ATLONA
a PANDUIT company

OmniStream Pro / R-Type
Encoder / Decoder

CLI Command Set
JSON Application Programming Interface

AT-OMNI-111 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1.2.4 firmware; the AnalogInputEnable, AnalogInputStatus, AnalogOutputEnable, and AnalogOutputStatus commands have been replaced by the AnalogPowerEnable and AnalogPowerStatus commands.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

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OmniStream CLI Command Set

Summary

This section covers the 1.2.5 CLI command set for both OmniStream Pro and R-Type encoders/decoders. OmniStream R-Type units have a reduced command set. Therefore, commands that do not apply to R-Type units, will be noted as “Pro only”.

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 “Unknown command”. 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

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 (**Pro only**)
AnalogPowerStatus		●	Displays the power state for the specified HDMI output (**Pro only**)
AudioActiveInput		●	Displays the active audio input for the specified HDMI output (**Pro only**)
AudioActiveStatus		●	Displays the audio status for the specified HDMI output (**Pro only**)
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 (**Pro only**)
AudioMute		●	Enable or disable muting on the specified HDMI output (**Pro only**)
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 thje specified HDMI output (**Pro only**)
AuxBidirectional	●		Enable or disable bidirectional control for the specified session
AuxDecodeInput		●	Sets the auxiliary input for the specified HDMI output (**Pro only**)
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

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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 (**Pro only**)
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 output/session (**Pro only**)
EncoderBitDepth	●		Sets the bit depth for the specified encoder
EncoderBitRate	●		Sets the bit rate for the specified encoder (**Pro only**)
EncoderInput	●		Sets the input for the specified encoder
EncoderSubSample	●		Sets the chroma subsampling value for the specified encoder (**Pro only**)
FastSwitching		●	Enable or disable Fast Switching on the HDMI output
FrontPanelLock	●	●	Locks or unlocks the buttons on the front panel of the unit (**Pro only**)
HDCPSet	●		Sets the version of HDCP for the specified HDMI input
Help	●	●	Displays the list of available commands
Identify	●	●	Flashes the LED indications on the front panel for 10 seconds
Input	●		Displays whether or not an input signal exists on the specified HDMI input
InputBtn	●		Sets the input (**Not R-Type**)
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
SerialDestIP		●	Sets the destination IP address for the bidirectional serial port

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Command	Enc	Dec	Description
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 sesssion (**SSH only**)
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
VideoBackupInput		●	Sets the backup input for the specified HDMI output (**Pro only**)
VideoBackupMode		●	Sets the backup mode for the specified HDMI output (**Pro only**)
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 (**Pro only**)
VideoFECEnable	●		Enable or disable FEC for the specified session (**Pro only**)
VideoFECRows	●		Sets the number of the FEC rows for the specified session (**Pro only**)
VideoInput		●	Sets the video input to the specified HDMI output
VideoRes		●	Sets the video resolution of the specified HDMII output
VideoToBackup		●	Assigns the active video input to become the backup video input (**Pro only**)
VideoToPrimary		●	Assigns the active video input to become the primary video input (**Pro only**)
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 (**Pro only**)

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 specifed 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

AudioInput

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
AudioInputX

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

Example
AudioInput1 3

Feedback
AudioInput1 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

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 nit

Syntax
Quit

This command does not require any parameters

Example
Quit

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, tcpproxy, output, sta

Example
SerialMode2 tcpproxy

Feedback
SerialMode2 tcpproxy 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 identi1ed 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	Array with description of J2K encoder(s); one encoder per element	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 de1nition(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_certi1cate	Add a SSL certi1cate 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
        }
      },
      "audio": {
        "encoder": "hdmi_input1",
        "stream": {
          "enabled": true,
          "destination_address": "226.0.1.11",
          "destination_port": 5008
        }
      },
      "scrambling": {
        "enabled": true,
        "key": "CAFE7070800800FFD00D0001BABADEDEBABE0007CAFECAFE"
```

(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"
}
```

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