The MXview One/MXview and MXconfig (non-java)/MXconfig (java) Plugin Technical Guide for NPort and MGate Series

Moxa Technical Support Team

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About Moxa

Moxa is a leading provider of edge connectivity, industrial computing, and network infrastructure solutions for enabling connectivity for the Industrial Internet of Things. With 35 years of industry experience, Moxa has connected more than 82 million devices worldwide and has a distribution and service network that reaches customers in more than 80 countries. Moxa delivers lasting business value by empowering industry with reliable networks and sincere service for industrial communications infrastructures. Information about Moxa's solutions is available at www.moxa.com.

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1 Introduction

This document explains how to configure or monitor the NPort and MGate Series when using MXconfig and MXview software. You can use Moxa's MXconfig Series to configure multiple Moxa devices simultaneously. The MXview Series is an industrial network management software that helps to monitor and view Moxa devices on a dashboard during daily operations. The MXconfig Series reduces deployment efforts and maintenance costs, while the MXview Series minimizes downtime.

1.1 Purpose

This document explains how to configure, maintain, and monitor multiple NPorts/MGates in industrial networks. Check if your NPort or MGate device is supported iby MXconfig/MXview before configuring or monitoring with these tools. If no, import the NPort and MGate plugin package to MXconfig/MXview. This guide also explains how to import plugins to enable support in NPort, MGate products in the MXconfig Series and MXview Series.

2 How to configure and maintain multiple NPorts/MGates in industrial networks

2.1 Prerequisites

Before starting with the MXconfig Series, make sure you have enabled SNMP and Moxa command service on your NPort and MGate devices. Refer to the product user manual for related settings.

2.2 Introduction to MXconfig (non-java) and MXconfig (java)

Moxa's legacy MXconfig java version is a comprehensive Windows-based utility that installs, configures, and maintains multiple Moxa devices on industrial networks. To improve cybersecurity and prevent vulnerabilities, Moxa offers the java-free MXconfig C# version. The MXconfig (non-java) or MXconfigCS uses version 3.x, and the legacy MXconfig (java) uses version 2.x.

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2.3 What functions are supported in the MXconfig Series

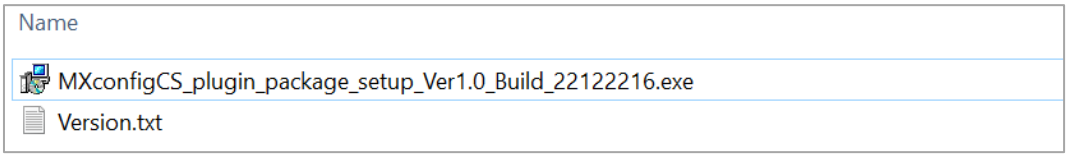
- Broadcast search for NPort and MGate devices.
- Unlocking selected devices after inputting the device password.
- Exporting multiple configuration files with user-definable filenames and importing multiple configuration files to multiple devices.
- Upgrading firmware to selected devices.
- Copying configuration to selected devices.
- Security wizard for convenient setup of security-related parameters.

2.4 How to import plugins to the MXconfig Series

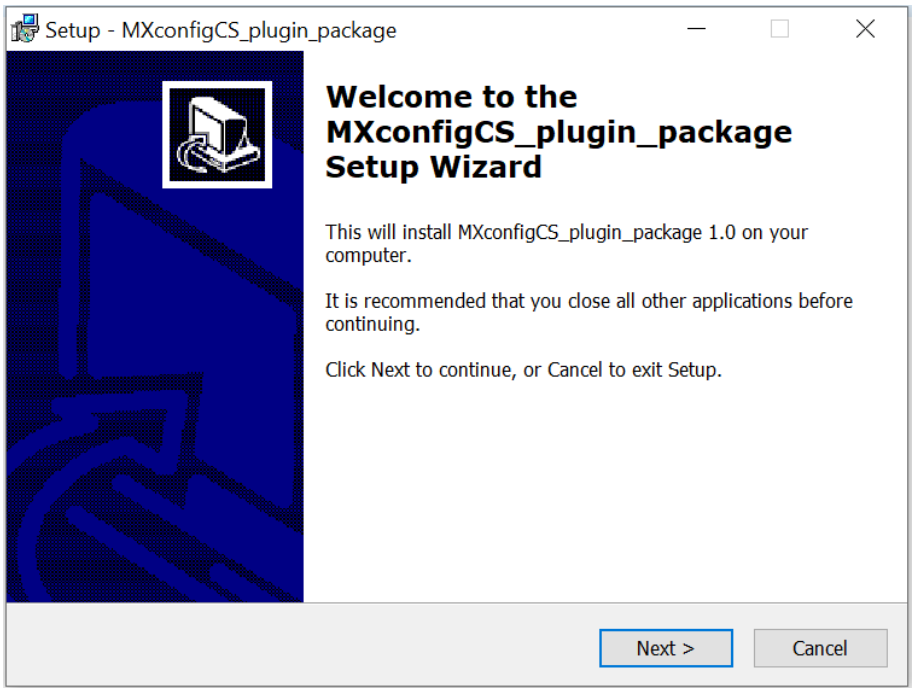
2.4.1 MXconfig (non-java or "MXconfigCS") import plugin steps

First, download the MXconfig utility from Moxa's website and install it. Check the supported models on the MXconfig official website. If the models needed are not on the support list, please follow the steps below to install the plugin. After installing the plugin, the models needed will be supported on MXconfig.

- Execute the plugin file (.exe file).



- Follow the instructions on the wizard to install the plugin.



