-------------|-----------------------|
| X         | Serial port | 1, 2                  |
| Y         | IP address  | 0 ... 255 (per octet) |

#### Example

```
SerialDestIP1 226.0.0.10
```

#### Feedback

```
SerialDestIP1 226.0.0.10 set
```

### SerialDestPort

Sets the destination port used for the bidirectional serial port. Specify the `sta` argument to display the current setting.

#### Syntax

```
SerialDestPort X Y
```

| Parameter | Description | Range |
|-----------|-------------|-------|
| X         | Serial port | 1, 2  |
| Y         | Port        | 1, 2  |

#### Example

```
SerialDestPort1 1
```

#### Feedback

```
SerialDestPort1 1 set
```

### SerialInput

Sets the input port for the serial port. Specify the `sta` argument to display the current setting.

#### Syntax

```
SerialInput X Y
```

| Parameter | Description | Range    |
|-----------|-------------|----------|
| X         | Serial port | 1, 2     |
| Y         | Port        | 1 ... 12 |

#### Example

```
SerialPort1 1
```

#### Feedback

```
SerialPort1 1 set
```

## OmniStream CLI Command Set

### SerialInterface

Sets the interface to the specified serial port. Specify the `sta` argument to display the current setting.

#### Syntax

```
SerialInterfaceX Y
```

| Parameter | Description | Range           |
|-----------|-------------|-----------------|
| X         | Serial port | 1, 2            |
| Y         | Interface   | eth1, eth2, sta |

#### Example

```
SerialInterface1 eth2
```

#### Feedback

```
SerialInterface1 eth2 set
```

### SerialMode

Sets the serial mode for the specified serial port. Specify the `sta` argument to display the current setting.

#### Syntax

```
SerialModeX Y
```

| Parameter | Description | Range                      |
|-----------|-------------|----------------------------|
| X         | Serial port | 1, 2                       |
| Y         | Mode        | cli, tcpproxy, output, sta |

#### Example

```
SerialMode2 tcpproxy
```

#### Feedback

```
SerialMode2 tcpproxy set
```

### SerialParity

Sets the parity bit for the specified serial port. Specify the `sta` argument to display the current setting.

#### Syntax

```
SerialParityX Y
```

| Parameter | Description | Range                             |
|-----------|-------------|-----------------------------------|
| X         | Serial port | 1, 2                              |
| Y         | Parity bit  | none, odd, even, mark, space, sta |

#### Example

```
SerialMode1 none
```

#### Feedback

```
SerialMode1 none set
```

## OmniStream CLI Command Set

### SerialPort

Sets the serial port to the specified port. Specify the `sta` argument to display the current setting.

#### Syntax

```
SerialPortX Y
```

| Parameter | Description | Range                                     |
|-----------|-------------|-------------------------------------------|
| X         | Serial port | 1, 2                                      |
| Y         | Port        | not used, serial_port1, serial_port2, sta |

#### Example

```
SerialModel serial_port1
```

#### Feedback

```
SerialModel serial_port1 set
```

### SerialStop

Sets the number of stop bits for the specified serial port. Specify the `sta` argument to display the current setting.

#### Syntax

```
SerialStopX Y
```

| Parameter | Description | Range          |
|-----------|-------------|----------------|
| X         | Serial port | 1, 2           |
| Y         | Stop bits   | 1, 1.5, 2, sta |

#### Example

```
SerialStop2 1
```

#### Feedback

```
SerialStop2 1 set
```

### SessionScramble

***This command is only available when using SSH.*** Enables or disables scrambling for the specified session. Specify the `sta` argument to return the current setting.

#### Syntax

```
SessionScrambleX Y
```

| Parameter | Description | Range        |
|-----------|-------------|--------------|
| X         | Session     | 1 ... 6      |
| Y         | State       | on, off, sta |

#### Example

```
SessionScramble1 on
```

#### Feedback

```
SessionScramble1 on set
```

## OmniStream CLI Command Set

### SessionScrambleKey

*This command is only available when using SSH.* Sets the scrambling key for the specified session. Specify the `sta` argument to return the current setting.

#### Syntax

```
SessionScrambleKeyX Y
```

| Parameter | Description | Range   |
|-----------|-------------|---------|
| X         | Session     | 1 ... 6 |
| Y         | Key         | String  |

#### Example

```
SessionScrambleKey2 df3d7cdc88584f23
```

#### Feedback

```
SessionScrambleKey2 df3d7cdc88584f23 set
```

### SetCmd

Specifies the command to be sent over RS-232. The command data must be enclosed in brackets and should be terminated with a `\r`.

#### Syntax

```
SetCmd X[Y]
```

| Parameter | Description    | Range               |
|-----------|----------------|---------------------|
| X         | Command        | on, off, vol+, vol- |
| Y         | Command string | String              |

#### Example

```
SetCmd on[a6 00 00 10 32 4a....]
```

#### Feedback

```
SetCmd on[a6 00 00 10 32 4a....] set
```

### SlateLogo

Sets the slate logo for the specified HDMI input/output. The second parameter is the name given to the logo, when it is uploaded to the unit. Specify the `sta` argument to display the current setting.

