

Developer Information

Dec 2020

SCIENCE IMAGE<sup>®</sup>

API

NDI mini series

## API Introduction

For the convenience of developers' interaction with our NDI devices, Science Image provides rich APIs for NDI series, such as obtaining basic information of devices (device name, firmware, hardware version, etc.), box configuration information, remote restart, firmware update, etc. These APIs are based on HTTP protocol, through which you can understand the functions and request methods of each API in more detail.

APIs in this document apply to these products:

**NDI HDMI mini**

**NDI SDI mini**

**NDI HD mini**

Any questions, please email to: [support@science-image.com](mailto:support@science-image.com)

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Thank you

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# 1 Dashboard Device Information Command

## 1.1 Get device information

Command Format	cmd=1	
Command Parameters	None	
Command Example	curl -X POST --data "cmd=1" http://192.168.1.188/cgi-bin/box_api	
Return to Example	db_cputemp=52&db_deviceaddr=192.168.0.109&db_devicename=NDI HD mini&db_diskspace=971MB/2936MB&db_firmversion=SIHD220628A&db_hardversion=4.4.1-20220615&db_hdmicheck=1080p60/44100Hz&db_localaddr=192.168.0.198&db_macaddr=00:0A:35:31:11:E7&db_netdown=5.5 Kbps&db_netup=153.8 Mbps&db_ramused=19.70&db_runtime=1:18&db_sdcheck=No Video/No Audio&db_sdkversion=NDI 5.1.3&error_code=0&response_info=cmd_get_dashboard_info[success]	
Parameter description	Name	Discription
	db_cputemp=52	CPU Temperature
	db_deviceaddr=192.168.0.109	Device IP Address
	db_devicename= NDI HD mini	Device Name
	db_diskspace=971MB/2936MB	Disk Space
	db_firmversion= SIHD220628A	Firmware Version
	db_hardversion=4.4.1-20220615	Hardware Version
	db_hdmicheck=1080p60/44100Hz	HDMI Source (Encoding) /NDI Source (Decoding) video and audio information HDMI
	db_localaddr=192.168.0.198	Local IP Address
	db_macaddr=00:0A:35:31:11:E7	Device MAC Address
	db_netdown=5.5 Kbps	Network bandwidth downlink speed bps
	db_netup=153.8 Mbps	Network bandwidth uplink speed bps
	db_ramused=19.70	Memory usage%
	db_runtime=1:18	The running time of the equipment is 1 hours and 18 minutes
	db_sdcheck= No Video/No Audio	SDI source Interface Video and Audio Information (no signal)
db_sdkversion= NDI 5.1.3	NDI SDK version	

## 2 Network Command

### 2.1 Get Network Parameters

Command Format	cmd=101	
Command Parameters	None	
Command Example	curl -X POST --data "cmd=101" http://192.168.1.188/cgi-bin/box_api	
Return to Example	error_code=0&nw_dhcp=dhcp&nw_discovery=0&nw_diserverip=192.168.1.191&nw_group=public&nw_multicast=false&nw_multiip=239.255.0.0&nw_multimask=255.255.0.0&nw_ntpserver=cn.pool.ntp.org&nw_transmode=3&response_info=cmd_get_network_info	
Parameter description	Name	Description
	nw_dhcp=dhcp	Automatic IP address (static manual IP address)
	nw_discovery=0	Discovery server off (1 discovery server on)
	nw_diserverip=192.168.1.191	Discovery Server Address
	nw_group=public	NDI Group Name
	nw_multicast=false	Multicast Off ( true is Multicast On )
	nw_multiip=239.255.0.0	Multicast Address
	nw_multimask=255.255.0.0	Multicast subnet mask
	nw_ntpserver=cn.pool.ntp.org	NTP time server address
nw_transmode=3	Unicast transmission mode ( 0:Single TCP 1:Multi TCP 2:UDP 3:Reliable UDP )	

### 2.2 IP Address Setup

Command Format	cmd=102&nw_dhcp=Manual&nw_ip=192.168.1.188&nw_mask=255.255.255.0&nw_gate=192.168.1.1	
Command Parameters	Name	Description
	nw_dhcp=Auto	Auto
	nw_dhcp= Manual	Manual

	nw_ip =IP Address	IP Address
	nw_mask=Subnet mask	Subnet Mask
	nw_gate=Gateway	Gateway
Command Example	Set manual IP address	curl -X POST --data "cmd=102&nw_dhcp=Manual&nw_ip=192.168.1.188&nw_mask=255.255.255.0&nw_gate=192.168.1.1" http://192.168.1.188/cgi-bin/box_api
	Set DHCP	curl -X POST --data "cmd=102&nw_dhcp=Auto" http://192.168.1.188/cgi-bin/box_api
Return to Example	error_code=0&response_info=cmd_set_network_ip[success]	
Remark:	After the IP address is set successfully, you need to call the remote restart command to control the box to restart and take effect.	