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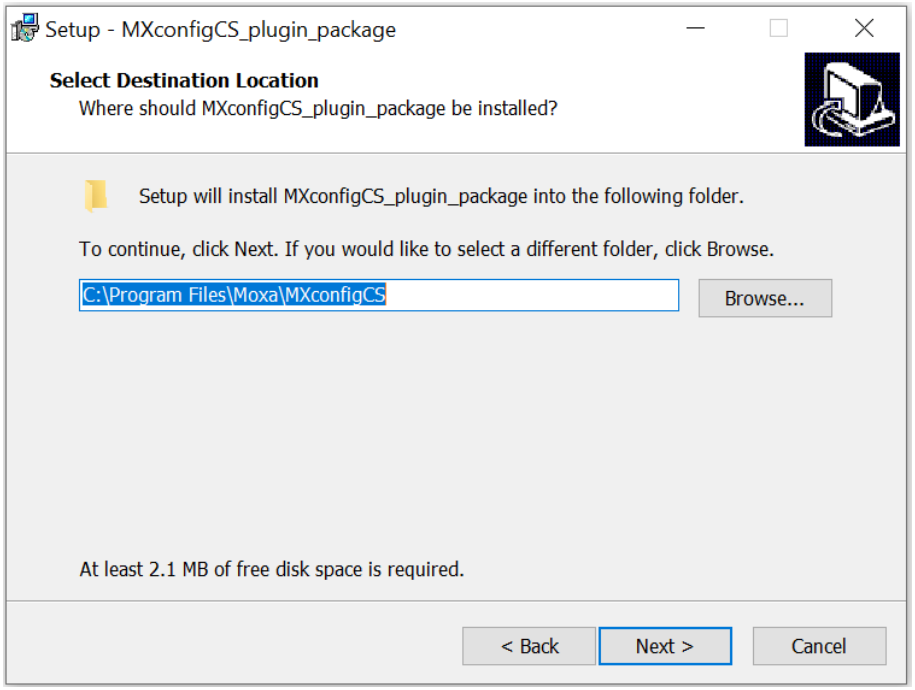
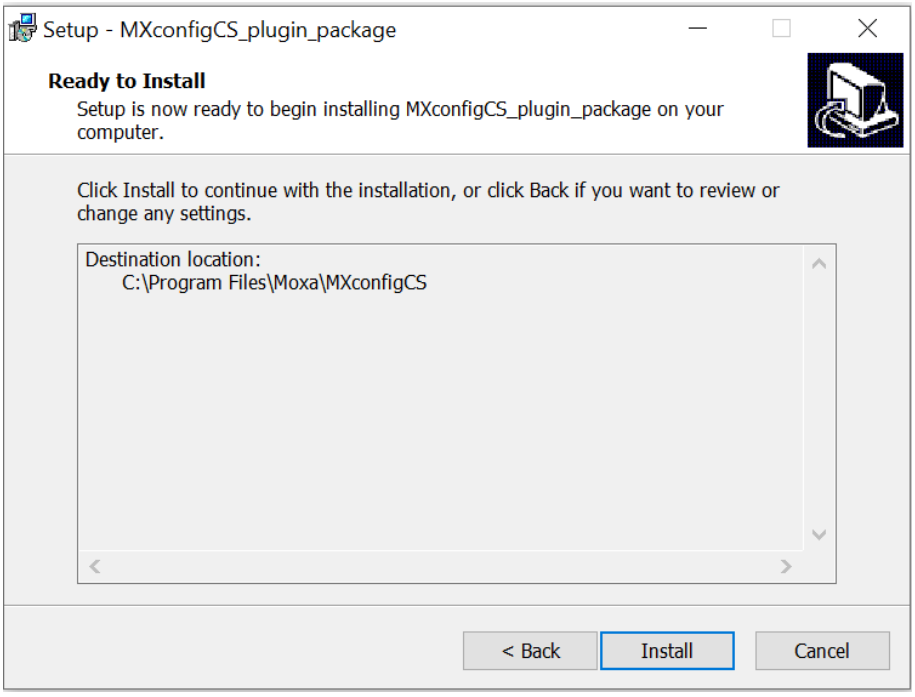
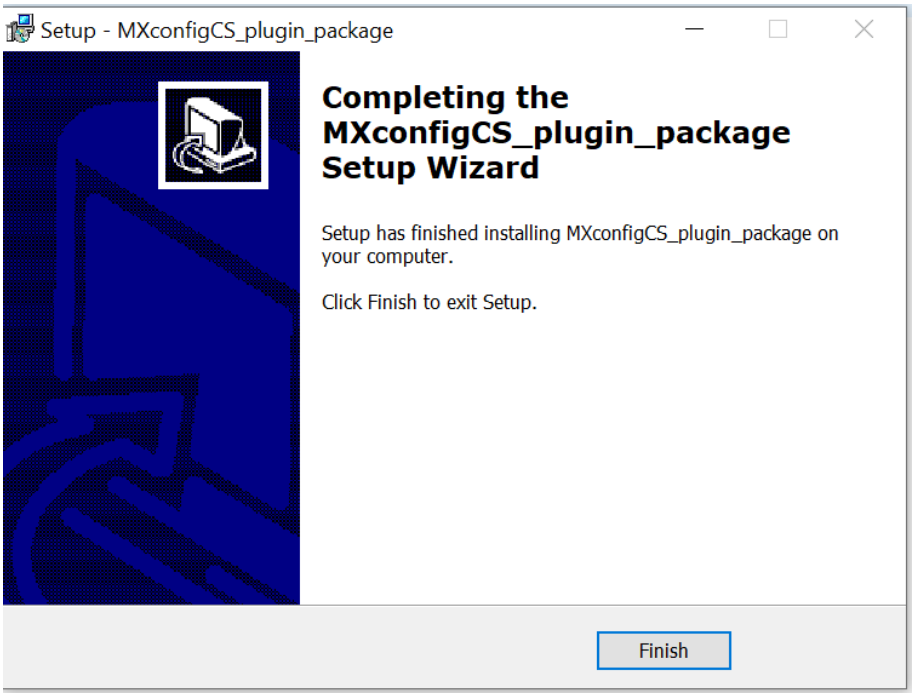
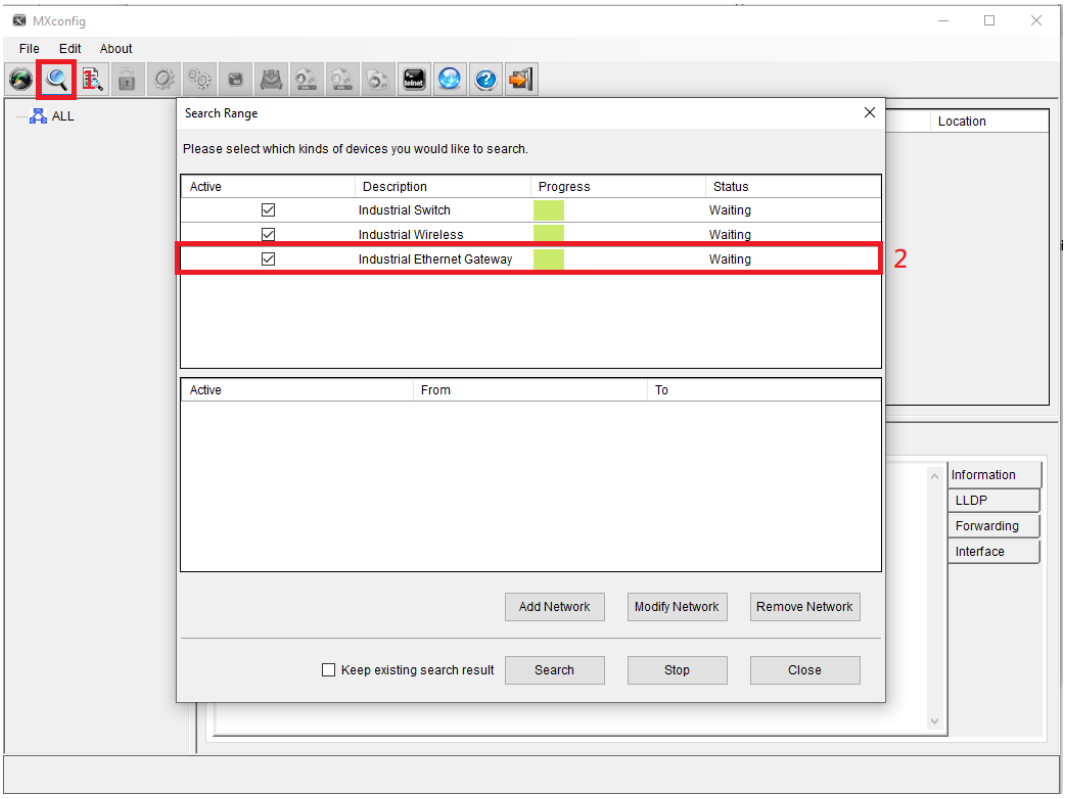

Setup - MXconfigCS_plugin_package
Select Destination Location
Where should MXconfigCS_plugin_package be installed?
Setup will install MXconfigCS_plugin_package into the following folder.
To continue, click Next. If you would like to select a different folder, click Browse.
C:\Program Files\Moxa\MXconfigCS
Browse...
At least 2.1 MB of free disk space is required.
< Back
Next >
Cancel


Setup - MXconfigCS_plugin_package
Ready to Install
Setup is now ready to begin installing MXconfigCS_plugin_package on your computer.
Click Install to continue with the installation, or click Back if you want to review or change any settings.
Destination location:
C:\Program Files\Moxa\MXconfigCS
< Back
Install
Cancel

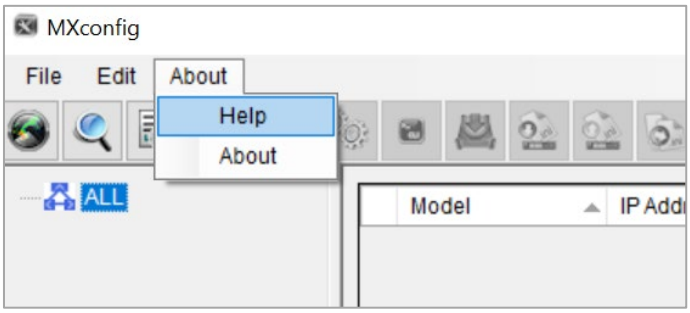


- Launch the MXconfig (non-java) or MXconfigCS application.

- Check if the plugin of the desired model series' is installed. The following is an example after installing the MGate Series plugin.



- For more detailed information about MXconfig, please check the "Help" tab in the MXconfig application.