#### Syntax

```
SlateLogoX Y
```

| Parameter | Description       | Range  |
|-----------|-------------------|--------|
| X         | HDMI input/output | 1, 2   |
| Y         | Slate logo        | String |

#### Example

```
SlateLogo1 test
```

#### Feedback

```
SlateLogo1 test set
```

## OmniStream CLI Command Set

### SlateMode

Sets the slate mode for the specified HDMI input/output. Specify the `sta` argument to display the current setting.

#### Syntax

```
SlateModeX Y
```

| Parameter | Description       | Range                  |
|-----------|-------------------|------------------------|
| X         | HDMI input/output | 1, 2                   |
| Y         | Mode              | off, auto, manual, sta |

#### Example

```
SlateMode1 manual
```

#### Feedback

```
SlateMode1 manual set
```

### Temperature

Displays the system and die temperature in both Fahrenheit and Celsius.

#### Syntax

```
Temperature
```

**This command does not require any parameters**

#### Example

```
Temperature
```

#### Feedback

```
System temperature: 114.80 F (46.00 C)  
Die temperature: 147.83 F (64.35 C)
```

### TrigCEC

Triggers the CEC command on the specified HDMI output.

#### Syntax

```
TrigCECX Y
```

| Parameter | Description | Range               |
|-----------|-------------|---------------------|
| X         | HDMI output | 1, 2                |
| Y         | Command     | on, off, vol+, vol- |

#### Example

```
TrigCEC2 vol+
```

#### Feedback

```
TrigCEC2 vol+ set
```

## OmniStream CLI Command Set

### TrigRS232

Triggers the RS-232 command on the specified RS-232 port.

#### Syntax

```
TrigRS232X Y
```

| Parameter | Description | Range               |
|-----------|-------------|---------------------|
| X         | RS-232 port | 1, 2                |
| Y         | Command     | on, off, vol+, vol- |

#### Example

```
TrigRS23231 vol-
```

#### Feedback

```
TrigRS23231 vol-
```

### Type

Displays the device type.

#### Syntax

```
Type
```

**This command does not require any parameters**

#### Example

```
Type
```

#### Feedback

```
at-omni-112
```

### Version

Displays the firmware version. The argument is optional and provides additional information.

#### Syntax

```
VersionX
```

| Parameter | Description              | Range          |
|-----------|--------------------------|----------------|
| X         | Explicit type (optional) | software, fpga |

#### Example

```
Version
```

#### Feedback

```
2.0.0
```

## OmniStream CLI Command Set

### VideoActiveInput

Displays the active input for the specified HDMI output.

#### Syntax

```
VideoActiveInputX
```

| Parameter | Description | Range |
|-----------|-------------|-------|
| X         | HDMI output | 1, 2  |

#### Example

```
VideoActiveInput1
```

#### Feedback

```
VideoActiveInput1 1
```

### VideoActiveStatus

Displays the status of the specified HDMI output. If no video input is detected, then Inactive is returned.

#### Syntax

```
VideoActiveStatusX
```

| Parameter | Description | Range |
|-----------|-------------|-------|
| X         | HDMI output | 1, 2  |

#### Example

```
VideoActiveStatus1
```

#### Feedback

```
VideoActiveStatus1 active
```

### VideoAspect

Sets the aspect ratio for the specified HDMI output. Specify the `sta` argument to display the current setting.

#### Syntax

```
VideoAspectX Y
```

| Parameter | Description  | Range                                   |
|-----------|--------------|-----------------------------------------|
| X         | HDMI output  | 1, 2                                    |
| Y         | Aspect ratio | keep, fullscreen, 16:9, 16:10, 4:3, sta |

#### Example

```
VideoAspect1 16:10
```

#### Feedback

```
VideoAspect1 16:10 set
```

## OmniStream CLI Command Set

### VideoBackupInput

Sets the backup input for the specified HDMI output. Specify the `sta` argument to display the current setting.

#### Syntax

```
VideoBackupInputX Y
```

| Parameter | Description | Range         |
|-----------|-------------|---------------|
| X         | HDMI output | 1, 2          |
| Y         | IP input    | 1 ... 16, sta |

#### Example

```
VideoBackupInput1 7
```

#### Feedback

```
VideoBackupInput1 7 set
```

### VideoBackupMode

Sets the backup mode for the specified HDMI output. Specify the `sta` argument to display the current setting.