## 2.3 NDI Multicast Setup

Command Format	cmd=103&nw_multicast=true&nw_multimask=255.255.0.0&nw_multiip=239.255.0.0	
Command Parameters	True enable multicast (false disable multicast) & multicast address & multicast subnet mask	
Command Example	Name	Discription
	Enable:	curl -X POST --data "cmd=103&nw_multicast=true&nw_multimask=255.255.0.0 &nw_multiip=239.255.0.0" <a href="http://192.168.1.188/cgi-bin/box_api">http://192.168.1.188/cgi-bin/box_api</a>
	Disable:	curl -X POST --data "cmd=103&nw_multicast=false" http://192.168.1.188/cgi-bin/box_api
Return to Example	error_code=0&response_info=cmd_set_network_multicast[success]	

## 2.4 NDI Group Setup

Command Format	cmd=104&nw_group=public, love555	
Command Parameters	Group name (multiple groups separated by commas)	
Command Example	curl -X POST --data "cmd=104&nw_group=public, love555" http://192.168.1.188/cgi-bin/box_api	
Return to Example	error_code=0&response_info=cmd_set_network_group[success]	

## 2.5 NDI Discovery Server Settings

Command Format	cmd=105&nw_discovery=value&nw_serverip=192.168.1.191
Command Parameters	Value=1 enable discovery server (value=0 disable discovery server) & discovery server address
Command Example	Enable: curl -X POST --data "cmd=105&nw_discovery=1&nw_serverip=192.168.1.191" <a href="http://192.168.1.188/cgi-bin/box_api">http://192.168.1.188/cgi-bin/box_api</a> Disable: curl -X POST --data "cmd=105&nw_discovery=0" http://192.168.1.188/cgi-bin/box_api
Return to Example	error_code=0&response_info=cmd_set_network_discovery[success]

## 2.6 NDI Unicast Transmission Mode Setting

Command Format	cmd=106&nw_transmode=value	
Command Parameters	Name	Description
	value=0	Base-TCP unicast
	value=1	Multi-TCP unicast
	value=2	UDP unicast
	value=3	Reliable UDP unicast
Command Example	curl -X POST --data "cmd=106&nw_transmode=1" http://192.168.1.188/cgi-bin/box_api	
Return to Example	error_code=0&response_info=cmd_set_network_transmode[success]	
Remark:	NDI unicast transmission mode takes effect only when NDI multicast is turned off.	

## 2.7 NTP Time server address Setting

命令格式	cmd=107&nw_ntpserver=cn.pool.ntp.org
命令参数	NTP Time server address
命令示例	curl -X POST --data "cmd=107&nw_ntpserver=cn.pool.ntp.org" http://192.168.1.188/cgi-bin/box_api
返回示例	error_code=0&response_info=cmd_set_network_ntpserver[success]

## 3 Encoder Command

### 3.1 Get Encoding Parameters

Command Format	cmd=201	
Command Parameters	None	
Command Example	curl -X POST --data "cmd=201" http://192.168.1.188/cgi-bin/box_api	
Return to Example	enc_aspect=AR01&enc_avolume=32&enc_brte=100&enc_frate=FR01&enc_lvolume=0&enc_sname=NDI-X&enc_talk=0&enc_tled=11&enc_vidsrc=0&enc_volume=0&error_code=0&response_info=cmd_get_encode_info[success]	
Parameter description	Name	Discription
	enc_aspect =AR01	source aspect ratio (ar02 aspect ratio 4:3; AR03 aspect ratio 16:9; ar04 aspect ratio 16:10; ar05 Square)
	enc_brte =x	the code rate is the original x%, and X is an integer from 0 to 100
	enc_frate =FR01	source rate (fr02 1/2 frame rate; fr03 1/3 frame rate; fr04 1/4 frame rate)
	enc_avolume=32	external audio embedded main audio volume
	enc_lvolume=0	external audio embedded line in audio volume
	enc_sname=NDI-X	DI stream name
	enc_talk=0	Intercom switch off state (1: on 0: off)
	enc_tled =11	tally light on ( 11: Program on/Preview on; 10: Program on/Preview off; 01: Program off/Preview on; 00: Program off/Preview off )
	enc_vidsrc=1	input source preference (1:hdmi 0:sdi)
enc_volume =x	the encoded volume is x dB, and X is an integer of -80 ~ 20	

