COEX

SNMP Protocol

Instructions

Instructions

Contents

1 Applicable Products

Product Type	Product Model	Version
LED display controller	Single-card controllers: MX40 Pro, MX30, MX20, KU20, CX40 Pro Card-based controllers: MX6000 Pro, MX2000 Pro	V1.5.0
Software	VMP	V1.5.0

2 Function Scope

The following operations can be performed through SNMP:

- Controller information obtaining
- Screen information obtaining
- Retrieve Cabinet Information
- Controller status obtaining and reporting
- Input source status obtaining and reporting
- Ethernet port status obtaining and reporting
- Receiving card status obtaining and reporting
- SNMP reporting target server (IP/port number 162)
- SNMP reporting period (range: 1-60, unit: minute)

3 Operating Procedure

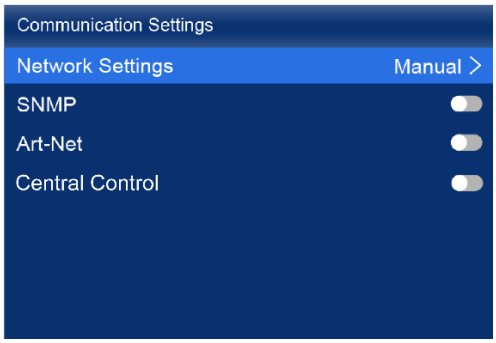
Use the controller's LCD menu to configure SNMP settings. Once enabled, you can test functionalities with MIB software. Enter the corresponding OID to "Get" the monitoring item, or "Set" to configure operations. Enable Trap listening to monitor reported items. Specific operations are as follows:

3.1 Enable SNMP via Controllers

MX40 Pro, MX30, MX20, KU20

Step 1 On the main menu screen, choose **Communication Settings** > **Network Settings**.

Figure 3-1 Network settings



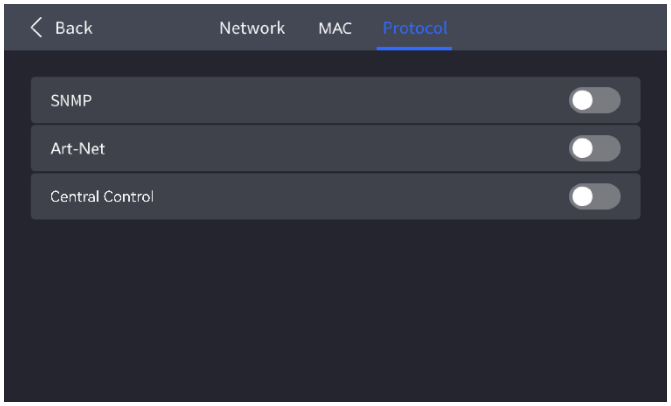
Step 2 Toggle on or off **SNMP**.

- : Enable SNMP.
- : Disable SNMP.

MX6000 Pro, MX2000 Pro, CX40 Pro

Step 1 Select **Communication** > **Protocol** from the main menu to access the settings interface.

Figure 3-2 Protocol



Step 2 Toggle on or off **SNMP**.

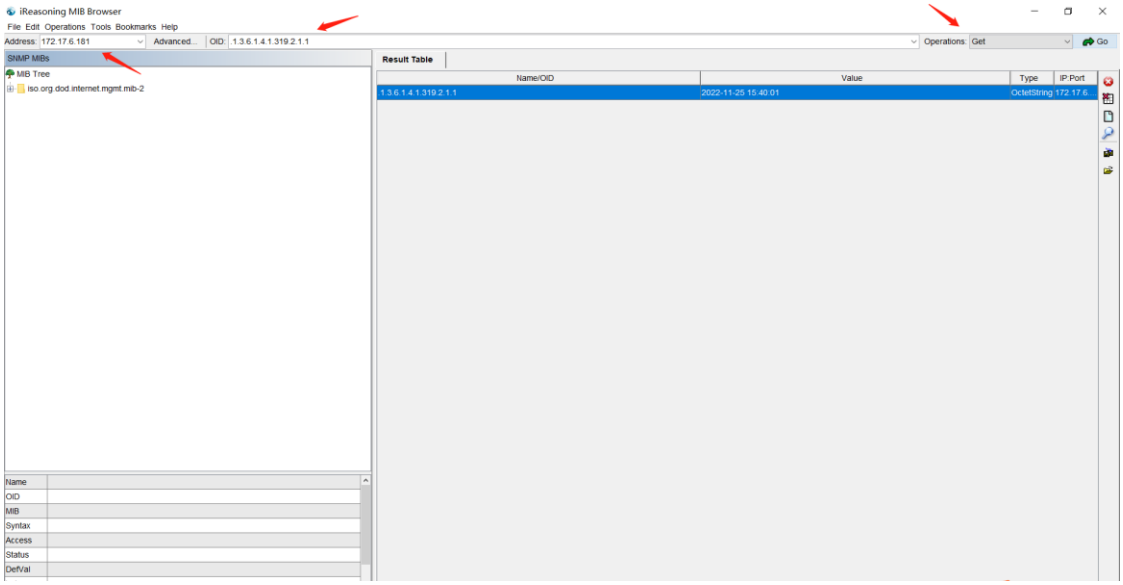
- : Enable SNMP.
- : Disable SNMP.

3.2 Retrieve Monitoring Information via a Get Request

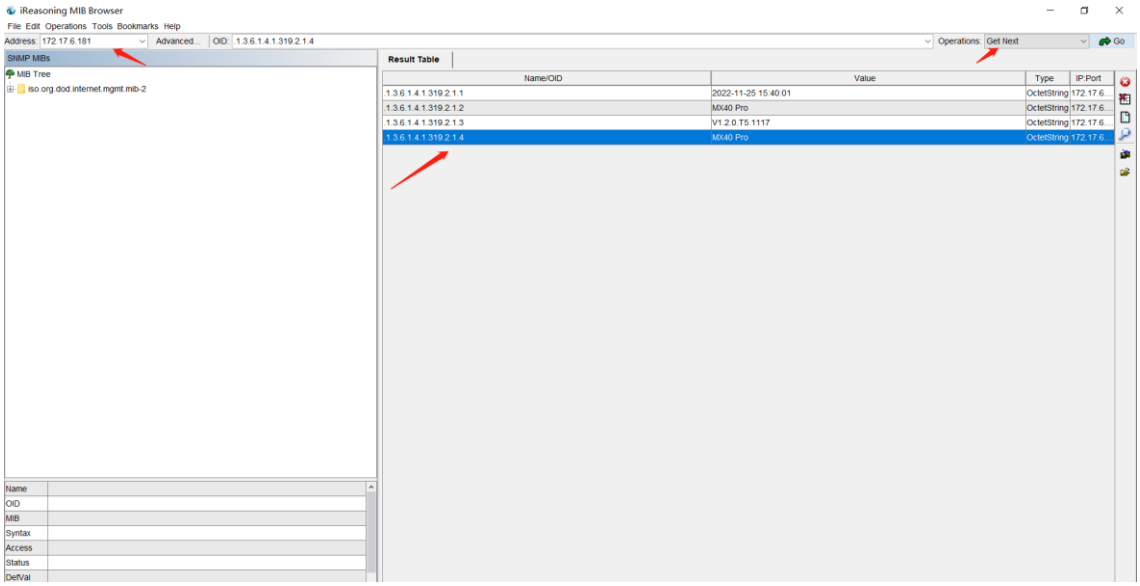
Step 1 Open the MIB Browser to enter the software interface.