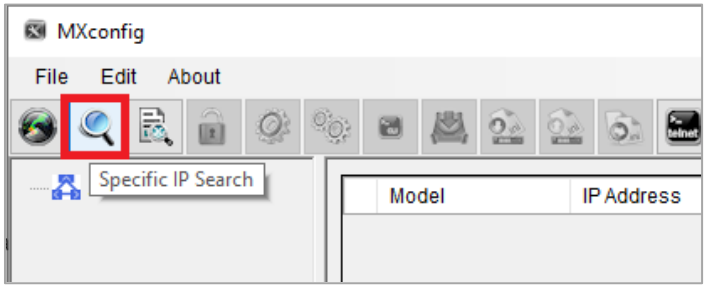


2.5 Typical operating scenarios

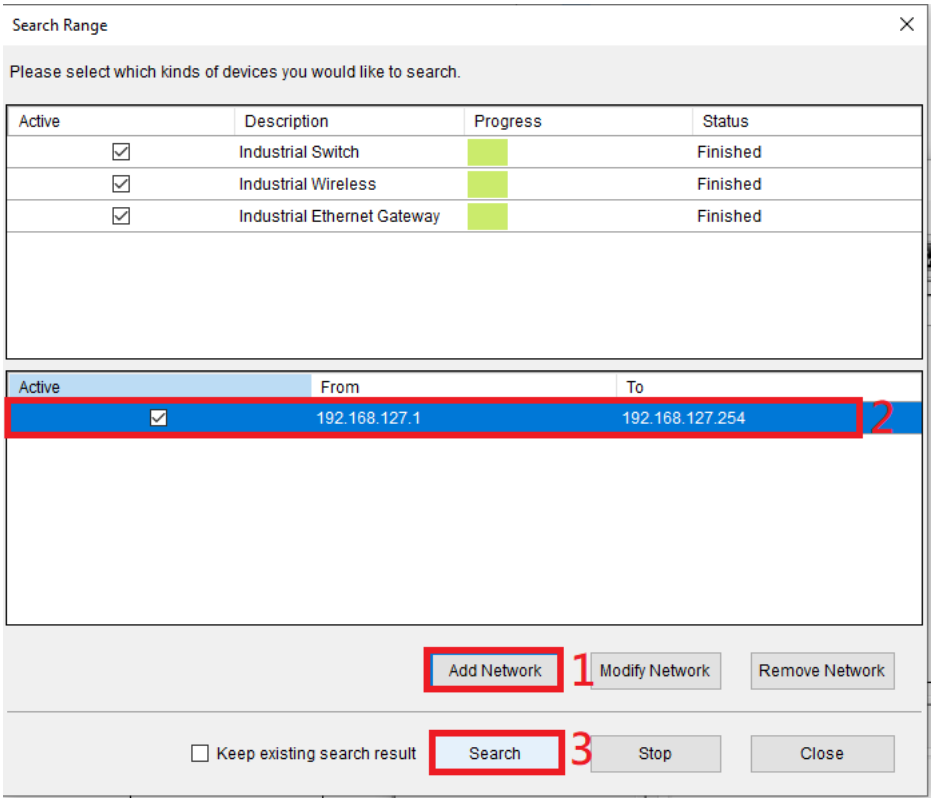
The following examples use MXconfig (non-java).

2.5.1 Broadcast search of the network

- Click the search button.



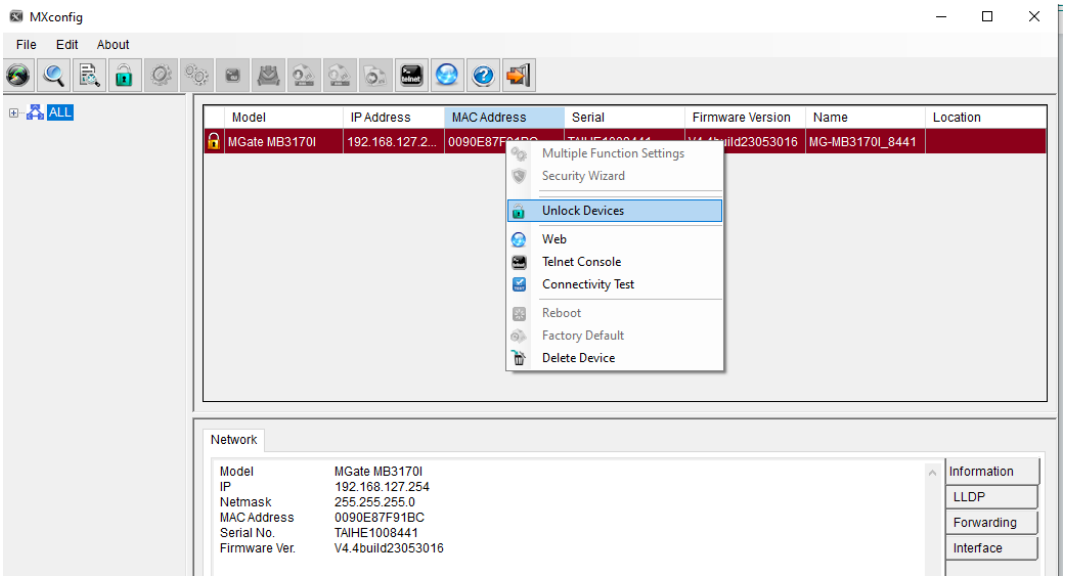
- Add a search network and specify the search IP address range.



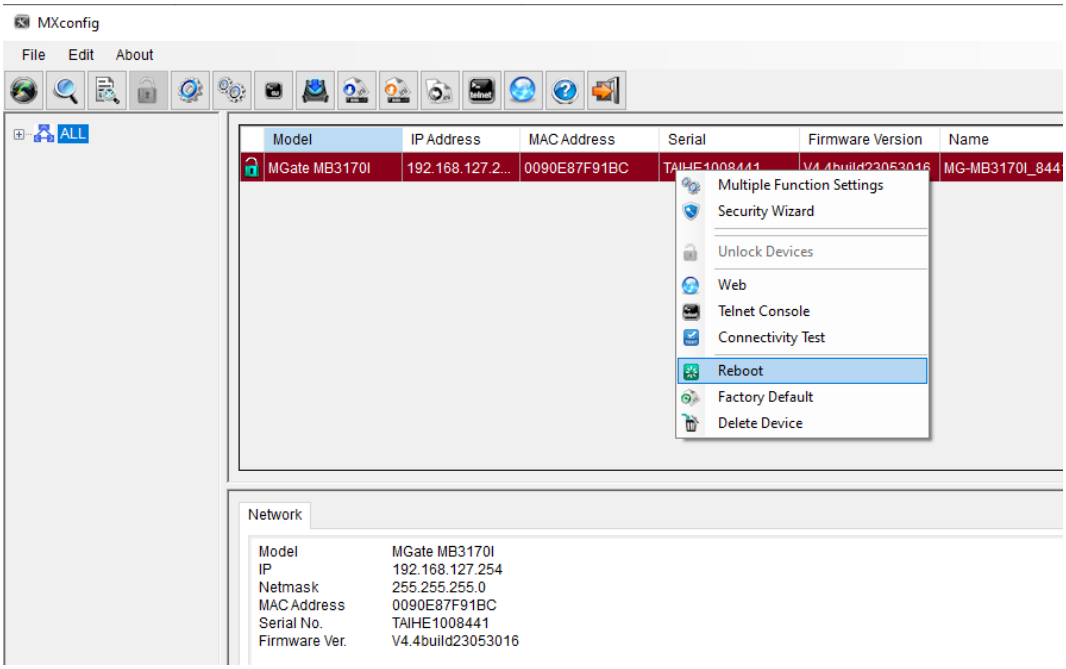
- Click **Search** to start searching.
- Check the search results. If it cannot search the device, check if the device's firmware version supports MXconfig.

2.5.2 Unlocking selected devices after inputting the device password

- Right-click on the searched device and select “Unlock Devices”.