### 3.2 Modify NDI stream name

Command Format	cmd=202&enc_sname=value
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Command Parameters	value =Stream name
Command Example	curl -X POST --data "cmd=202&enc_sname=MyNDI-DY55" http://192.168.1.188/cgi-bin/box_api
Return to Example	error_code=0&response_info=cmd_set_encode_sname[success]

### 3.3 Set the Picture Aspect Ratio

Command Format	cmd=203&enc_aspect=value	
Command Parameters	Name	Discription
	Value =ar01	source aspect ratio
	Value =ar02	aspect ratio 4:3
	Value =ar03	aspect ratio 16:9
	Value =ar04	aspect ratio 16:10
	Value =ar05	square
Command Example	curl -X POST --data "cmd=203&enc_aspect=AR05" http://192.168.1.188/cgi-bin/box_api	
Return to Example	error_code=0&response_info=cmd_set_encode_aspect[success]	

### 3.4 Set Frame Rate

Command Format	cmd=204&enc_frate= value	
Command Parameters	Name	Discription
	Value =fr01	source rate
	Value =fr02	1/2 frame rate
	Value =fr03	1/3 frame rate
	Value =fr04	1/4 frame rate
Command Example	curl -X POST --data "cmd=204&enc_frate=FR03" http://192.168.1.188/cgi-bin/box_api	
Return to Example	error_code=0&response_info=cmd_set_encode_frate[success]	

### 3.5 Set Bit Rate

Command Format	cmd=205&enc_brate=value
Command Parameters	Value =x set the bit rate to the original x%, and X is an integer of 30~100
Command Example	curl -X POST --data "cmd=205&enc_brate=80" http://192.168.1.188/cgi-bin/box_api
Return to Example	error_code=0&response_info=cmd_set_encode_brate[success]

### 3.6 Set Tally Light

Command Format	cmd=206&enc_tled=value	
Command Parameters	Name	Discription
	value =00	Enable Program Tally and Disable Preview Tally
	value =01	Disable Program Tally and Enable Preview Tally
	value =10	Enable Program Tally and Disable Preview Tally
	value =11	Enable Program Tally and Enable Preview Tally
Command Example	curl -X POST --data "cmd=206&enc_tled=11" http://192.168.1.188/cgi-bin/box_api	
Return to Example	error_code=0&response_info=cmd_set_encode_tled[success]	

### 3.7 Set NDI Encoder Volume

Command Format	cmd=207&enc_volume=value
Command Parameters	Value =x set the volume to x dB, and X is an integer of -80 ~ 20
Command Example	curl -X POST --data "cmd=207&enc_volume=-20" http://192.168.1.188/cgi-bin/box_api
Return to Example	error_code=0&response_info=cmd_set_encode_volume[success]

### 3.8 Intercom Setting

Command Format	cmd=210&enc_talk=value	
Command Parameters	Name	Discription
	value =0	Intercom OFF
	value =1	Intercom ON
Command Example	curl -X POST --data "cmd=210&enc_talk=1" http://192.168.1.188/cgi-bin/box_api	
Return to Example	error_code=0&response_info=cmd_set_encode_talk[success]	

### 3.9 Main Audio Volume Setting

Command Format	cmd=211&enc_avolume=value	
Command Parameters	value =x Set the volume to x, and X is an integer from 0 to 32	
Command Example	curl -X POST --data "cmd=211&enc_avolume=32" http://192.168.1.188/cgi-bin/box_api	
Return to Example	error_code=0&response_info= cmd_set_encode_avolume[success]	

### 3.10 Line in Volume Setting

Command Format	cmd=212&enc_lvolume=value	
Command Parameters	value =x Set the volume to x, and X is an integer from 0 to 32	
Command Example	curl -X POST --data "cmd=212&enc_lvolume=12" http://192.168.1.188/cgi-bin/box_api	
Return to Example	error_code=0&response_info=cmd_set_encode_lvolume[success]	

### 3.11 Input source preference choose

Command Format	cmd=213&enc_vidsrc=value	
Command Parameters	Name	Discription
	value =0	SDI signal priority
	value =1	HDMI signal priority
Command Example	curl -X POST --data "cmd=213&enc_vidsrc=1" http://192.168.1.188/cgi-bin/box_api	
Return to Example	error_code=0&response_info= cmd_set_encode_vidsrc[success]	