Step 2 By following the arrows in the figure below in order, fill in the correct device IP address and the OID corresponding to the monitoring item information in the picture, select **Get** in the **Operations** drop-down list, and finally click the **Go** button to complete the operation of getting the monitoring item information by Get.

Step 3 The execution results are displayed in the **Result Table** area, and the information contains the OID address, the results of the monitored items returned, the data type and the device IP, as shown in the figure.



Step 4 For other monitoring items in the same category, select **Get Next** from the **Operations** dropdown list and click the **Go** button to retrieve them, as shown in the image below.

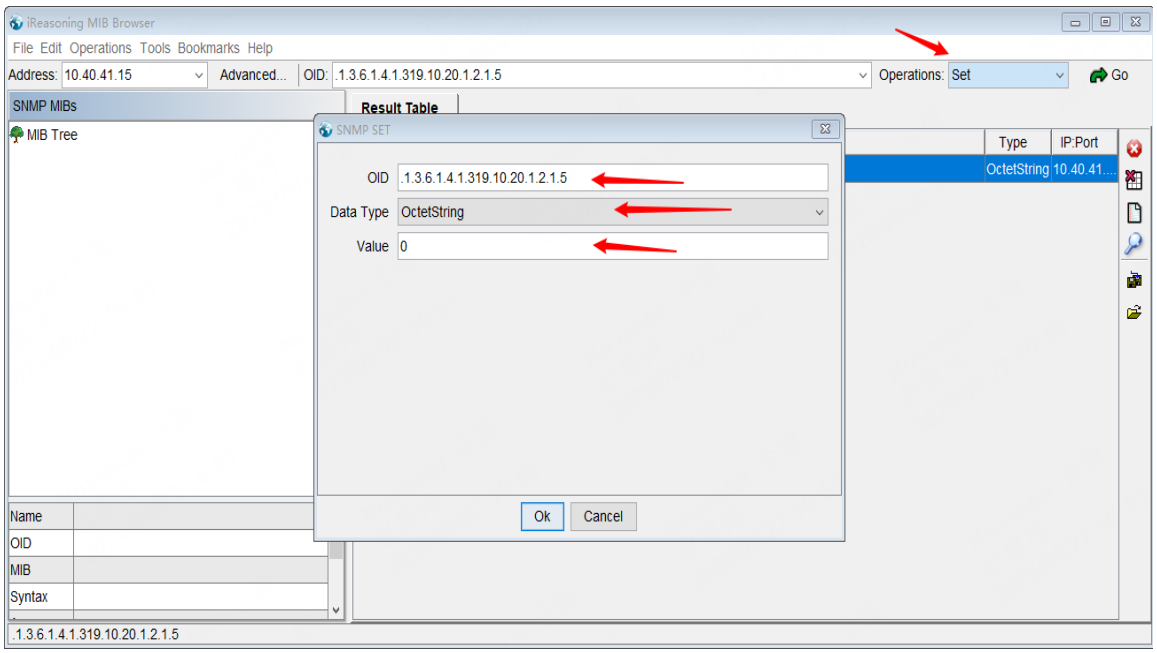


3.3 Perform a Set Request for Function Configuration

Step 1 Open the MIB Browser to enter the software interface.

Step 2 Fill in the correct device IP address and the OID corresponding to the monitoring item information at the top of the page, select **Set** in the **Operations** drop-down list and Click the **Go** button.

Step 3 Fill in the correct OID in the **OID** input box of the pop-up **SNMP SET** edit area, select the corresponding type of the parameter to be sent in the **Data Type** drop-down list, and fill in the parameter value in the **Value** input box. After that, click the **OK** button to complete the report target setting operation.

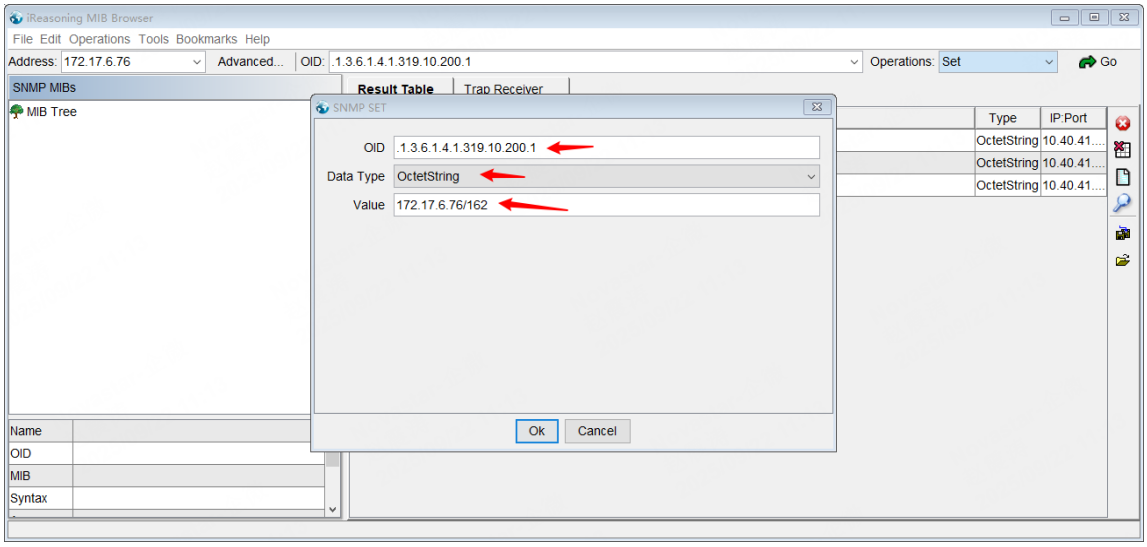


3.4 Get Trap Reporting Information

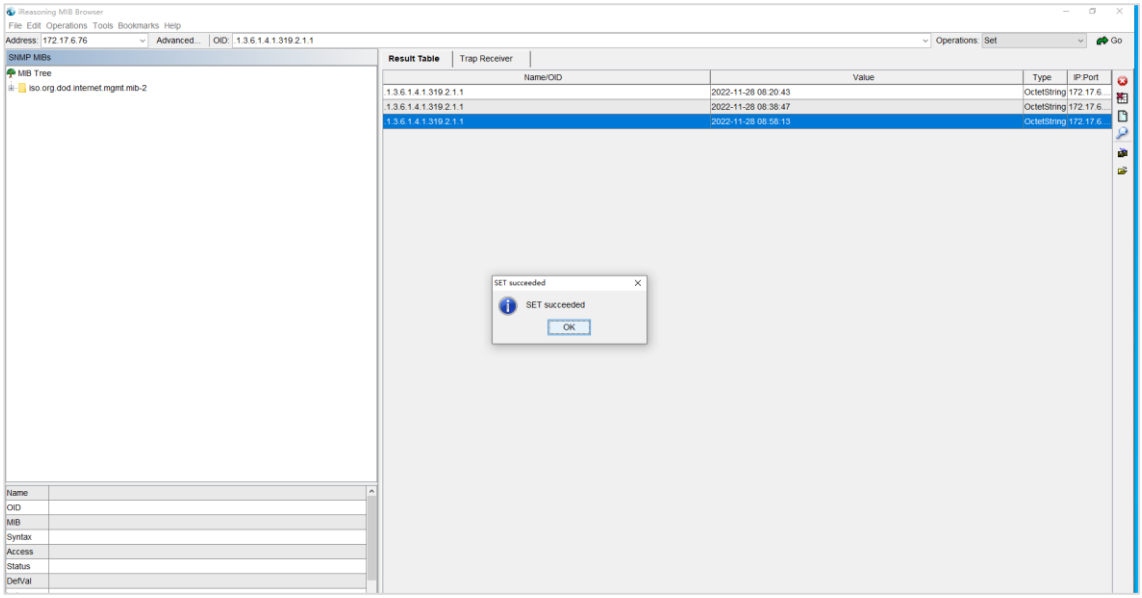
Step 1 Open the MIB Browser to enter the software interface.