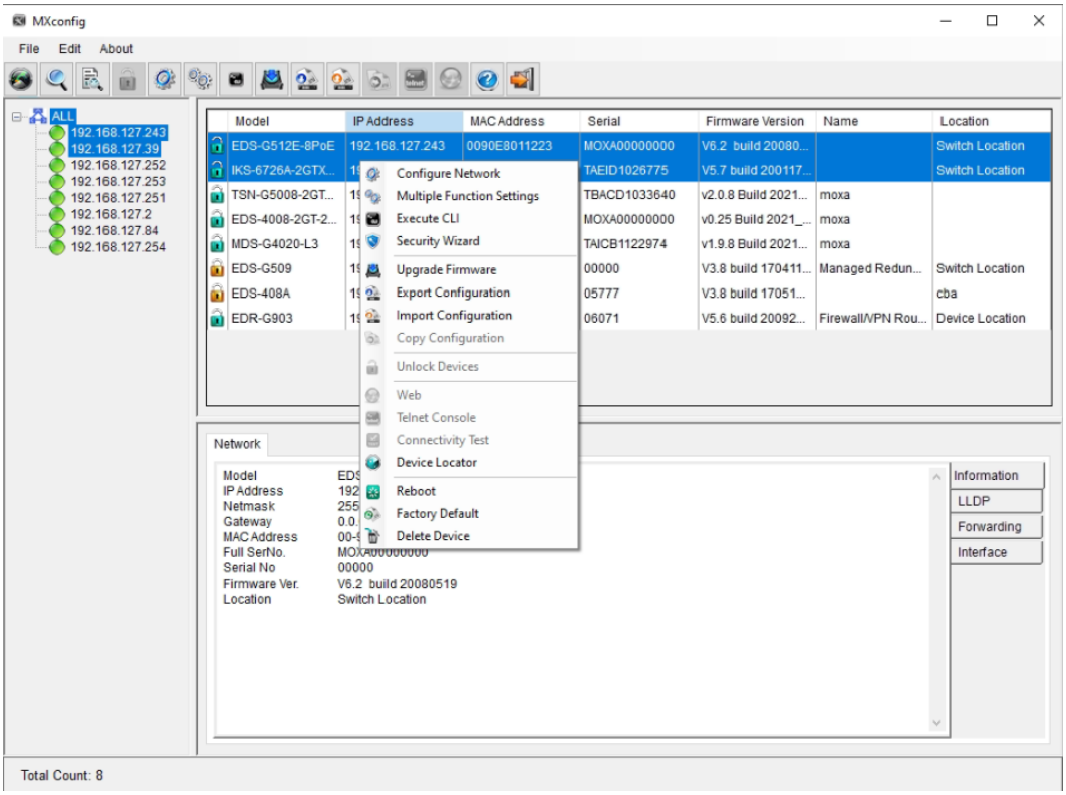


- After unlocking the devices, further operations such as reboot and factory default can be performed.



2.5.3 Exporting multiple configuration files with user-definable filenames and importing multiple configuration files to multiple devices

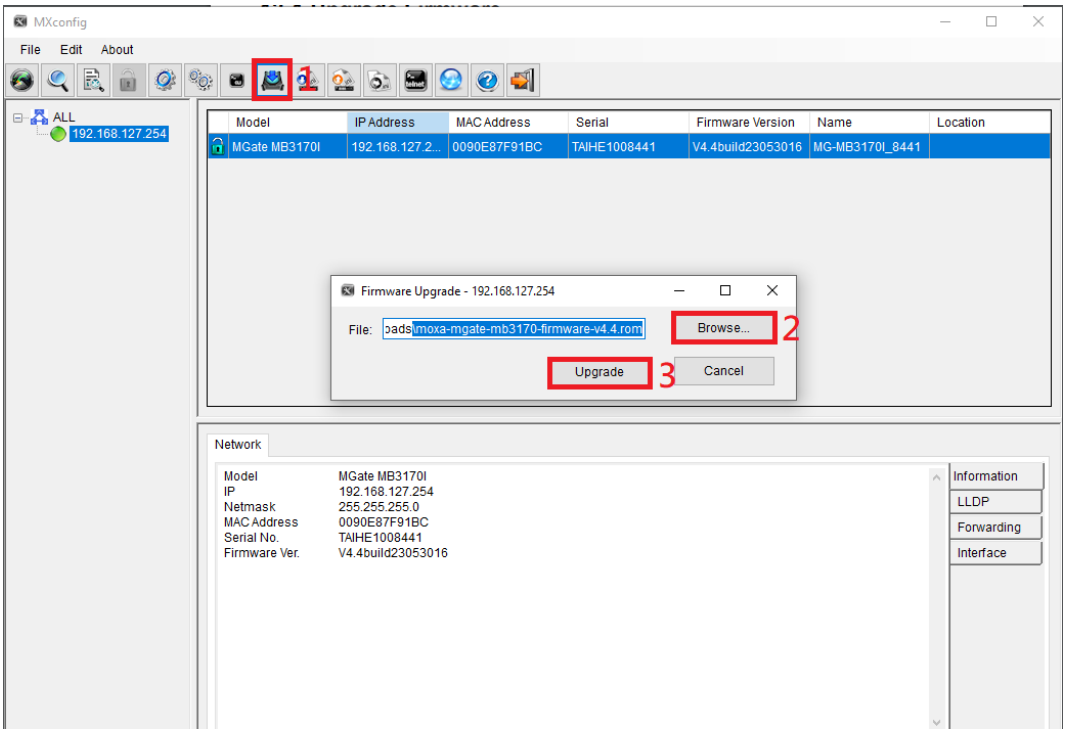
- Select multiple devices.
- Click the Export Configuration icon or right-click on the devices and select the Export Configuration function.



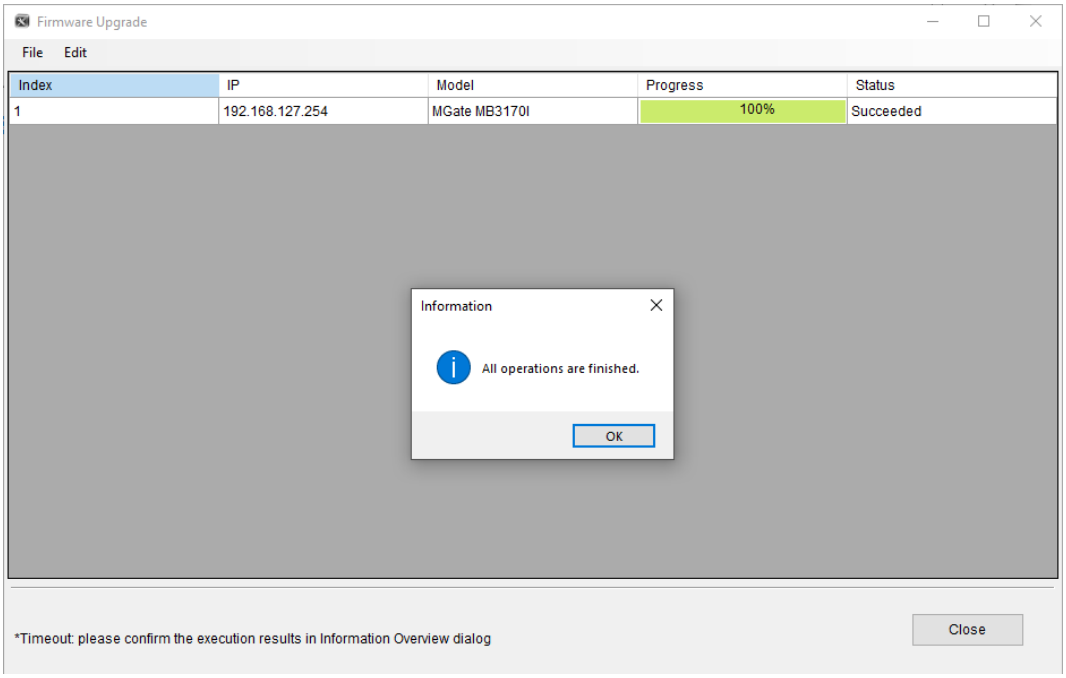
- Enter the file path where the configuration file will be saved.
- Select the **Filename**, including IP, MAC, Name, Location, and Serial
- Click **Export**.

