H2A (Non Kit) and MXV Series Matrix Switchers

MX-0404-H2A | MX-0606-H2A | MX-0808-H2A
MXV-0404-H2A-KIT | MXV-0408-H2A | MXV-0606-H2A | MXV-0808-H2A

Application Programming Interface

Document Revision	v2.0
Document Date	July 2019
Supported Firmware	Refer to Supported Product Firmware/Software for details.

Contents

1. Overview

The following contains the connection and commands to control MXV and H2A series matrix switchers not including the H2A kit. By following the content contained the switcher can be controlled and configure via a 3rd party RS-232 control system.

⚠ IMPORTANT NOTE!

Due to differences between matrix series and model versions within a series some commands have different parameters based on the model and version. These differences are noted where applicable and should be followed as sending an incorrect parameter may cause the unit to lock up and become inoperative.

1.1 Supported Product Firmware/Software

The following products and firmware versions are supported by this version of the API. The firmware versions listed are the minimum supported at time of publication, firmware may be higher except where otherwise noted.

Product	Status Since Last Doc Rev	Supported Product Versions
MX-0404-H2A	New	v1 or higher
MX-0606-H2A	New	v1 or higher
MX-0808-H2A	New	v1 or higher
MXV-0404-H2A-KIT	Unchanged	v1 or higher
MXV-0408-H2A	Updated v2 only	v1 or higher
MXV-0606-H2A	Updated v2 only	v1 or higher
MXV-0606-H2A-70	New	v1 or higher
MXV-0808-H2A	Updated v2 only	v1 or higher
MXV-0808-H2A-70	New	v1 or higher

1.2 Before You Begin

Verify that the following items are on hand and that all documentation is reviewed before continuing.

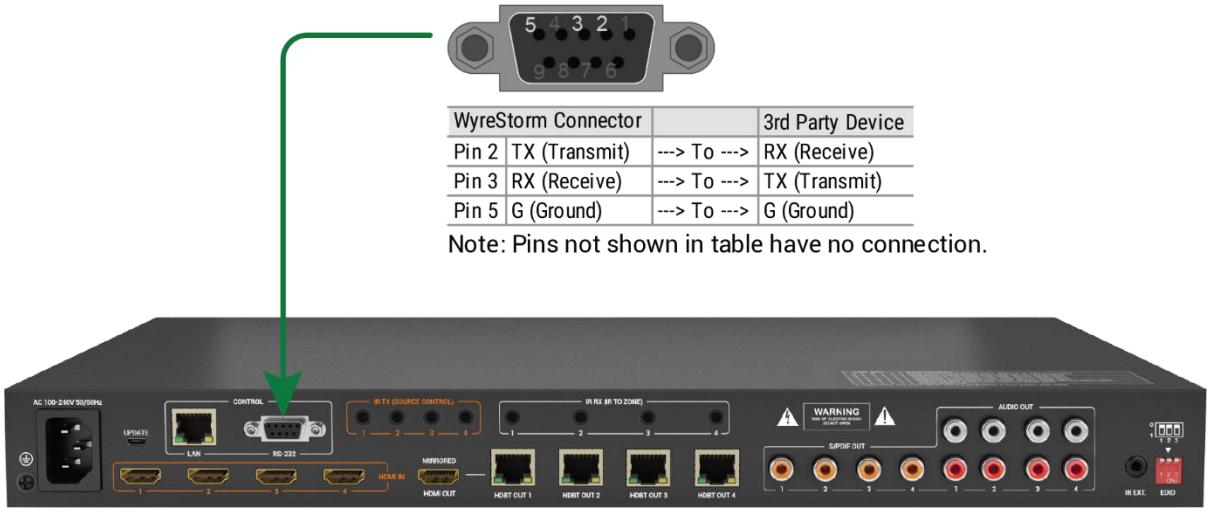
Configured and Operational H2A or MXV Matrix ☐
Refer to Supported Product Firmware/Software for a complete list of supported products and versions.
Control System and Control System Documentation ☐
PC or Mac for Configuring Product and Telnet Communications ☐
Network Connection with Network Passwords ☐
Current Product Firmware (If Available), Software, and Documentation downloaded from WyreStorm.com ☐

2. Wiring and Communication Configuration

WyreStorm recommends that all wiring for the installation is run and terminated prior to making connections to the switcher. Read through this section in this entirety before running or terminating the wires to ensure proper operation and to avoid damaging equipment.

