



OmniStream Pro / R-Type Encoder / Decoder

CLI Command Set
JSON Application Programming Interface

AT-OMNI-111/WP AT-OMNI-121 AT-OMNI-512
AT-OMNI-112 AT-OMNI-122 AT-OMNI-521

Atlona Manuals
OmniStream

Version Information

Version	Release Date	Notes
1	Mar 2017	Initial release
2	Jul 2018	Updated to cover 1.2.1 firmware
3	Jan 2019	Updated to cover 1.2.2 firmware
4	May 2019	Updated to cover 1.2.4 firmware; the AnalogInputEnable, AnalogInputStatus, AnalogOutputEnable, and AnalogOutputStatus commands have been replaced by the AnalogPowerEnable and AnalogPowerStatus commands.
5	Oct 2019	Combined OmniStream Pro, OmniStream R-Type, and JSON API in one document
6	Nov 2019	Added OmniStream Wallplate commands
7	Feb 2020	Firmware 1.2.6 - Added EncGroup command, which supports encoder grouping over Telnet/SSH.

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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
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

OmniStream CLI Command Set

Command	Enc	Dec	Description
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
Descramble		●	Enables or disables descrambling for the specified HDMI output (SSH only)
DescrambleKey		●	Specifies the descrambling key for the specified HDMI output (SSH only)
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.
EncoderInput	●		Sets the input for the specified 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
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
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

Command	Enc	Dec	Description
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
SessionScramble	●		Enables or disables scrambling for the specified session (SSH only)
SessionScrambleKey	●		Sets the scrambling key for the specified session (SSH only)
SetCmd	●	●	Specifies the defined command to be sent over RS-232
SlateLogo	●	●	Sets the slate logo for the specified HDMI output
SlateMode	●	●	Sets the slate mode for the specified HDMI output
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 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
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
EncoderInput	●		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
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

Command	Enc	Dec	Description
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
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 output
SlateMode	●	●	Sets the slate mode for the specified HDMI output
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 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
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
EncoderInput	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 output
SlateMode	Sets the slate mode for the HDMI output

OmniStream CLI Command Set

Command	Description
Type	Displays the device type
Version	Displays the firmware version
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

Commands

8021xMode

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



WARNING: 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. Use 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
```

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
```

AudioBackupInput

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

Syntax

```
AudioBackupInputX Y
```

Parameter	Description	Range
X	HDMI output	1, 2
Y	Audio backup input	1 ... 4

Example

```
AudioBackupInput1 4
```

Feedback

```
AudioBackupInput1 4 set
```

AudioBackupMode

Sets the backup audio mode for the specified HDMI output. Use 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 destination audio IP address for the specified session. Note that the session range differs between single-channel and dual-channel encoders. Use the `sta` argument to display the current setting.

Syntax

```
AudioDestIPX
```

Parameter	Description	Range
X	Session	1 ... 6 (dual-channel encoders) 1, 2 (single-channel encoders)
Y	IP address	0 ... 255 per byte

Example

```
AudioDestIP1 192.168.11.10
```

Feedback

```
AudioDestIP1 192.168.11.10 set
```

AudioDestPort

Sets the destination audio port for the specified session. Note that the session range differs between single-channel and dual-channel encoders. Use the `sta` argument to display the current setting.

Syntax

```
AudioDestPortX Y
```

Parameter	Description	Range
X	Session	1 ... 6 (dual-channel encoders) 1, 2 (single-channel encoders)
Y	Port	0 ... 65535

Example

```
AudioDestPort1 1100
```

Feedback

```
AudioDestPort1 1100 set
```

AudioEnable

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

Syntax

```
AudioEnableX Y
```

Parameter	Description	Range
X	Session	1 ... 6 (dual-channel encoders) 1, 2 (single-channel encoders)
Y	State	on, off, sta

Example

```
AudioEnable2 on
```

Feedback

```
AudioEnable2 on set
```

AudiInput

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

Syntax

```
AudiInputX
```

Parameter	Description	Range
X	HDMI output	1, 2
Y	Audio input	1 ... 4

Example

```
AudiInput1 3
```

Feedback

```
AudiInput1 3 set
```

AudioMute

This command is not available on R-Type units. Enable or disable muting on the specified HDMI output. Use 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
```

AudioSource

Sets the HDMI audio source for the specified session. Note that the session range differs between single-channel and dual-channel encoders. Use the `sta` argument to display the current setting.

Syntax