#### Syntax

```
VideoBackupModeX Y
```

| Parameter | Description | Range                               |
|-----------|-------------|-------------------------------------|
| X         | HDMI output | 1, 2                                |
| Y         | Mode        | off, join, active, join always, sta |

#### Example

```
VideoBackupMode1 join active
```

#### Feedback

```
VideoBackupMode1 join active set
```

### VideoDestIP

Sets the video destination IP address for the specified session. Specify the `sta` argument to display the current setting.

#### Syntax

```
VideoDestIPX Y
```

| Parameter | Description | Range                  |
|-----------|-------------|------------------------|
| X         | Session     | 1 ... 6                |
| Y         | IP address  | 0 ... 255 (each octet) |

#### Example

```
VideoDestIP1 226.0.0.1
```

#### Feedback

```
VideoDestIP1 226.0.0.1 set
```

## OmniStream CLI Command Set

### VideoDestPort

Sets the video destination IP port for the specified session. Specify the `sta` argument to display the current setting.

#### Syntax

```
VideoDestPortX Y
```

| Parameter | Description | Range       |
|-----------|-------------|-------------|
| X         | Session     | 1 ... 6     |
| Y         | Port        | 0 ... 65535 |

#### Example

```
VideoDestPort2 1000
```

#### Feedback

```
VideoDestPort2 1000 set
```

### VideoEnable

Enable or disable the video for the specified session. Note that the session range differs between single-channel and dual-channel encoders. Specify the `sta` argument to display the current setting.

#### Syntax

```
VideoEnableX Y
```

| Parameter | Description | Range        |
|-----------|-------------|--------------|
| X         | Session     | 1 ... 6      |
| Y         | State       | on, off, sta |

#### Example

```
VideoEnable2 off
```

#### Feedback

```
VideoEnable2 off set
```

### VideoEncoder

Sets the encoder input for the specified session. Specify the `sta` argument to display the current setting.

#### Syntax

```
VideoEncoderX Y
```

| Parameter | Description | Range   |
|-----------|-------------|---------|
| X         | Session     | 1 ... 6 |
| Y         | Input       | 1, 2    |

#### Example

```
VideoEncoder1 2
```

#### Feedback

```
VideoEncoder1 2 set
```

## OmniStream CLI Command Set

### VideoFECColumns

**This command is only available on Pro units.** Sets the number of FEC columns for the specified session. Specify the `sta` argument to display the current setting.

#### Syntax

```
VideoFECColumnsX Y
```

| Parameter | Description | Range   |
|-----------|-------------|---------|
| X         | Session     | 1 ... 6 |
| Y         | FEC columns | Integer |

#### Example

```
VideoFECColumns1 4
```

#### Feedback

```
VideoFECColumns1 4 set
```

### VideoFECEnable

**This command is only available on Pro units.** Enable or disable FEC for the specified session. Specify the `sta` argument to display the current setting.

#### Syntax

```
VideoFECEnableX Y
```

| Parameter | Description | Range        |
|-----------|-------------|--------------|
| X         | Session     | 1 ... 6      |
| Y         | State       | on, off, sta |

#### Example

```
VideoFECEnable1 on
```

#### Feedback

```
VideoFECEnable1 on set
```

### VideoFECRows

**This command is only available on Pro units.** Sets the number of FEC rows for the specified session. Specify the `sta` argument to display the current setting. Refer to the OmniStream User Manuals for more information on FEC.

#### Syntax

```
VideoFECRowsX Y
```

| Parameter | Description | Range   |
|-----------|-------------|---------|
| X         | Session     | 1 ... 6 |
| Y         | FEC rows    | Integer |

#### Example

```
VideoFECRows1 4
```

#### Feedback

```
VideoFECRows1 4 set
```

## OmniStream CLI Command Set

### VideoInput

Sets the video input to the specified HDMI output. Specify the `sta` argument to display the current setting. Note that the argument `multiview name` is not an actual value. Instead, the name of the multiview should be specified.

#### Syntax

```
VideoInputX Y
```

| Parameter | Description          | Range                                                             |
|-----------|----------------------|-------------------------------------------------------------------|
| X         | HDMI output          | 1, 2                                                              |
| Y         | IP input / Multiview | ip_input1 ... ip_input16, notused, generator, multiview name, sta |

#### Example

```
VideoInput2 ip_input3
```

#### Feedback

```
VideoInput2 ip_input3 set
```

### VideoRes

Sets video resolution of the specified HDMI output. Specify the `sta` argument to display the current setting.

#### Syntax

```
VideoResX Y
```

| Parameter | Description       | Range                         |
|-----------|-------------------|-------------------------------|
| X         | HDMI output       | 1, 2                          |
| Y         | Output resolution | String (see table below), sta |

#### Example

```
VideoRes2 1920x1080
```

#### Feedback

```
VideoRes2 1920x1080 set
```

If `Input` is specified, then no scaling will be applied to the output. Specify `auto` to Specify the EDID of the sink device to determine the output resolution.

| Resolution |           |
|------------|-----------|
| Input      | 1400x1050 |
| Auto       | 1440x900  |
| 4096x2160  | 1280x1024 |
| 3840x2160  | 1280x800  |
| 1920x1200  | 1280x768  |
| 1920x1080  | 1280x720  |
| 1680x1050  | 1024x768  |
| 1600x900   |           |

## OmniStream CLI Command Set

### VideoToBackup

Assigns the active video input to become the backup video input.