2.1 RS-232 Connections

The following wiring diagrams show the pinouts for the WyreStorm device. While not shown, connect the TX (transmit) to RX (receive) pins at the control system or PC side of the cable. Most control systems and computers are configured for Digital Terminal Equipment (DTE) where pin 2 is RX and pin 3 is TX This can vary from device to device, refer to the documentation for the connected device for pin functionally to ensure that the connect connections can be made.



WyreStorm Connector			3rd Party Device
Pin 2	TX (Transmit)	---> To --->	RX (Receive)
Pin 3	RX (Receive)	---> To --->	TX (Transmit)
Pin 5	G (Ground)	---> To --->	G (Ground)

Note: Pins not shown in table have no connection.

Note: MX-0404-H2A-KIT shown above. Port may be in different location for the various models.

RS-232 Port Settings

Baud rate:	9600bps
Data Bits:	8bits
Parity:	None
Stop Bits:	1bit
Flow Control:	None

2.2 Network Connections

2.2.1 IP Settings

Default IP Address	MXV Series V1:192.168.11.143 H2A and MXV v2 or Higher: Set by Auto IP method. Refer to IP Addressing and Web UI Access
Default IP Port	23

IP Addressing and Web UI Access

These matrix switchers use an Auto IP method to generate the initial IP address based on the network connections. By default the IP address is set to DHCP and will pull the IP address from a connected DHCP server. Should the network not contain a DHCP server the IP address will be generated based on the units mac address. The above operation will occur unless the IP Address setting in the web UI is set to static.

1. Connect the matrix to the same network as a PC.
2. Using a 3rd party network scanner, scan the network for the IP address of the matrix.
3. Open a web browser and enter the IP Address of the matrix.
4. Enter the password for the matrix. Default Password: admin.

IP Address Notes

- The IP address of the unit can be displayed by pressing and holding the UP and Down buttons on the front panel for 3 seconds. The IP address will be displayed on the front panel.
- The installer password and general password are the same by default. WyreStorm recommends changing the password for installer login to avoid any unwanted changes being made to the matrix configuration.

3. Command Overview

Command Type:	ASCII
Key Words:	Case Sensitive
SET	Sets a value for the command target
GET	Queries the settings for the command target
[Prm]	optional parameters
[Input]	hdmiin#
[Output]	out#
Command termination:	<CR><LF>

3.1 Standard Syntax

Each command follows a basic syntax that is used for every command. Not all parts listed are in all commands and each command within this document defines which section of the syntax is used for that specific command.

[Command] [Input] [Output] [Prm]

4. Controlling Matrix Switching

4.1 Controlling Video

Selecting Video Inputs

Command Syntax:	SET SW [Input] [Output]<CR><LF>	H2A Series [Input]=hdmiin1~hdmiin8, hdmiin0 Note: hdmiin0 powers down output [Output]=hdmiout1~hdmiout8 | all MXV Series [Input]=hdmiin1~hdmiin8, hdmiin0 Note: hdmiin0 powers down output [Output]=out1~out8 | all
Response Syntax:	SW [Input] [Output]<CR><LF>	
Example Command:	SET SW hdmiin4 out1<CR><LF>	
Example Response:	SW hdmiin4 out1<CR><LF>	

Query Video Input Mapping

Command Syntax:	GET MP [Output]<CR><LF>	H2A Series [Input]=hdmiin1~hdmiin8, hdmiin0 Note: hdmiin0 powers down output [Output]=hdmiout1~hdmiout8 | all MXV Series [Input]=hdmiin1~hdmiin8, hdmiin0 Note: hdmiin0 powers down output [Output]=out1~out8 | all
Response Syntax:	MP GET [Input] [Output]<CR><LF>	
Example Command:	GET MP out1<CR><LF>	
Example Response:	MP hdmiin4 out1<CR><LF>	

4.2 Controlling Audio

Selecting Audio Inputs

Command Syntax:	SET AUDIOSW [Input] [Output]<CR><LF>	[Input]=hdmiin1~hdmiin8 [Output]=audioout1~audioout8 | all
Response Syntax:	AUDIOSW [Input] [Output]<CR><LF>	
Example Command:	SET AUDIOSW hdmiin4 out1<CR><LF>	
Example Response:	AUDIOSW hdmiin4 out1<CR><LF>	