## 4 Decode Command

### 4.1 Get Decoding Parameters

Command Format	cmd=301	
Command Parameters	None	
Command Example	curl -X POST --data "cmd=301" http://192.168.1.188/cgi-bin/box_api	
Return to Example	dec_ch=LAPTOP-KPRQT8EO (Test Pattern)&dec_volume=20&error_code=0&response_info=cmd_get_decode_info[success]	
Parameter description	Name	Discription
	dec_Ch=x	NDI name of current decoder selection channel
	dec_Volume =x	the decoded volume is x dB, and X is an integer of -80 ~ 20

### 4.2 Set Decoder Volume

Command Format	cmd=302&dec_volume=value	
Command Parameters	Value =x set the volume to x dB, and X is an integer of -80 ~ 20	
Command Example	curl -X POST --data "cmd=302&dec_volume=-20" http://192.168.1.188/cgi-bin/box_api	
Return to Example	error_code=0&response_info=cmd_set_decode_volume[success]	

### 4.3 Search NDI Source

Command format	cmd= 303	
Command parameters	None	
Command example	curl -X POST --data "cmd=303" http://192.168.1.188/cgi-bin/box_api	
Return to example 1 (2 sources)	ch1=LAPTOP-KPRQT8EO:Test Pattern:192.168.0.106&ch2=SCIENCEIMAGE:NDI-X:192.168.0.105&dec_ndilist=2&error_code=0	

	&response_info=cmd_get_decode_ndilist[success]	
Return to example 2 (no source)	dec_ndilist=0&error_code=0&response_info=cmd_get_decode_ndilist[success]	
Parameter description	<b>Name</b>	<b>Description</b>
	dec_Ndilist=x	x is the number of NDI sources searched
	chx=SCIENCEIMAGE:NDI-X:192.168.0.105	Channel x= device name: NDI stream name: device IP address

## 4.4 Select NDI Decoding Source

Command Format	cmd=304&dec_ch=value
Command Parameters	Value =x select NDI decoding source as X
Command Example	curl -X POST --data "cmd=304&dec_ch=SCIENCEIMAGE (NDI-X)" http://192.168.1.188/cgi-bin/box_api
Return to Example	error_code=0&response_info=cmd_set_decode_channel[success]

## 5 System Command

### 5.1 Get System Parameters

Command Format	cmd=401	
Command Parameters	None	
Command Example	curl -X POST --data "cmd=401" http://192.168.1.188/cgi-bin/box_api	
Return to Example	error_code=0&response_info=cmd_get_system_info[success]&sys_oldpass=admin&sys_workmode=enc	
Parameter description	Name	Discription
	sys_oldpass=x	current system login password
	sys_workmode=enc	the working mode of the system is encoder
	sys_workmode=dec	system is decode

### 5.2 Modify Login Password

Command Format	cmd=402&sys_oldpass=AA&sys_newpass1=BB&sys_newpass2=CC	
Command Parameters		
Parameter description	Name	Discription
	sys_Oldpass=AA	old password
	sys_Newpass1=BB	new password
	sys_Newpass2=CC	new password 2
Command Example	curl -X POST --data "cmd=402&sys_oldpass=111&sys_newpass1=333&sys_newpass2=333" http://192.168.1.188/cgi-bin/box_api	
Return to Example	error_code=0&response_info=cmd_set_system_password[success]	
Return to example (password input error)	error_code=14&response_info=cmd_set_system_password[fail]	

## 5.3 Switch Working Mode

Command Format	cmd=403&sys_workmode=value	
Parameter description	Name	Discription
	Value =D	switch to decoder mode
	Value =E	switch to encoder mode
Command Example	curl -X POST --data "cmd=403&sys_workmode=D" http://192.168.1.188/cgi-bin/box_api	
Return to Example	error_code=0&response_info=cmd_set_system_workmode[success]	

## 5.4 Remote restart control

Command Format	cmd=404	
Command Parameters	None	
Command Example	curl -X POST --data "cmd=404" http://192.168.1.188/cgi-bin/box_api	
Return to Example	curl: (52) Empty reply from server	
	The box is restarted, the network is disconnected, and there is no return	

## 5.5 Restore factory settings

Command Format	cmd=406	
Command Parameters	None	
Command Example	curl -X POST --data "cmd=406" http://192.168.1.188/cgi-bin/box_api	
Return to Example	error_code=0&response_info=cmd_set_system_factory[success]	
Remark:	After the factory settings are restored successfully, it is necessary to call the remote restart command to control the box to restart and take effect.	