#### Syntax

```
VideoToBackup X
```

| Parameter | Description | Range |
|-----------|-------------|-------|
| X         | HDMI output | 1, 2  |

#### Example

```
VideoToBackup 2
```

#### Feedback

```
VideoToBackup 2 set
```

### VideoToPrimary

Assigns the active video input to become the primary video input.

#### Syntax

```
VideoToPrimary X
```

| Parameter | Description | Range |
|-----------|-------------|-------|
| X         | HDMI output | 1, 2  |

#### Example

```
VideoToPrimary 2
```

#### Feedback

```
VideoToPrimary 2 set
```

### VideoWallArray

Sets the video wall size in rows and columns for the specified HDMI output. Specify the `sta` argument, in place of the second and third parameters, to display the current setting.

#### Syntax

```
VideoWallArrayX Y Z
```

| Parameter | Description        | Range   |
|-----------|--------------------|---------|
| X         | HDMI output        | 1, 2    |
| Y         | Video wall rows    | Integer |
| Z         | Video wall columns | Integer |

#### Example

```
VideoWallArray1 2 2
```

#### Feedback

```
VideoWallArray1 2 2 set
```

## OmniStream CLI Command Set

### VideoWallEnable

Enable or disable the video wall for the specified HDMI output. Specify the `sta` argument to display the current setting.

#### Syntax

```
VideoWallEnableX Y
```

| Parameter | Description | Range        |
|-----------|-------------|--------------|
| X         | HDMI output | 1, 2         |
| Y         | State       | on, off, sta |

#### Example

```
VideoWallEnable1 on
```

#### Feedback

```
VideoWallEnable1 on set
```

### VideoWallPos

Sets the video wall position in rows and columns for the specified HDMI output. Specify the `sta` argument, in place of the second and third parameters, to display the current setting.

#### Syntax

```
VideoWallPosX Y Z
```

| Parameter | Description | Range   |
|-----------|-------------|---------|
| X         | HDMI output | 1, 2    |
| Y         | X position  | Integer |
| Z         | Y position  | Integer |

#### Example

```
VideoWallPos1 1 1
```

#### Feedback

```
VideoWallPos1 1 1 set
```

## OmniStream CLI Command Set

### VideoWallSize

Sets the total video wall size for the specified HDMI output. Units can be specified in pixels, inches, or millimeters. Specify the `sta` argument to display the current setting.

#### Syntax

```
VideoWallSizeW X Y Z
```

| Parameter | Description | Range                       |
|-----------|-------------|-----------------------------|
| W         | HDMI output | 1, 2                        |
| X         | Width       | Integer                     |
| Y         | Height      | Integer                     |
| Z         | Metric      | pixels, inches, millimeters |

#### Example

```
VideoWallSize1 80 80 inches  
VideoWallSize1 sta
```

#### Feedback

```
VideoWallSize1 80 80 inches set  
VideoWallSize1 80 80 inches
```

### VolumeBtn

***This command is only available on Pro units.*** Sends the volume-up or volume-down command. Volume is incremented or decremented by 1, each time the command is executed.

#### Syntax

```
VolumeBtn X
```

| Parameter | Description | Range    |
|-----------|-------------|----------|
| X         | Volume      | up, down |

#### Example

```
VolumeBtn up
```

#### Feedback

```
VolumeBtn up
```

# JSON over WebSocket

---

OmniStream can be configured and monitored using an API designed around JSON over WebSocket.

This document provides an introduction to how to use this protocol to interact with the device.

The JSON API offers a structured way to retrieve and manipulate the configuration of OmniStream devices. The configuration is organized into a number of different configuration nodes, which can be individually retrieved using 'config\_get' calls and individually changed using 'config\_set' calls. For operations which do not fit neatly into this paradigm (things like 'reboot device') the JSON API also offers the 'method' call.

## WebSocket

The API uses WebSocket as a transport layer. The WebSocket layer provides full-duplex, reliable message-oriented communication.

Each request consists of a JSON object, sent as a WebSocket message. Each request will get a single message and a JSON object as a reply.

The API makes no use of WebSocket subprotocols.

The lifetime of the connection has no meaning within the protocol. It's possible to send multiple requests within a single connection, or to set up a new WebSocket connection for each request. For efficiency reasons it's recommended to keep the WebSocket connection open and send multiple requests using the same connection, but this is not mandatory.

See <https://www.rfc-editor.org/rfc/rfc6455.txt> for the WebSocket specification.

See <http://www.ecma-international.org/publications/files/ECMA-ST/ECMA-404.pdf> for the JSON specification.