Query Audio Input Mapping

Command Syntax:	GET AUDIOMP [Input] [Output]<CR><LF>	[Input]=hdmiin1~hdmiin8 [Output]=audioout1~audioout8 | all
Response Syntax:	AUDIOMP [Input] [Output]<CR><LF>	
Example Command:	GET AUDIOMP hdmiin4 audioout2<CR><LF>	
Example Response:	AUDIOMP hdmiin4 audioout2<CR><LF>	

Mute Audio Inputs

Command Syntax:	SET MUTE [Output] [Prm]<CR><LF>	[Output]=audioout1~audioout8 | all [Prm]=on (mute) | off (unmute)
Response Syntax:	MUTE [Output] [Prm]<CR><LF>	
Example Command:	SET MUTE audioout2 on<CR><LF>	
Example Response:	MUTE audioout2 on<CR><LF>	

Query Audio Input Mute Status

Command Syntax:	GET MUTE [Output] [Prm]<CR><LF>	[Output]=audioout1~audioout8 | all [Prm]=on (mute) | off (unmute)
Response Syntax:	MUTE [Output] [Prm]<CR><LF>	
Example Command:	GET MUTE audioout2 on<CR><LF>	
Example Response:	MUTE audioout2 on<CR><LF>	

Set Audio Input Switching Mode

Command Syntax:	SET AUDIOSW_M [Prm]<CR><LF>	[Prm]=followvm | independent
Response Syntax:	AUDIOSW_M [Prm]<CR><LF>	
Example Command:	SET AUDIOSW_M followvm<CR><LF>	
Example Response:	AUDIOSW_M followvm<CR><LF>	

Query Audio Input Switching Mode

Command Syntax:	GET AUDIOSW_M<CR><LF>	[Prm]=followvm | independent
Response Syntax:	AUDIOSW_M [Prm]<CR><LF>	
Example Command:	GET AUDIOSW_M <CR><LF>	
Example Response:	AUDIOSW_M followvm<CR><LF>	

4.3 Saving and Recalling an Audio/Video Scene

Save a Scene

Command Syntax:	SAVE PRESET [Prm]<CR><LF>	[Prm]=1~3
Response Syntax:	PRESET [Prm]<CR><LF>	
Example Command:	SAVE PRESET 1<CR><LF>	
Example Response:	PRESET 1<CR><LF>	

Recall a Scene

Command Syntax:	RESTORE PRESET [Prm]<CR><LF>	[Prm]=1~3
Response Syntax:	PRESET [Prm]<CR><LF>	
Example Command:	RESTORE PRESET 1<CR><LF>	
Example Response:	PRESET 1<CR><LF>	

4.4 Controlling Display Power via CEC

⚠ IMPORTANT! Command Requirements

- This command only functions over RS-232 and cannot be used when controlling a display via IP
- The display section of the web UI must be configured for display baud rate and contain commands entered into **Power On Code** and **Power Off Code** listed under **Display Control Commands**.
- The parameters below cover the type (HDMI and HDBaseT) and max number of outputs available for a matrix series. Take caution when sending the parameters and only use the type and number of outputs available to the matrix being controlled.

Command Syntax:	SET CEC_PWR[Output] [Prm]<CR><LF>	H2A Series [Output]=hdmiout1~hdmiout8 | all [Prm]=on | off MXV Series [Output]=hdmiout1~hdmiout8 | hdbtout1~hdbtout8 | all [Prm]=on | off
Response Syntax:	CEC_PWR[Output] [Prm]<CR><LF>	
Example Command:	SET CEC_PWR hdbtout2 on<CR><LF>	
Example Response:	CEC_PWR hdbtout2 on<CR><LF>	

Refer to Configuring CEC Control

⚠ IMPORTANT! Command Requirements

- This command only functions over RS-232 and cannot be used when controlling a display via IP
- The display section of the web UI must be configured for display baud rate and contain commands entered into **Power On Code** and **Power Off Code** listed under **Display Control Commands**.

- The parameters below cover the type (HDMI and HDBaseT) and max number of outputs available for a matrix series. Take caution when sending the parameters and only use the type and number of outputs available to the matrix being controlled.