Step 2 Fill in the correct device IP address and the OID corresponding to the monitoring item information at the top of the page, select **Set** in the **Operations** drop-down list and click the **Go** button.

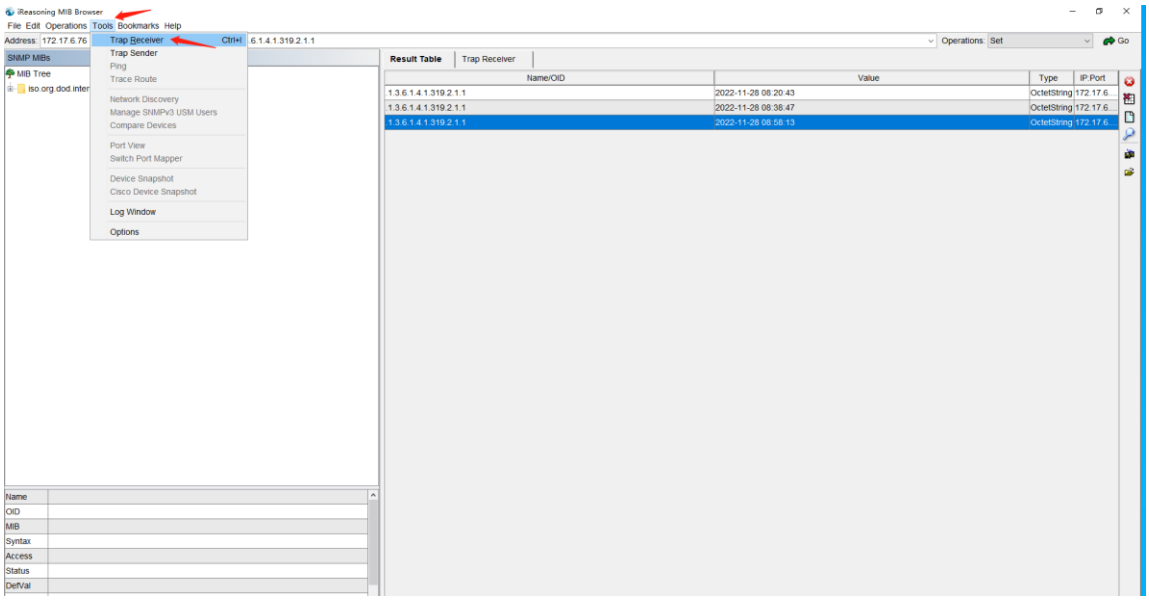
Step 3 In the OID input box of the pop-up **SNMP SET** edit area, fill in 1.3.6.1.4.1.319.10.200.1, select the corresponding type OctetString of the parameter to be sent in the **Data Type** drop-down list, and fill in the parameter value 172.17.6.179/162 in the **Value** input box (recommended port: 162).



Step 4 Click the **OK** button to complete the **SNMP Trap** server setup operation.

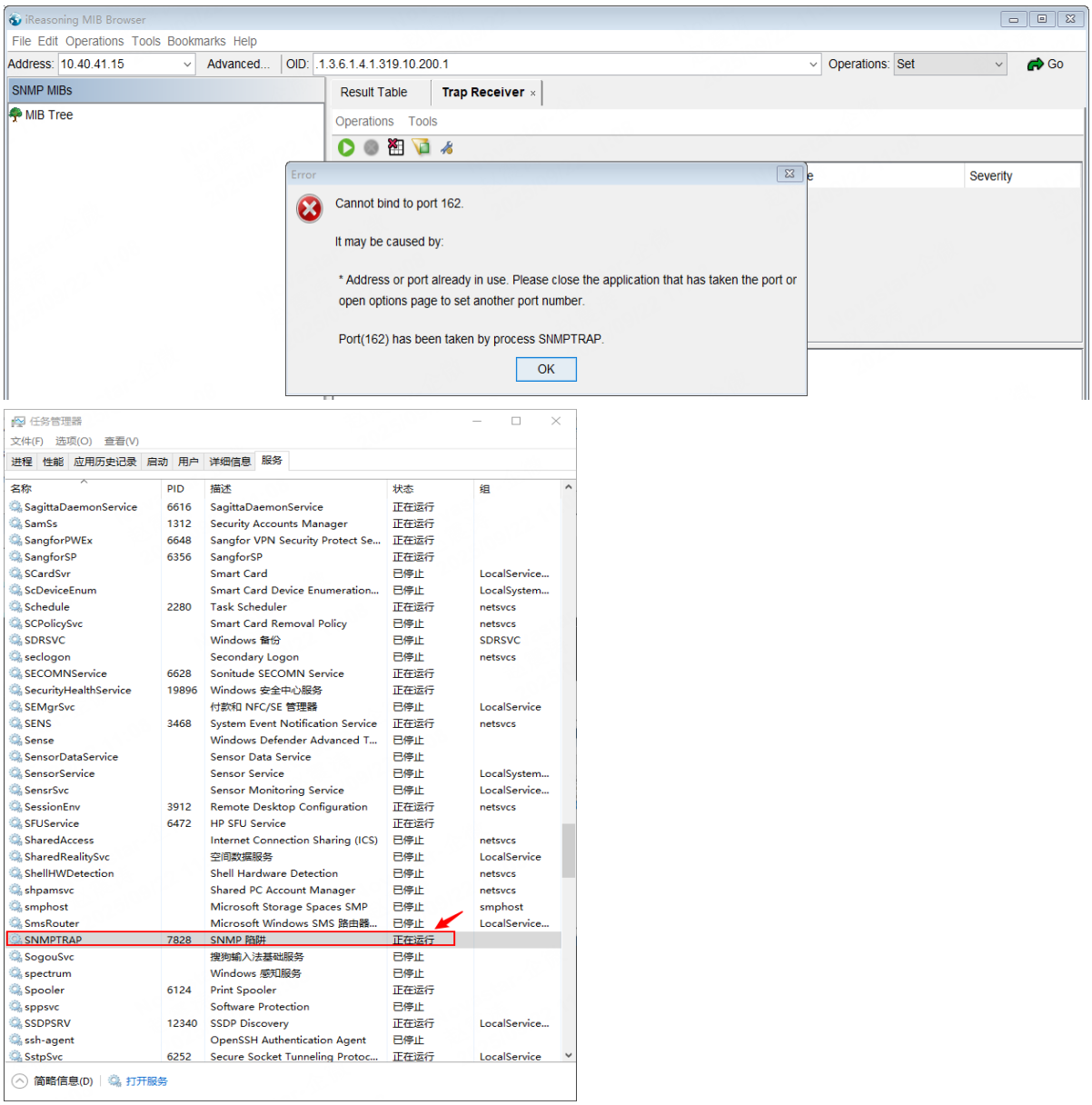


Step 5 Click on the **Tools** option in the menu bar of the software and select the **Trap Receiver** option in the drop-down menu that opens to complete the operation of getting information of monitoring items by Trap.