2.5.4 Upgrading firmware to selected devices

- Click the Upgrade Firmware icon, select the firmware file, and click **Upgrade**.



- Check the results to see if it succeeded.



- To upgrade firmware to multiple devices, select multiple devices and click the Upgrade Firmware button.

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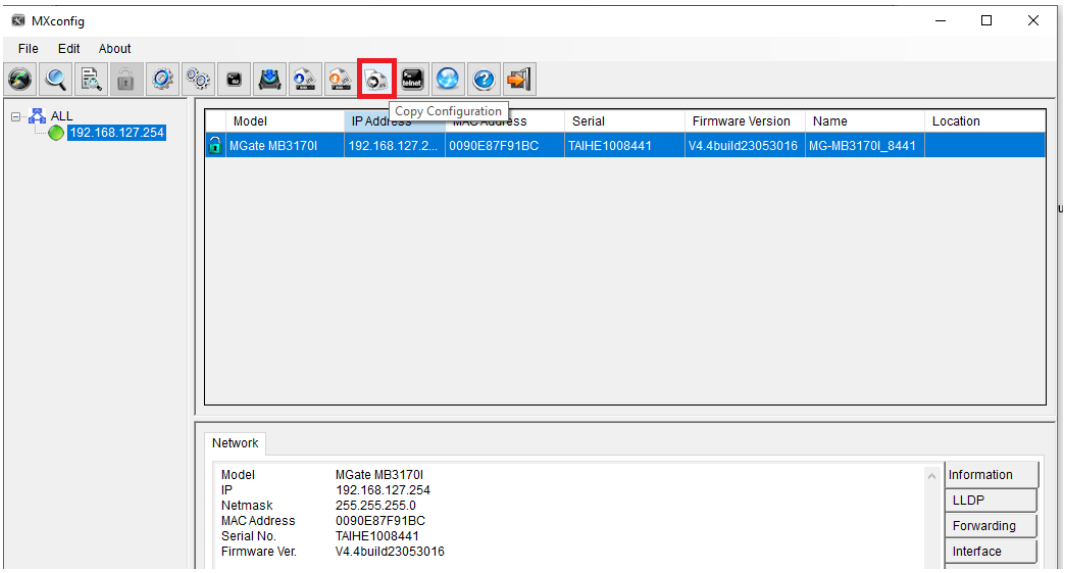
- Select **Sequential Mode** or **Concurrent Mode**.

Note To speed up the upgrade process, use Concurrent Mode to upgrade all devices simultaneously. To upgrade the devices one by one, use Sequential Mode.

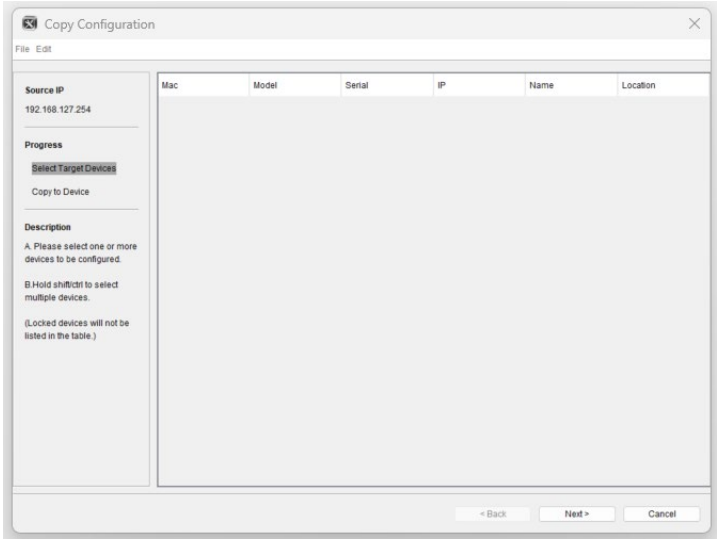
- Click **Upgrade**.

2.5.5 Copy configuration to selected devices

- Click the Copy Configuration button.



- Select the target device(s) to import the copied configuration file.



2.5.6 Security wizard for convenient setup of security-related parameters

ISA/IEC 62443 is a continuously evolving cybersecurity standard that is being used in many industrial automation applications. This standard, including its subsections, covers general, policy and procedure, system-level, and component-level requirements. MXconfig follows Moxa's security guidelines, which are based on the IEC 62443-4-2 component-level recommendations. The Security Wizard assesses Moxa's network devices' security level and makes configuration recommendations.

- Select the devices that the Security Wizard will set.
- Right-click on the devices and select the Security Wizard.
- The Security Wizard window will pop up.
- Select Profile: General Baseline, IEC 62443-4-2 Level 1, or IEC 62443-4-2 Level 2.
- Click **Next**.

Note Click **Custom** to create your own setting items. Custom profiles can be saved and loaded.

- Enter all related parameters in every setting item that is not in the green circle.
- Click **Next**.

Note Click Skip to avoid making modifications on specific setting items. If you skip certain security settings, MXconfig cannot guarantee that all security settings will be set.

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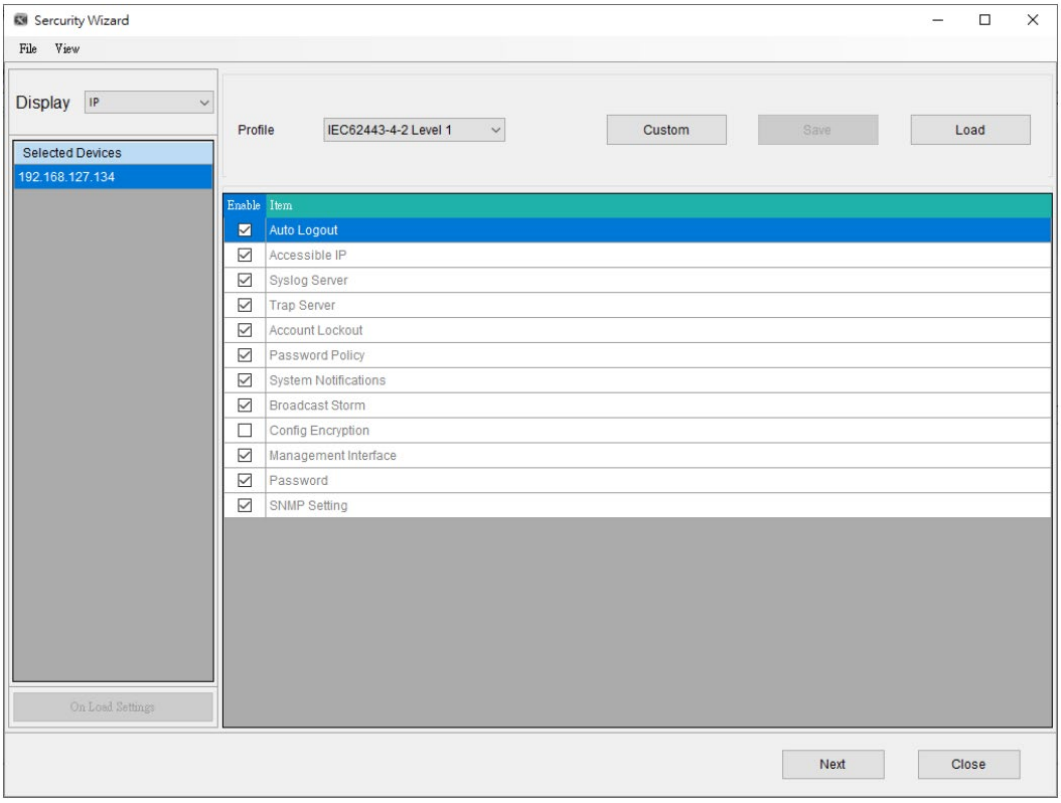
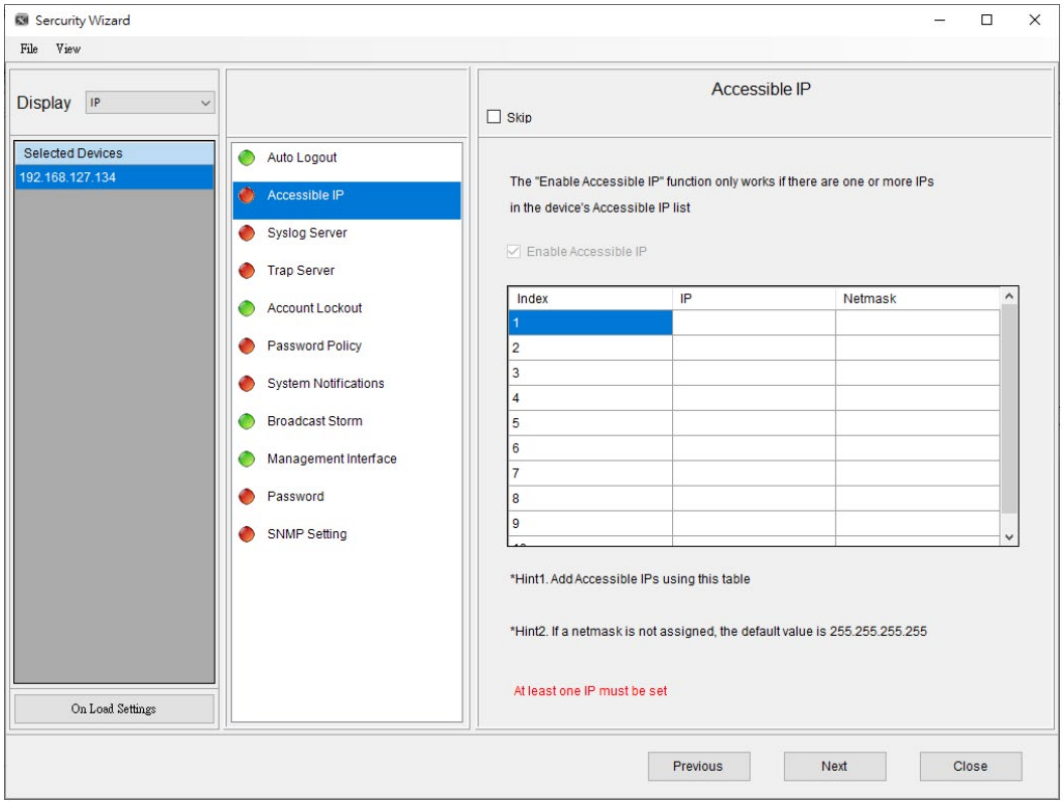