There are two WebSocket channels available on the device, one for setting and getting configuration items (ws://<IP>/wsapp/) and the other one for getting the notifications (ws://<IP>/notifications/), where IP corresponds to the IP address of the device. It is also possible to communicate in TLS by using respectively wss://<IP>/wsapp/ for the configuration updates and wss://<IP>/notifications/ for receiving the notifications.

## Authentication

In order to identify the user and determine if he/she is allowed to perform the requested action every request must contain the user name and password of the user. Each request, regardless of type, must contain a 'username' and a 'password' field.

### User Roles

Each user is assigned a role when it is created. This role determines what the user is allowed or not allowed to do. There are two roles: 'administrator' and 'operator'.

The 'administrator' user is allowed to do everything. The 'operator' user can query the status of the device, but can not make changes. In other words: users with the 'administrator' role can make any change on the device (using 'config\_get', 'config\_set' or 'method' calls). Users with the 'operator' role can only execute 'config\_get' calls. Any 'config\_set' or 'method' call will be rejected.

### Error Handling

Every reply from the device, regardless of type, will include an 'error' field. If this is set to true the request failed. In that case an 'error\_message' field will also be present and details the reason for the failure.

For example, if the request did not contain a correct user name/password the reply might look like this:

**Request:**

```
{
  "config_get": "hdmi_input",
  "password": "",
  "username": "admin"
}
```

**Reply:**

```
{
  "error": true,
  "error_message": "Invalid username/password"
}
```

### Messages

#### config\_get

The 'config\_get' call is used to retrieve information from the device. It takes only a single parameter: the name of the configuration node to retrieve.

**Request:**

```
{
  "config_get": "auth",
  "password": "3243F6A8885",
  "username": "admin"
}
```

**Reply:**

```
{
  "config": [{
    "passwordHash": "$6$7r0hBdwSSfSdl0kZ$UjGmDw6kEgpr3zpQLJ.GOXfF5/",
    "role": "administrator",
    "username": "admin"
  },
  {
    "passwordHash": "$6$YvpiJ2NaW1fF6zKW$rEv0qlgOwiAhNyB.Bgzcf6DCa/",
    "role": "operator",
    "username": "operator"
  }
],
  "error": false
}
```

The requested information can be found in the 'config' field. The structure of the reply depends on the requested node.

### config\_set

Configuration changes are made through the 'config\_set' call.

The 'config\_set' call has two important fields: 'name' gives the name of the configuration node to change, the 'config' field has the configuration (as a JSON object or list) to apply.

The content of the 'config' node share the same structure as the content of the 'config' node in the reply to the 'config\_get' call, except that it does not include the read-only fields.

**Request:**

```
{
  "config_set": {
    "config": [{
      "enabled": true,
      "interface": "eth1",
      "multicast_address": "230.0.0.1",
      "name": "ip_input0",
      "port": 5004
    },
    {
      "enabled": true,
      "interface": "eth1",
      "multicast_address": "230.0.0.2",
      "name": "ip_input1",
      "port": 5008
    }
  ],
  "name": "ip_input"
},
"password": "3243F6A8885",
"username": "admin"
}
```

**Reply:**

```
{
  "error": false
}
```

Not all fields must be specified in the request. Omitted fields are not modified. In other words, it is possible to make a 'config\_set' call which only modifies a single field by only including that field.

Note that some fields are mandatory in the request so that the device is able to determine which configuration should be changed. For example, the 'ip\_input' node consists of a list of ip\_input objects. Each object is identified by its name, so the 'name' field must always be present. If it were to be omitted the device would be unable to determine which ip\_input object to modify.

The example, on the next page, disables a single ip\_input without modifying any of its other fields:

## OmniStream JSON API

**Request:**

```
{
  "config_set": {
    "config": [{
      "enabled": true,
      "name": "ip_input0"
    }],
    "name": "ip_input"
  },
  "password": "3243F6A8885",
  "username": "admin"
}
```

**Reply:**

```
{
  "error": false
}
```

If the 'name' field is omitted, then an error is returned.

**Request:**

```
{
  "config_set": {
    "config": [{
      "enabled": true
    }],
    "name": "ip_input"
  },
  "password": "3243F6A8885",
  "username": "admin"
}
```

**Reply:**

```
{
  "error": true,
  "error_message": "IP Input not found"
}
```

All changes made are automatically saved. There's no need to take any further action to ensure that the changes will remain after a reboot. Note that there is a small delay between making the change and having it saved persistently. It is always safe to restart the device using the 'reboot' method call. This persists any pending configuration changes before restarting the device.