```
AudioSourceX Y
```

Parameter	Description	Range
X	Session	1 ... 6 (dual-channel encoders) 1, 2 (single-channel encoders)
Y	HDMI audio source	1, 2, sta

Example

```
AudioSource4 2
```

Feedback

```
AudioSource4 2
```


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

```
AudioToBackupX
```

Parameter	Description	Range
X	HDMI output	1, 2

Example

```
AudioToPrimary1
```

Feedback

```
AudioToPrimary1 set
```

AudioVolume

This command is not available on R-Type units. Sets the output volume on the specified HDMI output. Use 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
```

AuxBidirectional

Enables bidirectional data transfer on the Aux channel (IR / RS-232) for the specified session. Note that the session range differs between single-channel and dual-channel encoders. Use the `sta` argument to display the current setting.

Syntax

```
AuxBidirectionalX Y
```

Parameter	Description	Range
X	Session	1 ... 6 (dual-channel encoders) 1, 2 (single-channel encoders)
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. Use the `sta` argument to display the current setting.

Syntax

```
AuxDecodeInputX Y
```

Parameter	Description	Range
X	HDMI output	1, 2
Y	Input	0 ... 15

Example

```
AuxDecodeInput1 7
```

Feedback

```
AuxDecodeInput1 7 set
```

AuxDestIP

Sets the destination IP address for the auxiliary channel for the specified session. Note that the session range differs between single-channel and dual-channel encoders. Use the `sta` argument to display the current setting.

Syntax

```
AuxDestIPX Y
```

Parameter	Description	Range
X	Session	1 ... 6 (dual-channel encoders) 1, 2 (single-channel encoders)
Y	IP address	0 ... 255 per byte

Example

```
AuxDestIP3 192.168.11.154
```

Feedback

```
AuxDestIP3 192.168.11.154 set
```

AuxDestPort

Sets the destination port for the auxiliary channel for the specified session. Note that the session range differs between single-channel and dual-channel encoders. Use the `sta` argument to display the current setting.

Syntax

```
AuxDestPortX Y
```

Parameter	Description	Range
X	Session	1 ... 6 (dual-channel encoders) 1, 2 (single-channel encoders)
Y	Port	0 ... 65535

Example

```
AuxDestPort2 2000
```

Feedback

```
AuxDestPort2 2000 set
```

AuxEnable

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

Syntax

```
AuxEnableX Y
```

Parameter	Description	Range
X	Session	1 ... 6 (dual-channel encoders) 1, 2 (single-channel encoders)
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. Note that the session range differs between single-channel and dual-channel encoders. Use the `sta` argument to display the current setting.

Syntax

```
AuxListenPortX Y
```

Parameter	Description	Range
X	Session	1 ... 6 (dual-channel encoders) 1, 2 (single-channel encoders)
Y	Port	0 ... 65535

Example

```
AuxListenPort2 1204
```

Feedback

```
AuxListenPort2 1204 set
```

AuxSource

Sets the serial port source for the specified session. Note that the session range differs between single-channel and dual-channel encoders. Use the `sta` argument to display the current setting.

Syntax

```
AuxSourceX Y
```

Parameter	Description	Range
X	Session	1 ... 6 (dual-channel encoders) 1, 2 (single-channel encoders)
Y	Serial port	1, 2

Example

```
AuxSource1 2
```

Feedback

```
AuxSource1 2 set
```

Broadcast

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

Syntax

```
Broadcast X
```

Parameter	Description	Range
X	State	on, off, sta

Example

```
AuxListenPort2 1204
```

Feedback

```
AuxListenPort2 1204 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
```

Descramble

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

Syntax

```
DescrambleX Y
```

Parameter	Description	Range
X	HDMI output	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 output	1, 2
Y	Key	String

Example

```
DescrambleKey1 e39f2de467ce7c9c
```

Feedback

```
DescrambleKey1 e39f2de467ce7c9c set
```

EDIDMSet

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

Syntax

```
EDIDMSetX Y
```

Parameter	Description	Range
X	HDMI input	1, 2
Y	EDID	(Refer to tables below)

Example

```
EDIDMSet1 1080p 2ch
```

Feedback

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

Video mode only

Available EDID selections

Default - Video Mode	1080P MCH	720P DD
Default - Video Mode (No HDR)	4K60 MCH	720P 2CH
1080P 2CH	4K60 PCM-MCH	
1080P DD	460 LPCM 2CH	

PC application mode only

Available EDID selections

Default	1080P MCH	2160P 2CH
1080P DVI	1280x800 RGB DVI PCWXGADVI	2160P MCH
1080P 2CH	1280x800 RGB PCWXGA2CH	2560x1600 2CH
1080P DD	1366x768 RGB TVWXGA2CH	2560x1600 MCH

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. Use the sta argument to display the current setting.