## 6 Control Command

### 6.1 Read Control Parameters

Command Format	cmd=501
Command Parameters	None
Command Example	curl -X POST --data "cmd=501" http://192.168.1.188/cgi-bin/box_api
Return to Example	ctl_baudrate=2&ctl_camaddr=1&ctl_protocol=Visca&error_code=0&response_info=cmd_get_control_info[success]

### 6.2 PTZ protocol selection

Command Format	cmd=502&ctl_protocol=value	
Parameter description	Name	Discription
	value = Visca	Visca
	value = Pelco-D	Pelco-D
	value = Pelco-P	Pelco-P
Command Example	curl -X POST --data "cmd=502&ctl_protocol=Visca" http://192.168.1.188/cgi-bin/box_api	
Return to Example	error_code=0&response_info=cmd_set_control_protocol[success]	

### 6.3 Serial Port Baud Rate Setting

Command Format	cmd=503&ctl_baudrate =value
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Command Parameters		
Parameter description	Name	Discription
	Value =0	baud rate 2400
	Value =1	baud rate 4800
	Value =2	baud rate 9600
	Value =3	baud rate 19200
	Value =4	baud rate 38400
	Value =5	baud rate 57600
	Value =6	baud rate 115200
Command Example	curl -X POST --data "cmd=503&ctl_baudrate=2" http://192.168.1.188/cgi-bin/box_api	
Return to Example	error_code=0&response_info=cmd_set_control_baudrate[success]	

## 6.4 Camera Address Selection

Command Format	cmd=504&ctl_camaddr =value	
Command Parameters	Name	Discription
	Value =1	address 01
	Value =2	address 02
	Value =3	address 03
	Value =4	address 04
	Value =5	address 05
	Value =6	address 06
	Value =7	address 07
Command Example	curl -X POST --data "cmd=504&ctl_camaddr=1" http://192.168.1.188/cgi-bin/box_api	
Return to Example	error_code=0&response_info=cmd_set_control_camaddr[success]	

## 6.5 PTZ Control

Command Format		cmd=505&ctl_ptz=value	
Command	Parameters	Name	Discription
( Pelco )		value =1	Move Up
		value =2	Move Down
		value =2	Move Down
		value =3	Move Left
		value =4	Move Right
		value =5	Focus+
		value =6	Focus-
		value =7	Zoom+
		value =8	Zoom-
		value =9	Iris+
		value =10	Iris-
		value =13	return to zero
	( Visca )		Value =1
		Value =2	turn off the camera power
		Value =3	zoom+
		Value =4	zoom-
		Value =5	low zoom l zoom+
		Value =6	low zoom l zoom-
		Value =7	medium zoom+
		Value =8	medium zoom+
		Value =9	high zoom h zoom+
		Value =10	high zoom h zoom-
		Value =11	stop scaling
		Value =12	turn on digital scaling
		Value =13	turn off digital scaling

Value =14	auto focus
Value =15	manual focus
Value =16	focal length focus+
Value =17	focus-
Value =18	low focal length L focus+
Value =19	low focal length L focus-
Value =20	medium focal length m focus+
Value =21	medium focal length m focus+
Value =22	high focal length h focus+
Value =23	high focal length L focus+
Value =24	stop focusing
Value =25	left and right mirror on
Value =26	left and right mirror off
Value =27	save
Value =28	image flipped open
Value =29	image flip off
Value =30	stop rotation
Value =31	low rotation l up
Value =32	under low rotation L
Value =33	low turn l right
Value =34	low rotation l left
Value =35	transfer to M
Value =36	transfer to M
Value =37	turn m right in
Value =38	transfer to m left
Value =39	high rotation H
Value =40	high rotation H
Value =41	high turn h right
Value =42	high turn h left
Value =43	home position

	Value =44	clear preset
	Value =45	preset bit set p00
	Value =46	preset bit set P01
	Value =47	preset setting P02
	Value =48	preset bit setting P03
	Value =49	preset bit setting P04
	Value =50	preset P05
Command Example	curl -X POST --data "cmd=505&ctl_ptz=1" http://192.168.1.188/cgi-bin/box_api	
Return to Example	error_code=0&response_info=cmd_set_control_ptz[success]	

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