### Short Description of Main Nodes

The 'config\_get' and 'config\_set' calls are used to respectively retrieve and push configuration parameters from/to the device. The configuration nodes are fully described in the 'schema.json' file. Hereafter you can find a table with the main nodes available (reference list is found in \_schema.json). The main nodes are used to configure or retrieve information of the device.

| Nodes                  | Short description                                                                                          | Target  |
|------------------------|------------------------------------------------------------------------------------------------------------|---------|
| systeminfo             | General system information.                                                                                | Both    |
| timezone               | The timezones available on the system.                                                                     | Both    |
| hdmi_input             | Array with description of HDMI input port(s); one port per element.                                        | Encoder |
| video_generator        | A list of video generators available on this system.                                                       | Both    |
| audio_generator_format | General audio generator settings. Read/write.                                                              | Both    |
| audio_generator        | A list of audio generators available on this system                                                        | Both    |
| edids                  | Array with EDID of the displays.                                                                           | Decoder |
| hdmi_output            | Array with description of HDMI output port(s); one port per element.                                       | Decoder |
| vc2_encoder            | Array with description of VC-2 encoder(s) One encoder per element.                                         | Encoder |
| j2k_encoder            | Reserved for future use.                                                                                   | Encoder |
| sessions               | Array with description of session, consisting of video, audio and/or aux streams; one session per element. | Encoder |
| ip_input               | Describe an ip_input, which is a single video, audio or aux input stream.                                  | Decoder |
| net                    | Deprecated node.                                                                                           | Both    |
| net_v2                 | Array with description of network interface(s); one interface per element                                  | Both    |
| serial_port            | Array of hardware configuration of serial port(s); one port per element                                    | Both    |
| serial                 | Array of configuration of serial port(s); one port per element                                             | Both    |
| encodercommands        | Array of configuration of command(s) One command per element                                               | Encoder |
| decodercommands        | Array of configuration of command(s) One command per element                                               | Decoder |
| logo_library           | Array of configuration of command(s) One command per element                                               | Both    |
| logo_insertion         | Array of configuration of logo insertion(s)                                                                | Both    |
| text_insertion         | Array of configuration of text insertion(s)                                                                | Both    |
| alarms                 | Array with alarm(s); one alarm entry per element                                                           | Both    |
| users                  | Array of definition(s) of user; one user per element                                                       | Both    |
| packetdropper          | Array of configuration of packetdropper(s); one dropper per element                                        | Encoder |
| ptp                    | Array of configuration of PTP                                                                              | Both    |
| license                | Configuration of licenses                                                                                  | Both    |

## OmniStream JSON API

Besides the definition of main nodes, the JSON schema also includes definition of nodes in the main nodes:

| Nodes                  | Short description                                           |
|------------------------|-------------------------------------------------------------|
| timezone               | The timezones available on the system                       |
| audio_generator_format | Configuration of format for audio generator                 |
| edid                   | The EDID of the display device. Read-only                   |
| stream                 | Configuration of network stream (video, audio or aux)       |
| sap                    | Configuration of SAP announcement                           |
| sap_stream             | The video stream information                                |
| sap_listener           | Received SAP sessions                                       |
| command                | Configuration of serial or CEC command                      |
| alarm                  | Alarm entry, indicating when an alarm was raised or cleared |
| video_status           | Status of video activity                                    |
| audio_status           | Status of audio activity                                    |
| scrambling             | Configuration of stream scrambling                          |
| backup_ip_input        | Backup input configuration                                  |
| feature                | Information on licensed feature                             |

## OmniStream JSON API

### Methods

The 'method' call is generally used to make changes on the device which may not be persistent. For example, it's used to reboot the device, reset it to its factory defaults or to request the list of available config nodes for 'config\_get' call.

The 'method' call includes an object whose name determines the action to be performed. The fields inside the object can be considered the arguments to the method call.

The 'method' JSON object must contain exactly one sub-object.

```
Request: {
  "method": {
    "introspect": {
      "type": "config_get"
    }
  },
  "password": "3243F6A8885",
  "username": "admin"
}
Reply: {
  "error": false,
  "reply": [
    "alarms",
    "audio",
    "auth",
    "commands",
    "hdmi_input",
    "net",
    "packetdropper",
    "serial",
    "serial_port",
    "sessions",
    "systeminfo",
    "encoder"
  ]
}
```

Note that some calls, like 'factory\_reset' or 'reboot' reboot the device, so the WebSocket connection is closed by the device before a reply is sent.

The table on the next page lists the available methods. The reference list can be found in the api-schema.json file, available on the Atlona web site.