Syntax

```
EnableAES67X Y
```

Parameter	Description	Range
X	Session (encoder only) HDMI output (decoder only)	Integer value (session number, encoder only) 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. Use 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
```


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. Use the sta argument to display the current setting.

Syntax

```
EncoderBitRateX Y
```

Parameter	Description	Range
X	Encoder	1, 2
Y	Bit rate	Integer value

Example

```
EncoderBitDepth1 10
```

Feedback

```
EncoderBitDepth1 10 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
```

EncoderInput

Sets the input for the specified encoder. Use 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
```

EncoderSubSample

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

Syntax

```
FastSwitchingX Y
```

Parameter	Description	Range
X	HDMI output	1 (single-channel decoders) 1, 2 (dual-channel decoders)
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. Use the sta argument to display the current setting.

Syntax

```
FrontPanelLock X
```

Parameter	Description	Range
X	Status	lock, unlock

Example

```
FrontPanelLock lock
```

Feedback

```
FrontPanelLock lock set
```

HDCPSet

Sets the version of HDCP for the specified HDMI input. Use the sta argument to display the current setting.

Syntax
HDCPSetX Y

Parameter	Description	Range
X	HDMI input	1, 2
Y	HDCP version	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]

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. Use 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
```

IPDHCP

Enable or disable DHCP mode on the specified interface. Use the sta argument to display the current setting.

Syntax

```
IPDHCPX Y
```

Parameter	Description	Range
X	Interface	1, 2
Y	State	on, off, sta

Example
IPDHCP1 on

Feedback

```
IPDHCP1 on set
```

IPInputEnable

Enable or disable the specified IP input. Note that the input range differs between single-channel and dual-channel decoders. Use the `sta` argument to display the current setting.

Syntax

```
IPInputEnableX Y
```

Parameter	Description	Range
X	Input	1 ... 12 (dual-channel decoders) 1 ... 5 (single-channel decoders)
Y	State	on, off, sta

Example

```
IPInputEnable off
```

Feedback

```
IPInputEnable off set
```

IPInputFilterAddr

Sets the filter address for the specified IP input. Note that the input range differs between single-channel and dual-channel decoders. Use the comma delimiter to specify multiple IP addresses. IP addresses cannot be multicast addresses. Use the `sta` argument to display the current setting.

Syntax

```
IPInputFilterAddrX Y
```

Parameter	Description	Range
X	Input	1 ... 12 (dual-channel decoders) 1 ... 5 (single-channel decoders)
Y	IP address(es)	0 ... 255 (per octet)

Example

```
IPInputFilterAddr1 192.168.11.100, 192.168.11.58
```

Feedback

```
IPInputFilterAddr1 192.168.11.100, 192.168.11.58 set
```

IPInputFilterMode

Sets the mode for filter addresses. Note that the input range differs between single-channel and dual-channel decoders. Use the sta argument to display the current setting.

Syntax

```
IPInputFilterModeX Y
```

Parameter	Description	Range
X	Input	1 ... 12 (dual-channel decoders) 1 ... 5 (single-channel decoders)
Y	Mode	include, exclude, sta

Example

```
IPInputFilterMode1 exclude
```

Feedback

```
IPInputFilterMode1 exclude set
```

IPInputInterface

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

Syntax

```
IPInputInterfaceX Y
```

Parameter	Description	Range
X	Input	1 ... 12 (dual-channel decoders) 1 ... 5 (single-channel decoders)
Y	Interface	eth1, eth2, sta

Example

```
IPInputInterface1 eth2
```

Feedback

```
IPInputInterface1 eth2 set
```


IPInputMulticast

Sets the multicast IP address for the specified IP input. Note that the input range differs between single-channel and dual-channel decoders. The multicast address must be specified in dot-decimal notation. Use the `sta` argument to display the current setting.

Syntax