Sercurity Wizard
File
View
Display
IP
Selected Devices
192.168.127.134
On Load Settings
Profile
IEC62443-4-2 Level 1
Custom
Save
Load
Enable
Item
Auto Logout
Accessible IP
Syslog Server
Trap Server
Account Lockout
Password Policy
System Notifications
Broadcast Storm
Config Encryption
Management Interface
Password
SNMP Setting
Next
Close


Sercurity Wizard
File
View
Display
IP
Selected Devices
192.168.127.134
On Load Settings
Auto Logout
Accessible IP
Syslog Server
Trap Server
Account Lockout
Password Policy
System Notifications
Broadcast Storm
Management Interface
Password
SNMP Setting
Accessible IP
Skip
The "Enable Accessible IP" function only works if there are one or more IPs in the device's Accessible IP list
Enable Accessible IP
Index
IP
Netmask
1
2
3
4
5
6
7
8
9
*Hint1. Add Accessible IPs using this table
*Hint2. If a netmask is not assigned, the default value is 255.255.255.255
At least one IP must be set
Previous
Next
Close

- Check the security profile for General Baseline, IEC 62443-4-2 Level 1, IEC 62443-4-2 Level 2, and the mapping security functions in the following table.

Security functions	General Baseline	IEC 62443-4-2 Level 1	IEC 62443-4-2 Level 2
Accessible IP	✓	✓	✓
Syslog server	✓	✓	✓
Account Lockout		✓	✓
Password Policy		✓	✓
System Notifications		✓	✓
SNMP Agent	✓	✓	✓
Management Interface		✓	✓
Password	✓	✓	✓

3 How to monitor multiple NPorts or MGates in industrial networks

3.1 Prerequisites

Before starting with the MXconfig Series, make sure you have enabled SNMP and LLDP service on your NPort and MGate devices. Refer to the product user manual for related settings.

3.2 Introduction to MXview One and MXview

Moxa’s MXview is a legacy network management software designed to configure, monitor, and diagnose networking devices in industrial networks. It provides an integrated management platform that can discover networking devices and SNMP/IP devices installed on subnets. All selected network components can be managed via a web browser from both local and remote sites—anytime and anywhere. MXview One is the next-generation network management software designed for the same purpose as MXview while also supporting different operating systems and advanced add-ons.

Security View function in MXview One and MXview follows Moxa's security guidelines based on IEC 62243 component-level recommendations. Security View checks the security level of Moxa’s network devices, including NPort and MGate Series. Before viewing the NPort and MGate devices on MXview One or MXview, check if your NPort or MGate model is in the support list of MXview One or MXview. If not, please import the NPort or MGate plugin package to MXview One via Plugin Manager. The Plugin Manager is automatically installed when setting up MXview One orMXview. You can download the plugin package from the product page. Please execute Plugin Manager and add the plugin package.

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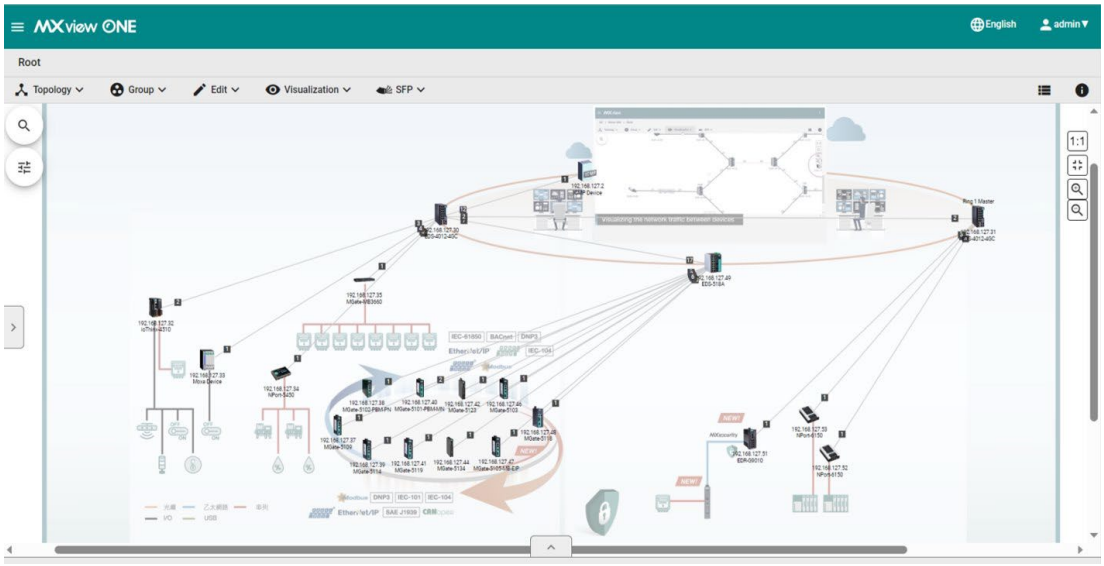

3.3 Supported functions in MXview One or MXview

- Scan range (device search).
- Auto topology (need to enable LLDP on the device).
- Configuration import/export.
- Firmware upgrade.
- Locator (find the device).
- IP configuration.
- Device status.
- SNMP Trap (when the Ethernet link is down).
- Basic information (device information configuration).
- Device properties (detailed device information and status).
- Security View (detects the security level of a device).