## OmniStream JSON API

| Method                     | Short Description                                                        |
|----------------------------|--------------------------------------------------------------------------|
| reboot                     | Reboot the device                                                        |
| get_debug_info             | Generate a debug file and return an URL indicating where it can be found |
| get_debug_info2            | Get specific debug info                                                  |
| introspect                 | Enumerate the available config_set/config_get nodes or method calls      |
| factory_reset              | Reset the device to factory defaults and reboot                          |
| export_config              | Export the current configuration                                         |
| import_config              | Import a new configuration                                               |
| import_config_file         | Import a new configuration from an uploaded file                         |
| list_config                | List the available configurations                                        |
| trigger_command            | Trigger a command                                                        |
| trigger_serial             | Trigger a command on serial port Decoder only                            |
| trigger_cec                | Trigger a CEC command on the speci1ed HDMI port Decoder only             |
| backup                     | Trigger a change to backup or reversion to primary                       |
| identify                   | CaSpecify the device to emit an "identify" notification                  |
| clear_alarms               | Clear all of the inactive alarms                                         |
| add_license                | Add a new license to the device                                          |
| upgrade                    | Give the name of the file returned by the web server after it was POSTed |
| add_logo                   | Add a logo on top of the video stream                                    |
| delete_logo                | Remove a logo previously uploaded on the device                          |
| add_command                | Add a new command to the device                                          |
| delete_command             | Delete a new command from the device                                     |
| add_encodergroup_member    | Add a member to the encoder group of a session                           |
| activate_encodergroup      | Activate an encoder group of a session                                   |
| delete_encodergroup_member | Delete a member from the encoder group of a session                      |
| add_edid                   | Add a new EDID on the device                                             |
| delete_edid                | Delete an EDID from the device                                           |
| usb_export                 | USB export                                                               |
| usb_unexport               | Removes the specified USB export                                         |
| usb_bind                   | Gadget name in which the binding should be added                         |
| usb_unbind                 | Gadget name in which the binding should be removed                       |
| add_vlan                   | Adds a VLAN interface                                                    |
| del_vlan                   | Name of the VLAN interface to delete                                     |

### Asynchronous Use

Optionally each request, of any type, may also include an 'id' field with an arbitrary string as value. This string is selected by the client, and returned in the 'id' field of the reply. This is useful for asynchronous implementations as it allows them to match the reply with the request.

```
Request: {
  "id": "foo",
  "config_set": {
    "config": [{
      "enabled": true,
      "name": "ip_input0"
    }],
    "name": "ip_input"
  },
  "password": "3243F6A8885",
  "username": "admin"
}
Reply: {
  "error": false,
  "id": "foo"
}
```

The device does not parse or alter the value of the 'id' field. It can be set to any value. Ensuring its uniqueness across requests is the responsibility of the client.

### Formal Specification

The formal specification of the JSON structures can be retrieved from the device.

There are two JSON Schema files:

- [http://<IP>/schema/api\\_schema.json](http://<IP>/schema/api_schema.json)
- <http://<IP>/schema/schema.json>

The first defines the structure of the 'config\_set', 'config\_get' and 'method' calls and refers to the second for the structure of configuration returned by 'config\_get' or set by 'config\_set' requests.

See <http://json-schema.org/> for more information about JSON schema definitions.

### Examples

The devices use WebSocket and JSON API for their configuration. On the host side there are a lot of possibilities for implementing a client that can communicate with the device. For instance, during the development we used Python as programming language (<https://www.python.org/>) for a proof of concept. The following code has been tested with Python version 2.7.

```
import os
import sys
import simplejson          # pip install simplejson
import websocket           # pip install websocket - client

BOARD_IP = "192.168.1.203"
url = "ws://{}/wsapp/".format(BOARD_IP)

ws = websocket.WebSocket()
ws.connect(url)

request = {}
request["username"] = "admin"
request["password"] = "3243F6A8885"
request["config_get"] = "systeminfo"
json_request = simplejson.dumps(request, sort_keys = True, indent = 4 * ' ')

ws.send(json_request)
reply = ws.recv()

print "Reply:", reply
```

When executed (and a device is connected on the network with the expected IP address), the result would be similar to the following:

```
{
  "config": {
    "datetime": "1970-01-01T05:08:24.000UTC",
    "description": "",
    "detailedfirmwareversion": "SW: trunk.3568, FPGA: 1.0 (r3573)",
    "firmwareversion": "trunk",
    "hostname": "DUT-001",
    "location": "",
    "model": "decoder",
    "ntpserver": "",
    "temperature": 37.5,
    "type": "Decoder",
    "uptime": 18504
  },
  "error": false
}
```

The following sections, beginning on the next page, provide examples of JSON request that for setting or getting parameters from a device.