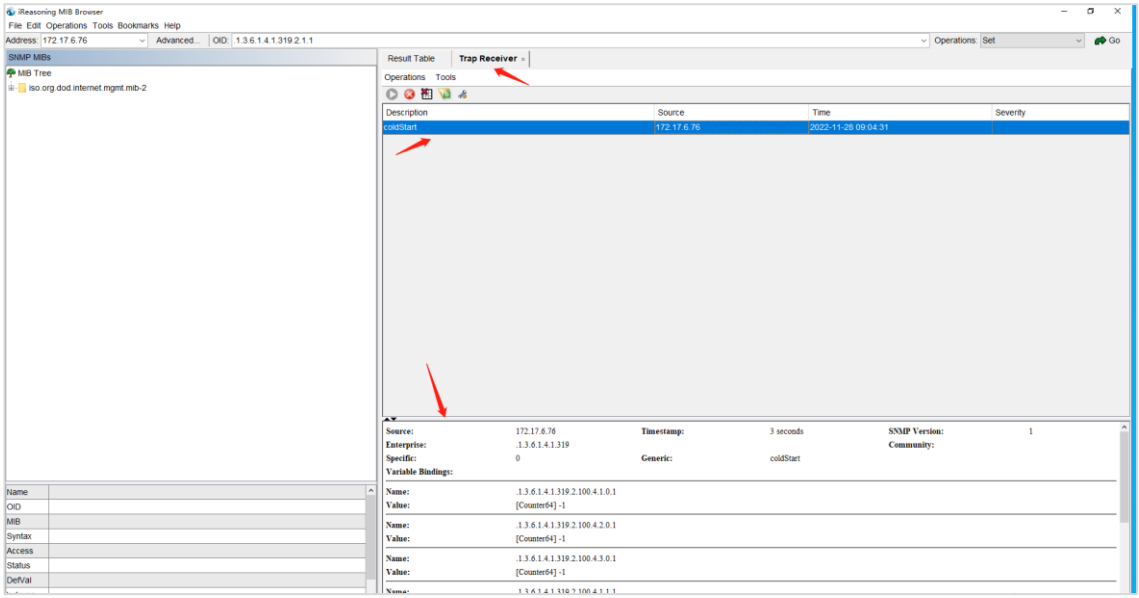


Note:

If the Windows operating system is using port 162, an error message will appear. To resolve this, close the SNMP TRAP service in the Task Manager to enable proper listening.



Step 6 The execution results are displayed in the **Trap Receiver** area, as shown in the figure. Detailed information can be viewed in the details display area below by clicking on the specific entry in the **Description**.

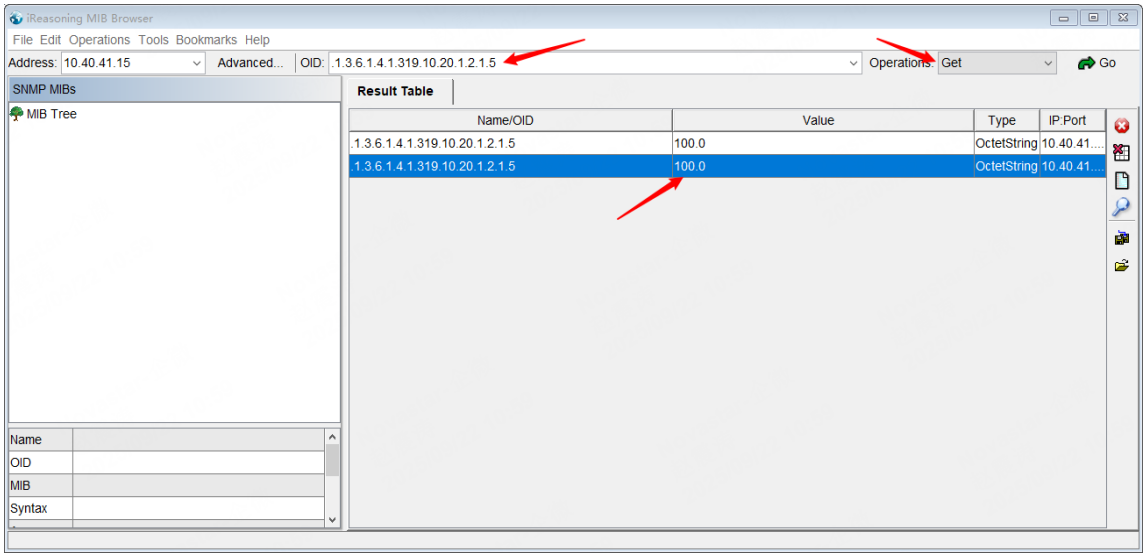


4 Examples

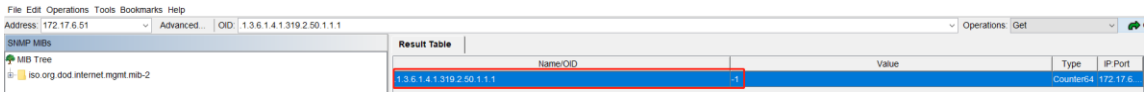
Software Used: MIB Software

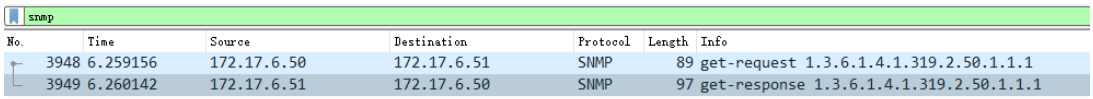
- Get Example:

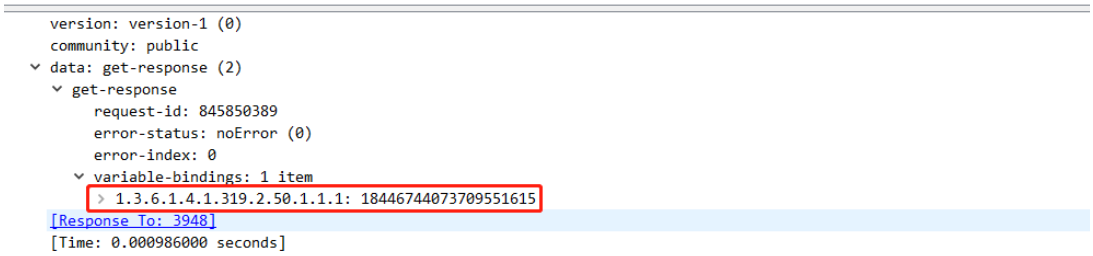
  Example 1 (Typical scenario): Test retrieving the current screen brightness. The value obtained is 100, indicating the screen brightness is at 100%.