Set CEC Auto Power

Command Syntax:	SET AUTOCEC_FN [Output] [Prm]<CR><LF>	H2A Series [Output]=hdmiout1~hdmiout8 [Prm]=on | off MXV Series [Output]=hdmiout1~hdmiout8 | hdbtout1~hdbtout8 [Prm]=on | off
Response Syntax:	AUTOCEC_FN [Output] [Prm]<CR><LF>	
Example Command:	AUTOCEC_FN out1 on<CR><LF>	
Example Response:	AUTOCEC_FN out1 on<CR><LF>	

Query CEC Auto Power Status

Command Syntax:	GET AUTOCEC_FN [Output]<CR><LF>	H2A Series [Output]=hdmiout1~hdmiout8 [Prm]=on | off MXV Series [Output]=hdmiout1~hdmiout8 | hdbtout1~hdbtout8 [Prm]=on | off
Response Syntax:	AUTOCEC_FN [Output] [Prm]<CR><LF>	
Example Command:	GET AUTOCEC_FN out1<CR><LF>	
Example Response:	AUTOCEC_FN out1 on<CR><LF>	

Set CEC Power Time Delay

Command Syntax:	SET AUTOCEC_D [Output] [Prm]<CR><LF>	H2A Series [Output]=hdmiout1~hdmiout8 [Prm]=1~30 Delay time is in minutes with a max of 30 minutes MXV Series [Output]=hdmiout1~hdmiout8 | hdbtout1~hdbtout8 [Prm]=1~30 Delay time is in minutes with a max of 30 minutes
Response Syntax:	AUTOCEC_D [Output] [Prm]<CR><LF>	
Example Command:	SET AUTOCEC_D out2 2<CR><LF>	
Example Response:	AUTOCEC_D out2 2<CR><LF>	

Query CEC Power Time Delay

Command Syntax:	GET AUTOCEC_D [Output] [Prm]<CR><LF>	H2A Series [Output]=hdmiout1~hdmiout8 [Prm]=1~30 Delay time is in minutes with a max of 30 minutes MXV Series [Output]=hdmiout1~hdmiout8 | hdbtout1~hdbtout8 [Prm]=1~30 Delay time is in minutes with a max of 30 minutes
Response Syntax:	AUTOCEC_D [Output] [Prm]<CR><LF>	
Example Command:	SET AUTOCEC_D out2 2<CR><LF>	
Example Response:	AUTOCEC_D out2 2<CR><LF>	

4.5 Configuring IR System Code

Should the IR for the matrix interfere with other 3rd party devices in the system the IR code can be changed to resolve the conflict. This IR code can be changed within the Web UI or by using the following commands.

Set IR System Code

Command Syntax:	SET IR_SC [Prm]<CR><LF>	[Prm]=all | mode1| mode2 Mode1=0x00 code set Mode2=0x4e code set
Response Syntax:	IR_SC [Prm]<CR><LF>	
Example Command:	SET IR_SC mode2<CR><LF>	
Example Response:	IR_SC mode2<CR><LF>	

Query IR System Code

Command Syntax:	GET IR_SC<CR><LF>	[Prm]=all | mode1| mode2 Mode1=0x00 code GET Mode2=0x4e code GET
Response Syntax:	IR_SC [Prm]<CR><LF>	
Example Command:	GET IR_SC CR><LF>	
Example Response:	IR_SC mode2<CR><LF>	

4.6 Configuring Remote Zone IR Callback

The following commands are supported on the MXV series matrix switchers to allow the matrix to be controlled via a remote HDBaseT transmitter. These commands are not available the H2A matrix switchers due to them being HDMI only.

Note: The following commands were added after the initial release of some of the models and are not available on all versions of the supported matrix versions. This feature is not applicable to H2A HDMI only matrix switchers.