```
IPInputMulticastX Y
```

Parameter	Description	Range
X	Input	1 ... 12 (dual-channel decoders) 1 ... 5 (single-channel decoders)
Y	IP address	0 ... 255 (per octet)

Example

```
IPInputMulticast1 226.0.0.10
```

Feedback

```
IPInputMulticast1 226.0.0.10 set
```

IPInputPort

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

Syntax

```
IPInputPortX Y
```

Parameter	Description	Range
X	Input	1 ... 12 (dual-channel decoders) 1 ... 5 (single-channel decoders)
Y	Port	0 ... 65535, sta

Example

```
IPInputPort1 2012
```

Feedback

```
IPInputPort1 2012 set
```

IPLogin

Enable or disable the authentication for Telnet and/or NVT. Use 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. Use 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
```

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
W	Interface	1, 2
X	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
```

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]
```

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). Use 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
```

SerialBaud

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

Syntax

```
SerialBaudX Y
```

Parameter	Description	Range
X	Serial port	1, 2
Y	Rate	9600, 19200, 38400, 57600, 115200

Example

```
SerialBaud1 57600
```

Feedback

```
SerialBaud1 57600 set
```

SerialData

Sets the number of data bits for the specified serial port. Use 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. Use 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
```

SerialDestIP

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

Syntax

```
SerialDestIPX 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. Use the sta argument to display the current setting.

Syntax

```
SerialDestPortX 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. Use the sta argument to display the current setting.

Syntax

```
SerialInputX Y
```

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

Example

```
SerialPort1 1
```

Feedback

```
SerialPort1 1 set
```


SerialInterface

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

Syntax

```
SerialModeX Y
```

Parameter	Description	Range
X	Serial port	1, 2
Y	Mode	cli, tcp-proxy, output, sta

Example

```
SerialMode2 tcp-proxy
```

Feedback

```
SerialMode2 tcp-proxy set
```

SerialParity

Sets the parity bit for the specified serial port. Use 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
```

SerialPort

Sets the serial port to the specified port. Use 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

```
SerialMode1 serial_port1
```

Feedback

```
SerialMode1 serial_port1 set
```

SerialStop

Sets the number of stop bits for the specified serial port. Use 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. Use 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
```

SessionScrambleKey

This command is only available when using SSH. Sets the scrambling key for the specified session. Use 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 output. The second parameter is the name given to the logo, when it is uploaded to the unit. Use the sta argument to display the current setting.

Syntax

```
SlateLogoX Y
```

Parameter	Description	Range
X	HDMI output	1, 2
Y	Slate logo	String

Example

```
SlateLogo1 test
```

Feedback

```
SlateLogo1 test set
```

SlateMode

Sets the slate mode for the specified HDMI output. Use the sta argument to display the current setting.

Syntax

```
SlateModeX Y
```

Parameter	Description	Range
X	HDMI output	1, 2
Y	Mode	off, auto, manual, sta

Example

```
SlateMode1 manual
```

Feedback

```
SlateMode1 manual set
```

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
```

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

```
1.2.1
```

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. Use 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
```


VideoBackupInput

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

Syntax

```
VideoBackupInputX Y
```

Parameter	Description	Range
X	HDMI output	1, 2
Y	IP input	1 ... 12, sta

Example

```
VideoBackupInput1 7
```

Feedback

```
VideoBackupInput1 7 set
```

VideoBackupMode

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

Syntax

```
VideoBackupInputX 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. Note that the session range differs between single-channel and dual-channel encoders. Use the sta argument to display the current setting.

Syntax

```
VideoDestIPX Y
```

Parameter	Description	Range
X	Session	1 ... 6 (dual-channel encoders) 1, 2 (single-channel encoders)
Y	IP address	0 ... 255 (each octet)

Example

```
VideoDestIP1 226.0.0.1
```

Feedback

```
VideoDestIP1 226.0.0.1 set
```

VideoDestPort

Sets the video destination IP port for the specified session. Note that the session range differs between single-channel and dual-channel encoders. Use the sta argument to display the current setting.

Syntax

```
VideoDestPortX Y
```

Parameter	Description	Range
X	Session	1 ... 6 (dual-channel encoders) 1, 2 (single-channel encoders)
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. Use the sta argument to display the current setting.

Syntax

```
VideoEnableX Y
```

Parameter	Description	Range
X	Session	1 ... 6 (dual-channel encoders) 1, 2 (single-channel encoders)
Y	State	on, off, sta

Example