  Example 2 (Software limitation, unsupported uint64 display): When testing the connection status of receiving cards 1-64 under Ethernet port 1, the value obtained is -1. The MIB software will treat the highest bit as a symbolic bit and all Get or Trap data in int64 type will be in this situation. At this time, use wireshark to capture packet for test:





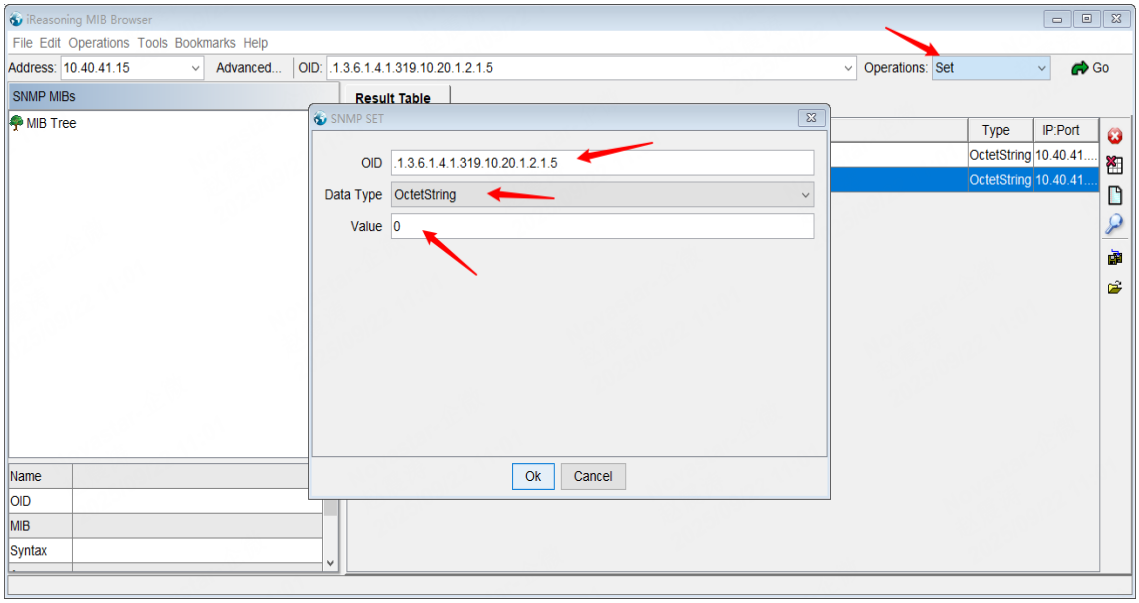


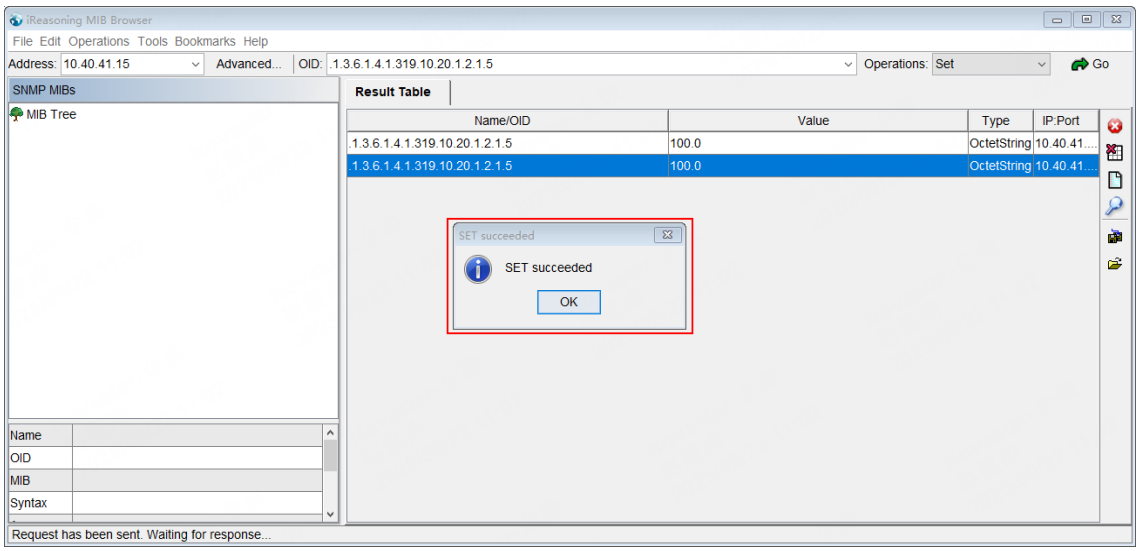
- Set Example:

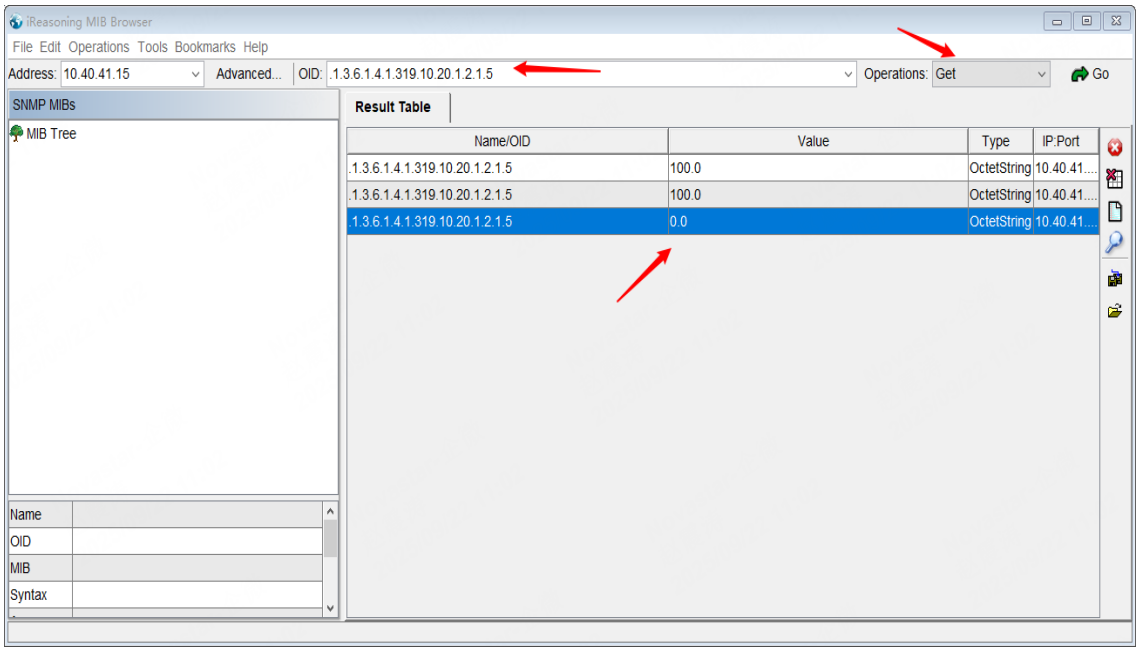
  Set screen brightness to 0.

  Enter the OID for setting screen brightness, select **Set** as the operation type. In the popup input box, set the brightness to 0 and click **OK**. A **SET succeeded** message will confirm the setting was successful.