IR Code Commands Supported Matrix Versions

MXV-0404-H2A-KIT (All Versions)
MXV-0408-H2A v2
MXV-0606-H2A v2
MXV-0808-H2A v2

Set IR Callback Control

Command Syntax:	SET IRBACK_FN [Prm]<CR><LF>	[Prm]=on | off
Response Syntax:	IRBACK_FN [Prm]<CR><LF>	
Example Command:	SET IRBACK_FN on<CR><LF>	
Example Response:	IRBACK_FN on<CR><LF>	

Query IR Callback Control

Command Syntax:	GET IRBACK_FN<CR><LF>	[Prm]=on | off
Response Syntax:	IRBACK_FN [Prm]<CR><LF>	
Example Command:	GET IRBACK_FN<CR><LF>	
Example Response:	IRBACK_FN mode2<CR><LF>	

for information on setting Auto Power On for CEC.

5. Matrix Low Power Mode (Standby)

In an effort to save energy when the matrix is not in use a Low Power Mode has been incorporated into the architecture. By turning on this mode the unit into Standby using less power than normal operating mode. While in this mode the Front Panel display and LEDs will be Off and outputs will be powered down. Once a command is sent via the Front Panel buttons, IR remote/control system, or RS-232/IP control system the unit will wake from Standby and be fully operational. The unit can be placed back into standby via an API command.

Note: The following commands were added after the release of some of the models and are not available on all versions of the supported matrix versions.

IR Code Commands Supported Matrix Versions

H2A HDMI Matrix Switchers

MX-0404-H2A (All Versions)
MX-0606-H2A (All Versions)
MX-0808-H2A (All Versions)

MXV HDBaseT Matrix Switchers

Note: The supported switchers must be version 2 or higher except where otherwise noted below.

MXV-0408-H2A v2
MXV-0606-H2A v2
MXV-0606-H2A-70 v1
MXV-0808-H2A v2
MXV-0808-H2A-70 v1

Place Unit Into Standby	STANDBY<CR><LF>	No Parameters
Wake Unit from Standby	WAKE<CR><LF>	
Query Standby Status	GET STANDBY<CR><LF> Note: response will be the commands listed above.	

6. Matrix Configuration

6.1 Configuring CEC Control

⚠ IMPORTANT! Command Requirements

- This command only functions over RS-232 and cannot be used when controlling a display via IP
- The display section of the web UI must be configured for display baud rate and contain commands entered into **Power On Code** and **Power Off Code** listed under **Display Control Commands**.
- The parameters below cover the type (HDMI and HDBaseT) and max number of outputs available for a matrix series. Take caution when sending the parameters and only use the type and number of outputs available to the matrix being controlled.

Set CEC Auto Power

Command Syntax:	SET AUTOCEC_FN [Output] [Prm]<CR><LF>	**H2A Series** [Output]=hdmiout1~hdmiout8 [Prm]=on | off **MXV Series** [Output]=hdmiout1~hdmiout8 | hdbtout1~hdbtout8 [Prm]=on | off
Response Syntax:	AUTOCEC_FN [Output] [Prm]<CR><LF>	
Example Command:	AUTOCEC_FN out1 on<CR><LF>	
Example Response:	AUTOCEC_FN out1 on<CR><LF>	

Query CEC Auto Power Status

Command Syntax:	GET AUTOCEC_FN [Output]<CR><LF>	**H2A Series** [Output]=hdmiout1~hdmiout8 [Prm]=on | off **MXV Series** [Output]=hdmiout1~hdmiout8 | hdbtout1~hdbtout8 [Prm]=on | off
Response Syntax:	AUTOCEC_FN [Output] [Prm]<CR><LF>	
Example Command:	GET AUTOCEC_FN out1<CR><LF>	
Example Response:	AUTOCEC_FN out1 on<CR><LF>	

Set CEC Power Time Delay

Command Syntax:	SET AUTOCEC_D [Output] [Prm]<CR><LF>	**H2A Series** [Output]=hdmiout1~hdmiout8 [Prm]=1~30 Delay time is in minutes with a max of 30 minutes **MXV Series** [Output]=hdmiout1~hdmiout8 | hdbtout1~hdbtout8 [Prm]=1~30 Delay time is in minutes with a max of 30 minutes
Response Syntax:	AUTOCEC_D [Output] [Prm]<CR><LF>	
Example Command:	SET AUTOCEC_D out2 2<CR><LF>	
Example Response:	AUTOCEC_D out2 2<CR><LF>	