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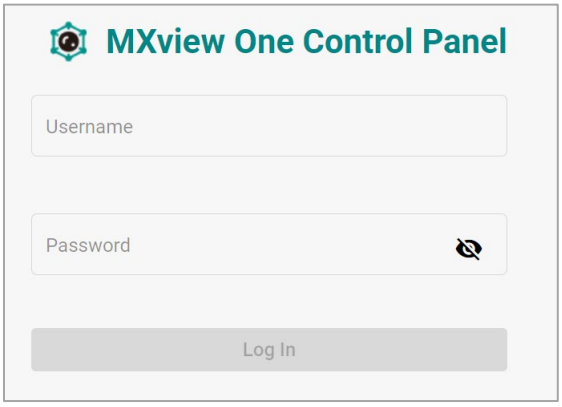
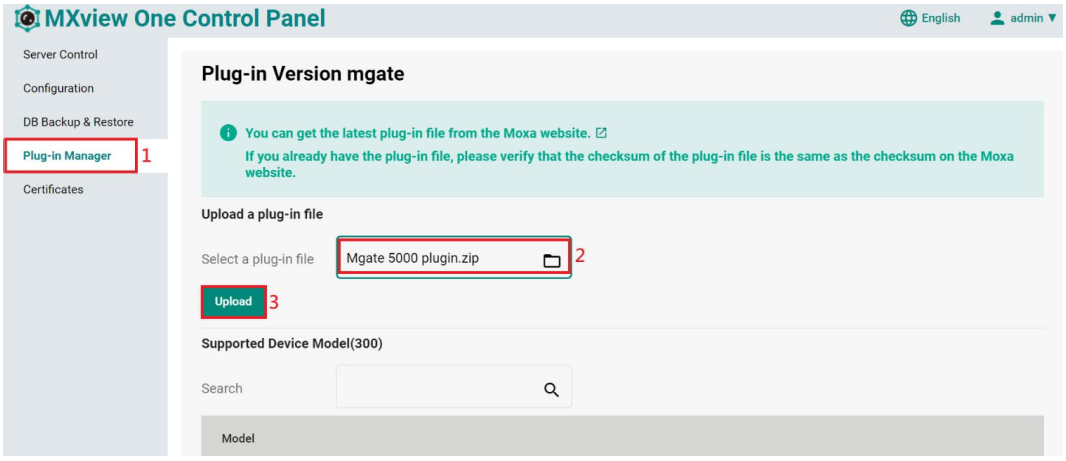
3.4 How to import an NPort or MGate plugin to the MXview Series

3.4.1 MXview One Windows/Linux import plugin steps

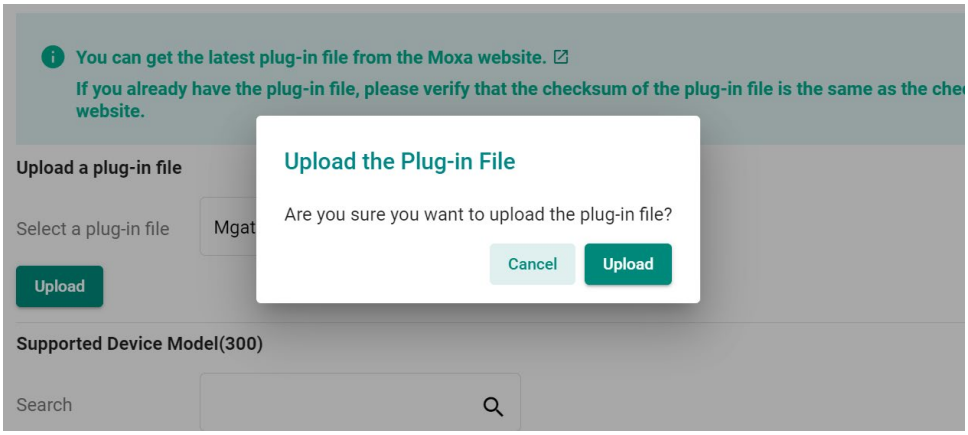
- Enter the MXview One Control Panel by opening the application or connecting to the IP of MXview One using 7100 port (e.g.,in https://127.0.0.1:7100).



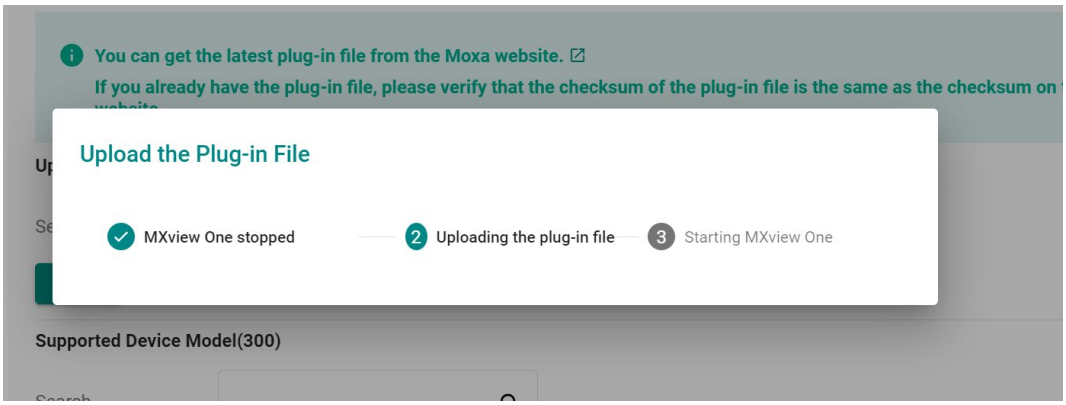
- In the MXview One Control Panel, navigate to the Plug-in Manager tab, select a plugin file, and click **Upload**.



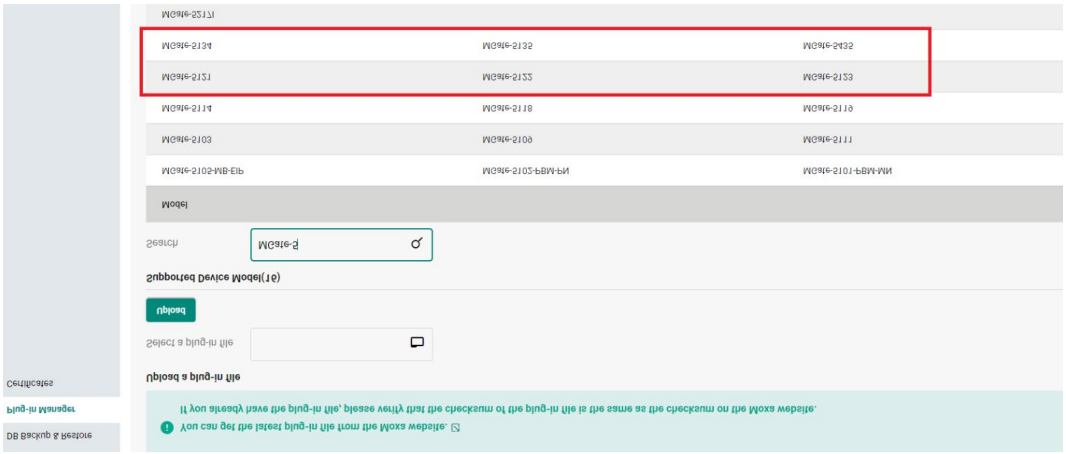
- Confirm **Upload**.



- Wait for the uploading process to finish.



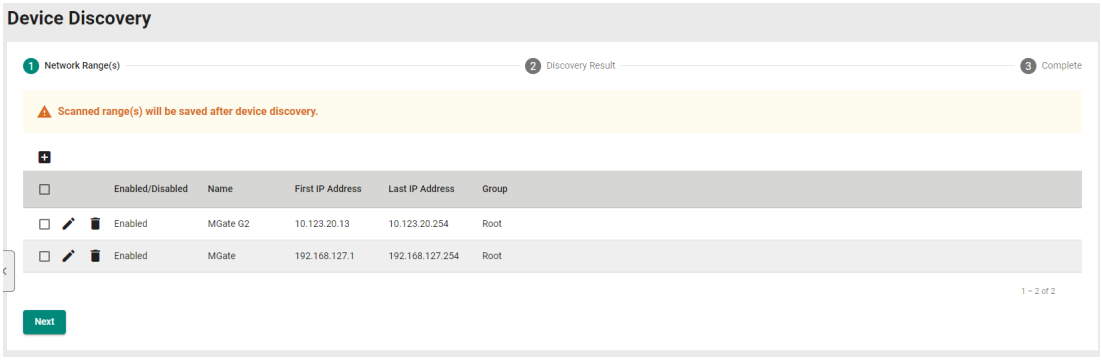
- Search for the desired model series and make sure the plugin is installed.