```
VideoEnable2 off
```

Feedback

```
VideoEnable2 off set
```

VideoEncoder

Sets the encoder input for the specified session. Note that the session range differs between single-channel and dual-channel encoders. Use the sta argument to display the current setting.

Syntax

```
VideoEncoderX Y
```

Parameter	Description	Range
X	Session	1 ... 6 (dual-channel encoders) 1, 2 (single-channel encoders)
Y	Input	1, 2

Example

```
VideoEncoder1 2
```

Feedback

```
VideoEncoder1 2 set
```

VideoFECColumns

This command is only available on Pro units. Sets the number of FEC columns for the specified session. Note that the session range differs between single-channel and dual-channel encoders. Use the sta argument to display the current setting.

Syntax

```
VideoFECColumnsX Y
```

Parameter	Description	Range
X	Session	1 ... 6 (dual-channel encoders) 1, 2 (single-channel encoders)
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. Note that the session range differs between single-channel and dual-channel encoders. Use the sta argument to display the current setting.

Syntax

```
VideoFECColumnsX Y
```

Parameter	Description	Range
X	Session	1 ... 6 (dual-channel encoders) 1, 2 (single-channel encoders)
Y	FEC columns	Integer

Example

```
VideoFECColumns1 4
```

Feedback

```
VideoFECColumns1 4 set
```

VideoFECRows

This command is only available on Pro units. Sets the number of FEC rows for the specified session. Note that the session range differs between single-channel and dual-channel encoders. Use 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 (dual-channel encoders) 1, 2 (single-channel encoders)
Y	FEC rows	Integer

Example

```
VideoFECRows1 4
```

Feedback

```
VideoFECRows1 4 set
```

VideoInput

Sets the video input to the specified HDMI output. Note that the input range differs between single-channel and dual-channel decoders. The `not used`, `generator`, and `sta` arguments are available for both single-channel and dual-channel decoders. Use the `sta` argument to display the current setting.

Syntax

```
VideoInputX Y
```

Parameter	Description	Range
X	HDMI output	1, 2
Y	IP input	ip_input1 ... ip_input12 (dual-channel decoders) ip_input1 ... ip_input5 (single-channel decoders) not used, generator, sta (all decoders)

Example

```
VideoInput2 ip_input3
```

Feedback

```
VideoInput2 ip_input3 set
```

VideoRes

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

Syntax

```
VideoRowsX Y
```

Parameter	Description	Range
X	HDMI output	1, 2
Y	Output resolution	Integer (see table below)

Example

```
VideoRes2 4
```

Feedback

```
VideoRes2 set
```

If Input is selected, then no scaling will be applied to the output. Select Auto to use the EDID of the sink device to determine the output resolution.

Resolutions	
Input	1440x1050
Auto	1440x900
4096x2160	1280x1024
3840x2160	1280x800
1920x1200	1280x768
1920x1080	1280x720
1680x1050	1024x768
1600x900	

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. Use 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
```

VideoWallEnable

Enable or disable the video wall for the specified HDMI output. Use 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. Use 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
```


VideoWallSize

Sets the total video wall size, in pixels, for the specified HDMI output. Use the sta argument to display the current setting.

Syntax

```
VideoWallSizeX Y
```

Parameter	Description	Range
X	HDMI output	1, 2
Y	Width in pixels	Integer
Z	Height in pixels	Integer

Example

```
VideoWallSize1 3840 2160
```

Feedback

```
VideoWallSize1 3840 2160 set
```

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
```

OmniStream JSON API

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

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.

WebSockets

The API uses WebSockets 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:

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
system_info	General system information	Both
audio_digital_input	A list of audio digital input 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	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
net2	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

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

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.

Method	Short Description
reboot	Reboot the device
get_debug_info	Generate a debug file and return an URL indicating where it can be found
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	Cause 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
set_ssl_certificate	Add a SSL certificate to the device

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/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.

First Contact with a Device

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

```
{
  "config_get": "system_info",
  "password": "3243F6A8885",
  "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
        }
      }
    },
    {
      "name": "session2",
      "interface": "eth1",
      "video": {
        "encoder": "vc2_encoder2",
        "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"  
}
```

1. Configure the HDMI outputs:

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

Getting Alarms

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

```
{  
  "config_get": "alarms",  
  "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"
}
```