Query CEC Power Time Delay

Command Syntax:	GET AUTOCEC_D [Output] [Prm]<CR><LF>	H2A Series [Output]=hdmiout1~hdmiout8 [Prm]=1~30 Delay time is in minutes with a max of 30 minutes MXV Series [Output]=hdmiout1~hdmiout8 | hdbtout1~hdbtout8 [Prm]=1~30 Delay time is in minutes with a max of 30 minutes
Response Syntax:	AUTOCEC_D [Output] [Prm]<CR><LF>	
Example Command:	SET AUTOCEC_D out2 2<CR><LF>	
Example Response:	AUTOCEC_D out2 2<CR><LF>	

6.2 Configuring IR System Code

Should the IR for the matrix interfere with other 3rd party devices in the system the IR code can be changed to resolve the conflict. This IR code can be changed within the Web UI or by using the following commands.

Set IR System Code

Command Syntax:	SET IR_SC [Prm]<CR><LF>	[Prm]=all | mode1| mode2 Mode1=0x00 code set Mode2=0x4e code set
Response Syntax:	IR_SC [Prm]<CR><LF>	
Example Command:	SET IR_SC mode2<CR><LF>	
Example Response:	IR_SC mode2<CR><LF>	

Query IR System Code

Command Syntax:	GET IR_SC<CR><LF>	[Prm]=all | mode1| mode2 Mode1=0x00 code GET Mode2=0x4e code GET
Response Syntax:	IR_SC [Prm]<CR><LF>	
Example Command:	GET IR_SC CR><LF>	
Example Response:	IR_SC mode2<CR><LF>	

6.3 Configuring Remote Zone IR Callback

The following commands are supported on the MXV series matrix switchers to allow the matrix to be controlled via a remote HDBaseT transmitter. These commands are not available the H2A matrix switchers due to them being HDMI only.

Note: The following commands were added after the initial release of some of the models and are not available on all versions of the supported matrix versions. This feature is not applicable to H2A HDMI only matrix switchers.

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MXV-0404-H2A-KIT (All Versions)
MXV-0408-H2A v2
MXV-0606-H2A v2
MXV-0808-H2A v2

Set IR Callback Control

Command Syntax:	SET IRBACK_FN [Prm]<CR><LF>	[Prm]=on | off
Response Syntax:	IRBACK_FN [Prm]<CR><LF>	
Example Command:	SET IRBACK_FN on<CR><LF>	
Example Response:	IRBACK_FN on<CR><LF>	

Query IR Callback Control

Command Syntax:	GET IRBACK_FN<CR><LF>	[Prm]=on | off
Response Syntax:	IRBACK_FN [Prm]<CR><LF>	
Example Command:	GET IRBACK_FN<CR><LF>	
Example Response:	IRBACK_FN mode2<CR><LF>	

7. Troubleshooting

Query IP Address

Command Syntax:	GET IPADDR<CR><LF>	[Prm]=xx.xx.xx.xx
Response Syntax:	IPADDR [Prm]<CR><LF>	
Example Command:	GET IPADDR <CR><LF>	
Example Response:	IPADDR 192.168.11.143<CR><LF>	

Query Firmware Version

Command Syntax:	GET VER<CR><LF>	[Prm]=firmware version
Response Syntax:	VER [Prm]<CR><LF>	
Example Command:	GET VER<CR><LF>	
Example Response:	VER 1.0<CR><LF>	

Reboot Device

Command Syntax:	REBOOT<CR><LF>
Response Syntax:	REBOOT SET<CR><LF>
Example Command:	REBOOT<CR><LF>
Example Response:	REBOOT<CR><LF>

Restore Factory Defaults

Command Syntax:	RESET<CR><LF>
Response Syntax:	RESET SET<CR><LF>
Example Command:	RESET<CR><LF>
Example Response:	RESET<CR><LF>

8. Contacting Technical Support

Should further clarification of the content in this document or assistance on troubleshooting be required, please contact WyreStorm technical support.

Phone: UK: +44 (0) 1793 230 343 | ROW: 844.280.WYRE (9973)
Contact Request: http://wyrestorm.com/contact-tech-support

9. Document Revision History

V2.0– July 2019	
Supported Product Firmware/Software	Added version 2 and new models for MXV and version 1 for H2A
Controlling Matrix Switching	Updated various commands to reflect differences between matrix series
Matrix Configuration	Updated various commands to reflect differences between matrix series
V1.0– [Release Month and Year]	
All	Initial release of document

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