  Then, choose **Get** to check the current screen brightness, or look at the screen to confirm it's at 0%.

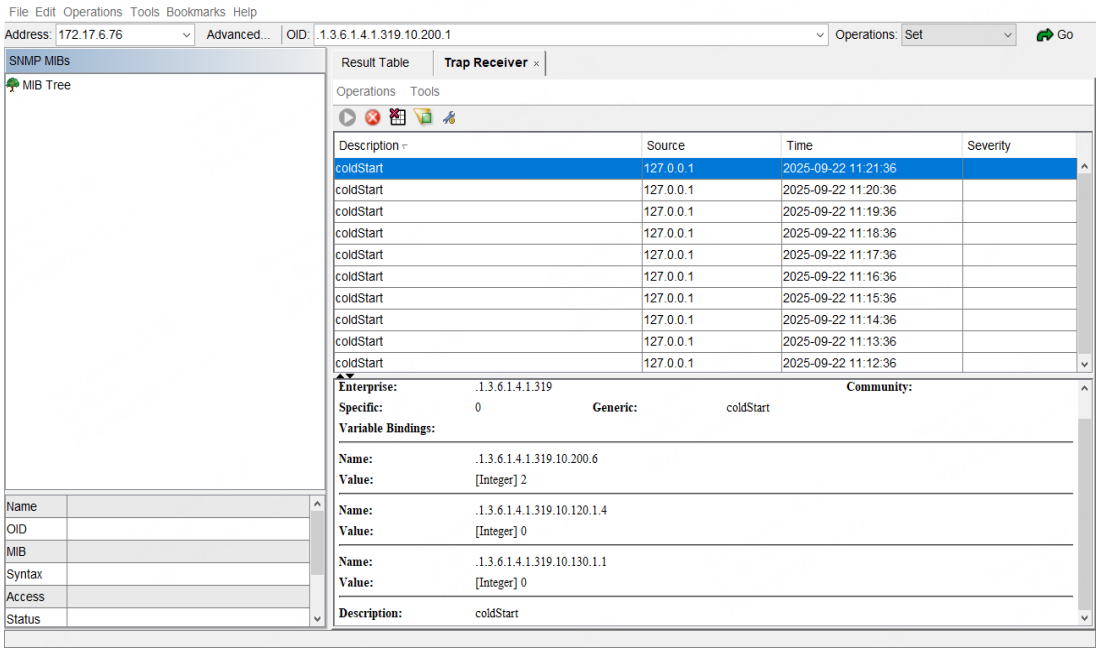






- Trap Example:

  To test the connection status change of receiving cards 1- 64 under Ethernet port 1, you can manually unplug and then plug the receiving cards to cause changes. Under normal conditions, 1.3.6.1.4.1.319.10.200.6 reports 0 (normal). If the Ethernet cable on port 1 is disconnected, 1.3.6.1.4.1.319.10.200.6 reports 2 (error). 1.3.6.1.4.1.319.10.130.1.1 shows 0 receiving cards, and 1.3.6.1.4.1.319.10.120.1.4 indicates 0 Ethernet connections.



5 COEX Series Controller and SNMP OID Parameter Comparison

N in the OID denotes a numerical value and takes a value in the range of 1 to the maximum value of the quantity (the maximum value of the quantity is obtained by the corresponding OID).

5.1 SNMP Get (Read-only)

5.1.1 Controller Information

Function	OID	Data Type	Controller Type	Description
OID version	1.3.6.1.4.1.319.10.1	string	Single-card & Card-based	
Controller time and date	1.3.6.1.4.1.319.10.10.1.1	string	Single-card & Card-based	2006/01/03 15:04:05
Controller Model	1.3.6.1.4.1.319.10.10.1.2	string	Single-card & Card-based	\
Controller firmware version	1.3.6.1.4.1.319.10.10.1.3	string	Single-card & Card-based	\
Controller Name	1.3.6.1.4.1.319.10.10.1.4	string	Single-card & Card-based	\
Controller primary/backup status	1.3.6.1.4.1.319.10.10.1.5	int	Single-card & Card-based	0: Primary 1: Backup
Controller serial number	1.3.6.1.4.1.319.10.10.1.6	string	Single-card & Card-based	\

Controller MAC address	1.3.6.1.4.1.319.10.10.1.7	string	Single-card & Card-based	\
Controller IP address	1.3.6.1.4.1.319.10.10.1.8	string	Single-card & Card-based	192.168.12.34

5.1.2 Controller Status

Function	OID	Data Type	Controller Type	Description
Number of mainboard temperature measurement points	1.3.6.1.4.1.319.10.10.10.1	int	Single-card & Card-based	N ≥ 0
Name of mainboard temperature measurement point N	1.3.6.1.4.1.319.10.10.10.2.N.1	string	Single-card & Card-based	
Status of mainboard temperature measurement point N	1.3.6.1.4.1.319.10.10.10.2.N.2	int	Single-card & Card-based	0: Normal 1: Warning 2: Fault
Value of mainboard temperature measurement point N	1.3.6.1.4.1.319.10.10.10.2.N.3	int	Single-card & Card-based	Value = Temperature * 100
Number of mainboard voltage measurement points	1.3.6.1.4.1.319.10.10.10.3	int	Single-card & Card-based	
Name of mainboard voltage measurement point N	1.3.6.1.4.1.319.10.10.10.4.N.1	string	Single-card & Card-based	
Status of mainboard voltage measurement point N	1.3.6.1.4.1.319.10.10.10.4.N.2	int	Single-card & Card-based	0: Normal 1: Warning 2: Fault
Value of mainboard voltage measurement point N	1.3.6.1.4.1.319.10.10.10.4.N.3	int	Single-card & Card-based	Value = Voltage * 100
Number of fans	1.3.6.1.4.1.319.10.10.10.5	int	Single-card & Card-based	
Name of fan N	1.3.6.1.4.1.319.10.10.10.6.N.1	string	Single-card & Card-based	
Status of fan N	1.3.6.1.4.1.319.10.10.10.6.N.2	int	Single-card & Card-based	0: Normal 1: Warning 2: Fault
Rotating speed of fan N	1.3.6.1.4.1.319.10.10.10.6.N.3	int	Single-card & Card-based	
Number of controller power	1.3.6.1.4.1.319.10.10.10.7	int	Single-card &	

supplies			Card-based	
Status of controller power supply N	1.3.6.1.4.1.319.10.10.10.8.N.1	int	Single-card & Card-based	0: Unplugged 1: Plugged
Genlock connection status	1.3.6.1.4.1.319.10.10.10.9.1	int	Single-card & Card-based	0: Not connected 1: Connected
Genlock frame rate	1.3.6.1.4.1.319.10.10.10.9.2	int	Single-card & Card-based	Value = Genlock frame rate * 100

5.1.3 Output Card Slot Information

Function	OID	Data Type	Controller Type	Description
Number of output card slots (N)	1.3.6.1.4.1.319.10.10.30.1	int	Single-card & Card-based	N ≥ 0 For single-card controllers, N is always 1.
Output card slot status	1.3.6.1.4.1.319.10.10.30.2	Counter64	Single-card & Card-based	Each bit represents a slot status, from low to high. 0: Connection normal 1: Disconnected
Card firmware version of output card slot N	1.3.6.1.4.1.319.10.10.30.3.N.1	string	Card-based	
Card name of output card slot N	1.3.6.1.4.1.319.10.10.30.3.N.2	string	Card-based	
Card primary/backup status of output card slot N	1.3.6.1.4.1.319.10.10.30.3.N.3	int	Card-based	0: primary 1: backup
Card SN of output card slot N	1.3.6.1.4.1.319.10.10.30.3.N.4	string	Card-based	