## OmniStream JSON API

### First Contact with a Device

To retrieve info on the system, the JSON request is:

```
{
  "config_get": "system_info",
  "password": "3243 F6A8885",
  "username": "admin"
}
```

### Getting Information on an HDMI Input Port

To retrieve info on the HDMI input port(s) of an encoder, the JSON request is:

```
{
  "config_get": "hdmi_input",
  "password": "3243F6A8885",
  "username": "admin"
}
```

### Getting Information on an HDMI Output Port

To retrieve info on the HDMI output port(s) of a decoder, the JSON request is:

```
{
  "config_get": "hdmi_output",
  "password": "3243F6A8885",
  "username": "admin"
}
```

## Configuring an Encoder

1. Verify that the HDMI input ports have been enabled.
2. Configure the video encoder:

```
{
  "config_set": {
    "name": "vc2",
    "config": [{
      "name": "vc2_encoder1",
      "bitrate": 700,
      "input": "hdmi_input1"
    },
    {
      "name": "vc2_encoder2",
      "bitrate": 700,
      "input": "hdmi_input2"
    }
  ]
},
"password": "3243F6A8885",
"username": "admin"
}
```

3. Configure the session:

```
{
  "config_set": {
    "name": "sessions",
    "config": [{
      "name": "session1",
      "interface": "eth1",
      "video": {
        "encoder": "vc2_encoder1",
        "stream": {
          "enabled": true,
          "destination_address": "226.0.1.10",
          "destination_port": 5004
        }
      },
      "audio": {
        "encoder": "hdmi_input1",
        "stream": {
          "enabled": true,
          "destination_address": "226.0.1.11",
          "destination_port": 5008
        }
      },
      "scrambling": {
        "enabled": true,
        "key": "CAFE7070800800FFD00D0001BABADEDEBABA0007CAFECAFE"
      }
    }
  ]
}
```

(continued on next page)

```
    },
    "sap": {
      "enabled": true,
      "name": "Demo_1",
      "description": "Demo stream session",
      "originator": "Encoder1",
      "frequency": 10
    }
  ]
},
"password": "3243F6A8885",
"username": "admin"
}
```

## Configuring a Decoder

### 1. Configure the IP inputs:

```
{
  "config_set": {
    "name": "ip_input",
    "config": [{
      "name": "ip_input1",
      "enabled": true,
      "interface": "eth1",
      "port": 5004,
      "multicast": {
        "address": "226.0.1.10"
      }
    },
    {
      "name": "ip_input2",
      "enabled": true,
      "interface": "eth1",
      "port": 5008,
      "multicast": {
        "address": "226.0.1.11"
      }
    },
    {
      "name": "ip_input3",
      "enabled": false,
      "interface": "eth1",
      "port": 5012,
      "multicast": {
        "address": ""
      }
    },
    {
      "name": "ip_input4",
      "enabled": true,
      "interface": "eth2",
```

(continued on next page)

```
    "port": 5004,
    "multicast": {
      "address": "226.0.2.10"
    }
  },
  {
    "name": "ip_input5",
    "enabled": true,
    "interface": "eth2",
    "port": 5008,
    "multicast": {
      "address": "226.0.2.11"
    }
  },
  {
    "name": "ip_input6",
    "enabled": false,
    "interface": "eth2",
    "port": 5012,
    "multicast": {
      "address": ""
    }
  }
]
},
"password": "3243F6A8885",
"username": "admin"
}
```

## 2. Configure the HDMI outputs:

```
{
  "config_get": "hdmi_output",
  "password": "3243F6A8885",
  "username": "admin"
}
```

## Getting Notifications

To retrieve a list of notifications, the JSON request is:

```
{
  "config_get": "notifications",
  "password": "3243F6A8885",
  "username": "admin"
}
```

### Notifications

It is possible to obtain notifications from the device through a WebSocket which is located at the following address: `ws://<IP>/notifications`. A notification is emitted when a settings change or when an event occurs. Three types of notification can be emitted on the WebSocket. We give a list and some examples below:

1. Alarm notification: for instance due to a bad configuration, the following alarm is emitted when one tries to stream an HDCP content when the scrambling is disabled:

```
{
  "alarm": {
    "active": true,
    "description": "Input hdmi_input1 is HDCP encrypted, but this stream is not scrambled",
    "name": "HDCP encrypted input (video) on session1",
    "timestamp": "1970-01-01T18:49:59.000UTC"
  }
}
```

2. Configuration update notification: a change in the settings happened. For instance, one do a `config_set` of the session parameters:

```
{
  "config_update": {
    "name": "session"
  }
}
```

Another example might be when one of the HDMI sources is connected or disconnected from the encoder:

```
{
  "config_update": {
    "name": "hdmi_input1"
  }
}
```

3. Identify notification: a request for the device to identify itself:

```
{
  "identify": {}
}
```

### Firmware Upgrades

The upgrade of a device is performed with a .vpup2 file. First, the .vpup2 file has to be uploaded on the device. This is done with an upload request through HTTP to following address: `http://__device_IP_address__/upload`. In the reply of this request the local name of .vpup2 file is provided. In a second step a JSON request must be sent over the WebSocket. The request should contain the local name returned by the http server:

```
{
  "upgrade": "__local_name_of_vpup_file__",
  "password": "3243F6A8885",
  "username": "admin"
}
```

### Rebooting OmniStream

To reboot OmniStream, the JSON request is:

```
{
  "method": {
    "reboot": {}
  },
  "password": "3243F6A8885",
  "username": "admin"
}
```