5.1.4 Output Card Slot Status

Function	OID	Data Type	Controller Type	Description
Number of card temperature measurement points of output card slot N	1.3.6.1.4.1.319.10.10.30.4.N.1	int	Card-based	
Name of temperature measurement point Y of output card slot N	1.3.6.1.4.1.319.10.10.30.4.N.2.Y.1	string	Card-based	N: Output card slot N Y: Measurement point number for a specific metric.
Temperature status of temperature measurement point Y of output card slot N	1.3.6.1.4.1.319.10.10.30.4.N.2.Y.2	int	Card-based	0: Normal 1: Abnormal

Temperature of temperature measurement point Y of output card slot N	1.3.6.1.4.1.319.10.10.30.4.N.2.Y.3	int	Card-based	Value = Temperature * 100
Number of card voltage measurement points of output card slot N	1.3.6.1.4.1.319.10.10.30.4.N.3	int	Card-based	
Name of voltage measurement point Y of output card slot N	1.3.6.1.4.1.319.10.10.30.4.N.4.Y.1	string	Card-based	
Voltage status of voltage measurement point Y of output card slot N	1.3.6.1.4.1.319.10.10.30.4.N.4.Y.2	int	Card-based	0: Normal 1: Abnormal
Voltage of voltage measurement point Y of output card slot N	1.3.6.1.4.1.319.10.10.30.4.N.4.Y.3	int	Card-based	Value = Voltage * 100
Number of card Ethernet ports of output card slot N	1.3.6.1.4.1.319.10.10.30.5.N.1	int	Single-card & Card-based	
Connection speed of card Ethernet ports of output card slot N	1.3.6.1.4.1.319.10.10.30.5.N.2	int	Single-card & Card-based	0: Ethernet1G 2: Ethernet5G 3: Ethernet10G
Connection status of card Ethernet ports of output card slot N	1.3.6.1.4.1.319.10.10.30.5.N.3	Counter64	Single-card & Card-based	Each bit represents a link status, from low to high. 0: Connection normal 1: Disconnected
Number of online receiving cards of Ethernet port Y of output card slot N	1.3.6.1.4.1.319.10.10.30.5.N.4.Y.1	int	Single-card & Card-based	
Temperature status of receiving card M (1-64) of Ethernet port Y of output card slot N	1.3.6.1.4.1.319.10.10.30.6.N.1.Y.1.M	Counter64	Single-card & Card-based	Each bit represents a receiving card temperature status, from low to high. 0: Normal 1: Abnormal
Voltage status of receiving card M (1-64) of Ethernet port Y of output card slot N	1.3.6.1.4.1.319.10.10.30.6.N.1.Y.2.M	Counter64	Single-card & Card-based	Each bit represents a receiving card voltage status, from low to high. 0: Normal 1: Abnormal
Number of online receiving cards of output card slot N	1.3.6.1.4.1.319.10.10.30.4.N.5	Counter64	Single-card & Card-based	
Back up port index corresponding to card Ethernet port Y of output slot N	1.3.6.1.4.1.319.10.10.30.5.N.4.Y.3.1	int	Single-card & Card-based	N: Output card slot N For single-card controllers, N is always 1.

				Y: Ethernet port index
Back up port operating status corresponding to card Ethernet port Y of output slot N	1.3.6.1.4.1.319.10.10.30.5.N.4.Y.3.2	int	Single-card & Card-based	N: Output card slot N For single-card controllers, N is always 1. Y: Ethernet port index 0: Normal 1: Warning 2: Fault
Back up port link status corresponding to card Ethernet port Y of output slot N	1.3.6.1.4.1.319.10.10.30.5.N.4.Y.3.3	int	Single-card & Card-based	

5.1.5 Screen Information

Function	OID	Data Type	Controller Type	Description
Number of screens (N)	1.3.6.1.4.1.319.10.20.1.1	int	Single-card & Card-based	N ≥ 0 For single-card controllers, N is always 1.
Name of screen N	1.3.6.1.4.1.319.10.20.1.2.N.1	string	Single-card & Card-based	
Width of screen N	1.3.6.1.4.1.319.10.20.1.2.N.2	int	Single-card & Card-based	Width of the screen's circumscribed rectangle (pixel)
Height of screen N	1.3.6.1.4.1.319.10.20.1.2.N.3	int	Single-card & Card-based	Hight of the screen's circumscribed rectangle (pixel)
Frame rate of screen N	1.3.6.1.4.1.319.10.20.1.2.N.4	int	Single-card & Card-based	Value = Genlock frame rate * 100
Brightness of screen N (String format: Brightness 44.6% = 44.6)	1.3.6.1.4.1.319.10.20.1.2.N.5	string	Single-card & Card-based	0 =< Brightness <= 100
Sync type of screen N	1.3.6.1.4.1.319.10.20.1.2.N.6	int	Single-card & Card-based	0: Current video source 1: Genlock 2: Internal
Sync frame rate of screen N	1.3.6.1.4.1.319.10.20.1.2.N.7	int	Single-card & Card-based	Value = Genlock frame rate * 100
Set the display mode for screen N	1.3.6.1.4.1.319.10.20.1.2.N.8	int	Single-card & Card-based	0: Normal 1: Black Screen 2: Freeze
Active source status of screen N	1.3.6.1.4.1.319.10.20.1.2.N.11	int	Single-card & Card-based	0: Normal 2: Fault

Note: Screen N brightness is read/write information, while Screen N active source status is for retrieval/reporting.

5.1.6 Input Card Slot Information

Function	OID	Data Type	Controller Type	Description
Number of input card slots	1.3.6.1.4.1.319.10.10.20.1	int	Single-card & Card-based	
Input Card Slot Status	1.3.6.1.4.1.319.10.10.20.2	Counter64	Single-card & Card-based	Each bit represents a slot status, from low to high. 0: Connection normal 1: Disconnected
Card firmware version of input card slot N	1.3.6.1.4.1.319.10.10.20.3.N.1	string	Single-card & Card-based	N: Input card slot N For single-card controllers, N is always 1.
Card name of input card slot N	1.3.6.1.4.1.319.10.10.20.3.N.2	string	Single-card & Card-based	
Card primary/backup status of input card slot N	1.3.6.1.4.1.319.10.10.20.3.N.3	int	Single-card & Card-based	0: Primary 1: Backup
Card SN of input card slot N	1.3.6.1.4.1.319.10.10.20.3.N.4	string	Single-card & Card-based	N: Input card slot N For single-card controllers, N is always 1.

5.1.7 Input Card Slot Status

Function	OID	Data Type	Controller Type	Description
Number of card temperature measurement points (Y) of input card slot N	1.3.6.1.4.1.319.10.10.20.4.N.1	int	Card-based	Y ≥ 0
Name of temperature measurement point Y of input card slot N	1.3.6.1.4.1.319.10.10.20.4.N.2.Y.1	string	Card-based	
Temperature status of temperature measurement point Y of input card slot N	1.3.6.1.4.1.319.10.10.20.4.N.2.Y.2	int	Card-based	0: Normal 2: Fault
Temperature of temperature measurement point Y of input card slot N	1.3.6.1.4.1.319.10.10.20.4.N.2.Y.3	int	Card-based	Value = Temperature * 100
Number of card voltage measurement points of input card slot N	1.3.6.1.4.1.319.10.10.20.4.N.3	int	Card-based	
Name of voltage measurement point Y of input card slot N	1.3.6.1.4.1.319.10.10.20.4.N.4.Y.1	string	Card-based	
Voltage status of voltage	1.3.6.1.4.1.319.10.10.20.4.N.4.	int	Card-based	0: Normal

measurement point Y of input card slot N	Y.2			2: Fault
Voltage of voltage measurement point Y of input card slot N	1.3.6.1.4.1.319.10.10.20.4.N.4.Y.3	int	Card-based	Value = Voltage * 100

5.1.8 Input Source Information

Function	OID	Data Type	Controller Type	Description
Number of card input sources of input card slot (N)	1.3.6.1.4.1.319.10.10.20.5.N.1	int	Single-card & Card-based	N ≥ 0
Signal status of input source Y of input card slot N	1.3.6.1.4.1.319.10.10.20.5.N.2.Y.1	int	Single-card & Card-based	0: Not inserted 1: Signal available 2: Inserted but no signal
Type of input source Y of input card slot N	1.3.6.1.4.1.319.10.10.20.5.N.2.Y.2	string	Single-card & Card-based	0: DVI 1: DualDVI 2: HDMI1.4 3: HDMI2.0 4: DP1.1 5: DP1.2 6: DP1.4 7: 3G-SDI 8: 6G-SDI 9: 12G-SDI 10: PIP Video 16: HDMI1.3 17: HDMI2.1 18: PCIE 19: Serdes 20: LVDS 21: VByOne 22: ST 2110 224: internal-source Other value: Unknown
Application status of input source Y of input card slot N	1.3.6.1.4.1.319.10.10.20.5.N.2.Y.3	int	Single-card & Card-based	0: Normal 2: Fault

5.1.9 Internal Source Information

Function	OID	Data Type	Controller Type	Description
Number of internal sources	1.3.6.1.4.1.319.10.10.50.1	int	Single-card &	N ≥ 1

(N)			Card-based	
Number of screens applying internal source N	1.3.6.1.4.1.319.10.10.50.2.N.1	int	Single-card & Card-based	0: Not applied 1: Applied
Link status of internal source N	1.3.6.1.4.1.319.10.10.50.2.N.2	int	Single-card & Card-based	0: Not inserted 1: Signal available 2: Inserted but no signal

5.2 SNMP Set (Read and Write)

Function	OID	Data Type	Controller Type	Description
SNMP Trap server	1.3.6.1.4.1.319.10.200.1	string	Single-card & Card-based	IP/Port
SNMP Trap reporting period	1.3.6.1.4.1.319.10.200.2	int	Single-card & Card-based	Unit: min
Temperature Unit	1.3.6.1.4.1.319.10.200.3	int	Single-card & Card-based	0: Fahrenheit 1: Celsius
Trap On/Off	1.3.6.1.4.1.319.10.200.4	int	Single-card & Card-based	1: On 2: Off
Trap Mode	1.3.6.1.4.1.319.10.200.5	int	Single-card & Card-based	0: Sample Mode 1: Complex Mode
OID Monitoring Status	1.3.6.1.4.1.319.10.200.6	int	Single-card & Card-based	0: Normal 2: Fault
Brightness of screen N (String format: Brightness 44.6% = 44.6)	1.3.6.1.4.1.319.10.20.1.2.N.5	int	Single-card & Card-based	0 =< Brightness <= 100

5.3 SNMP Trap (Reporting)

5.3.1 Controller Information Reporting

Function	OID	Data Type	Controller Type	Description
Mainboard abnormal	1.3.6.1.4.1.319.10.100. N	int	Single-card & Card-based	N: controller temperature 1, voltage 2, fan 3
Number of input cards connected	1.3.6.1.4.1.319.10.100.4	int	Single-card & Card-based	
Number of output cards connected	1.3.6.1.4.1.319.10.100.5	int	Single-card & Card-based	
Number of expansion cards connected	1.3.6.1.4.1.319.10.100.6	int	Single-card & Card-based	
Genlock connection status	1.3.6.1.4.1.319.10.100.7	int	Single-card & Card-based	0: Not connected 1: Connected

SNMP Start Time	1.3.6.1.4.1.319.10.100.8	string	Single-card & Card-based	

5.3.2 Input Anomaly Reporting

Function	OID	Data Type	Controller Type	Description
Input card abnormal	1.3.6.1.4.1.319.10.110. N. Y	int	Single-card & Card-based	N: Input card slot N Y: Input card temperature 1, voltage 2, fan 3
Number of sources of an input card	1.3.6.1.4.1.319.10.110. N.4	int	Single-card & Card-based	

5.3.3 Output Anomaly Reporting

Function	OID	Data Type	Controller Type	Description
Output card abnormal	1.3.6.1.4.1.319.10.120.N.Y	int	Single-card & Card-based	N: Output card slot N Y: Output card temperature, voltage, fan
Number of Ethernet ports connected of an output card	1.3.6.1.4.1.319.10.120.N.4	int	Single-card & Card-based	N: Output card slot N
Number of receiving cards connected to all ports of an output card	1.3.6.1.4.1.319.10.120.N.Y.5	int	Single-card & Card-based	N: Output card slot N Y: Ethernet port index
Number of receiving cards with abnormal temperature connected to all ports of an output card	1.3.6.1.4.1.319.10.120.N.Y.6	int	Single-card & Card-based	
Number of receiving cards with abnormal voltage connected to all ports of an output card	1.3.6.1.4.1.319.10.120.N.Y.7	int	Single-card & Card-based	

5.3.4 Multifunction Card Information Reporting

Function	OID	Data Type	Controller Type	Description
Multifunction card power supply status	1.3.6.1.4.1.319.10.10.30.7.N.1.Y.Z.1.M.1	int	Single-card & Card-based	N: Output card slot Y: Ethernet port Z: Multifunction card M: Power supply index 0: Failed 1: Normal

Status of the light sensor connected to the multifunction card.	1.3.6.1.4.1.319.10.10.30.7.N.1.Y.Z.2.M.1.1	int	Single-card & Card-based	N: Output card slot Y: Ethernet port Z: Multifunction card M: Light sensor index 0: Failed 1: Normal Brightness in LUX
Brightness of the light sensor connected to the multifunction card	1.3.6.1.4.1.319.10.10.30.7.N.1.Y.Z.2.M.1.2	int	Single-card & Card-based	

5.3.5 Screen Information Reporting

Function	OID	Data Type	Controller Type	Description
Number of receiving cards connected of screen N	1.3.6.1.4.1.319.10.130.N.1	int	Single-card & Card-based	
Number of receiving cards with abnormal temperature of screen N	1.3.6.1.4.1.319.10.130.N.2	int	Single-card & Card-based	
Number of receiving cards with abnormal voltage of screen N	1.3.6.1.4.1.319.10.130.N.3	int	Single-card & Card-based	

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