3.5 Typical operating scenarios

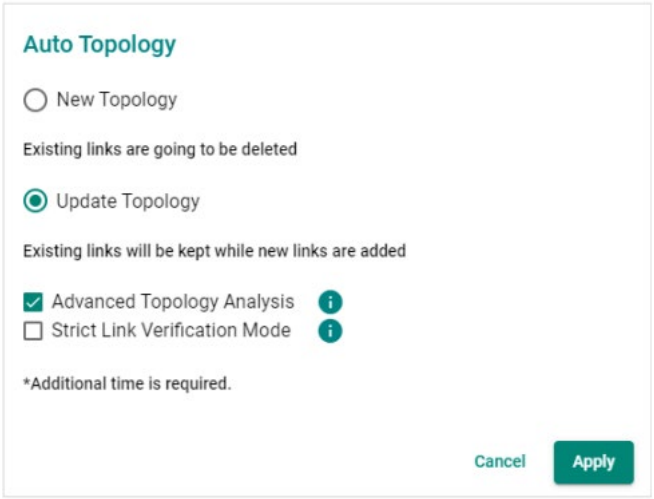
3.5.1 Scan range (device search)

- To be scanned by MXview, enable the **SNMP** service on the NPorts and MGates first.
- To launch Device Discovery manually, do the following: Navigate to Menu > Device Discovery. Device Discovery appears to the right of the navigation panel.
- Add the IP address ranges to scan for devices.



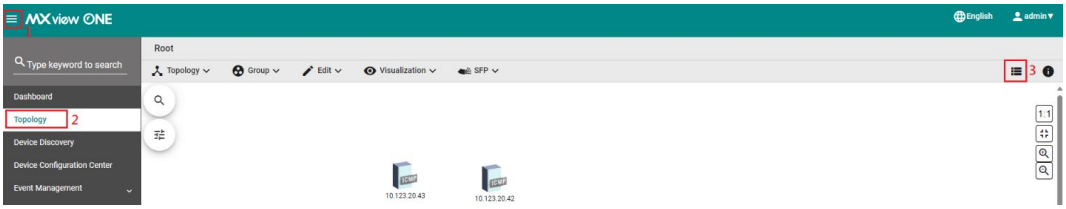
3.5.2 Auto topology

- For devices with **LLDP** functionality, you can view the physical network topology map on MXview, down to the port number of the devices. If you need information on this level, please enable LLDP service on NPorts and MGates. For devices without an LLDP MIB, MXview can draw links by using ARP. To activate this function, select the Advanced Topology Analysis checkbox from the Auto Topology screen.
- Navigate to **Topology** > **Auto Topology**.
- Select **Update Topology**.
- For more detailed information, check the MXview user manual.

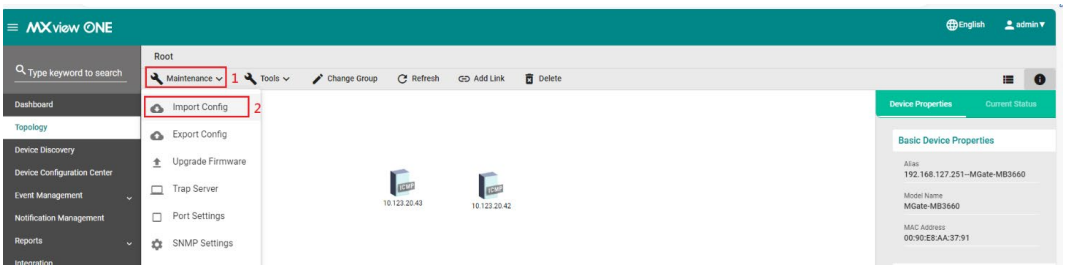


3.5.3 Configuration import/export.

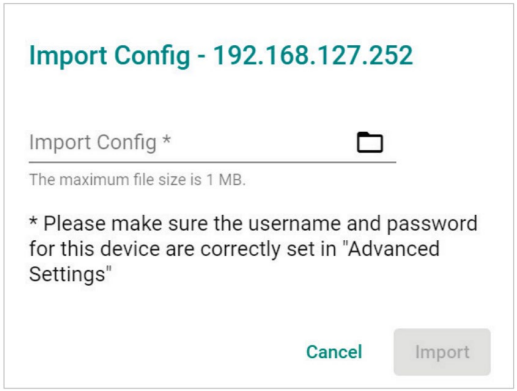
- To import or export configuration from a NPort or a MGate, navigate to the main menu and select **Topology**. You can view the devices in two kinds of views: **Topology view** (graphical) or **List view**. To switch between these two views, click the icon on the upper-right corner.

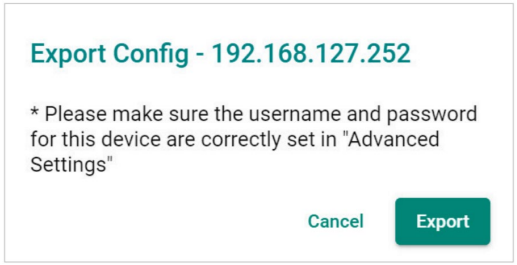


- Under both these views, select the device that you want to import or export the configuration, click **Maintenance**, then select **Import Config** or **Export Config**.



- The **Import Config/Export Config** window pops up and shows the IP address of the selected device.





- Lastly, click **Import** or **Export** to finish the operation.

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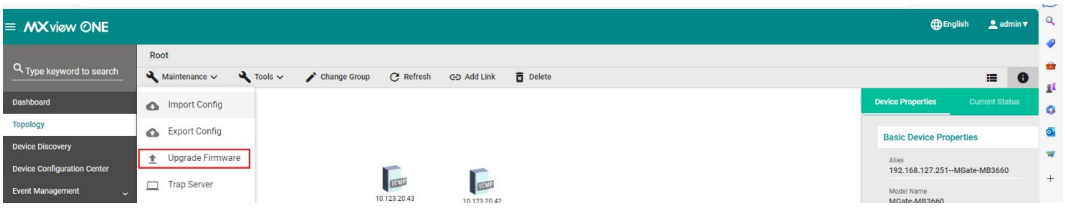
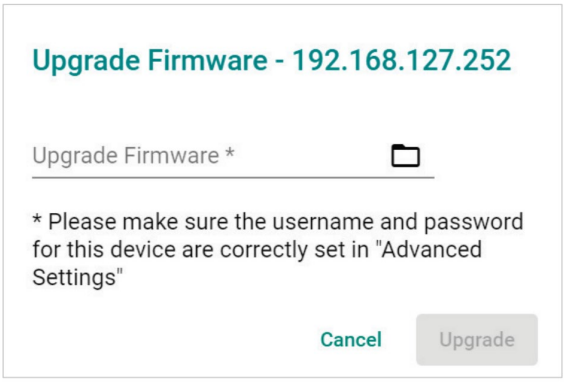
3.5.4 Firmware upgrade

- To upgrade firmware to a device, navigate to the main menu and select **Topology**. You can view the devices in two kinds of views: **Topology view** (graphical) or **List view**. To switch between these two views, click the icon on the upper-right corner.
- Under both these views, select the device that you want to import or export configuration, click **Maintenance**, then select **Upgrade Firmware**.



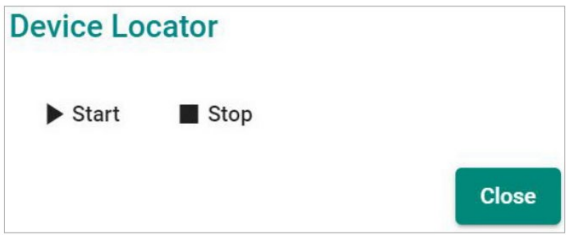
- The **Upgrade Firmware** window pops up and shows the IP address of the selected device.



- Select the firmware file from your local computer, then click **Upgrade**. MXview will upgrade the firmware to the specified device.

3.5.5 Device Locator (find devices in your field)

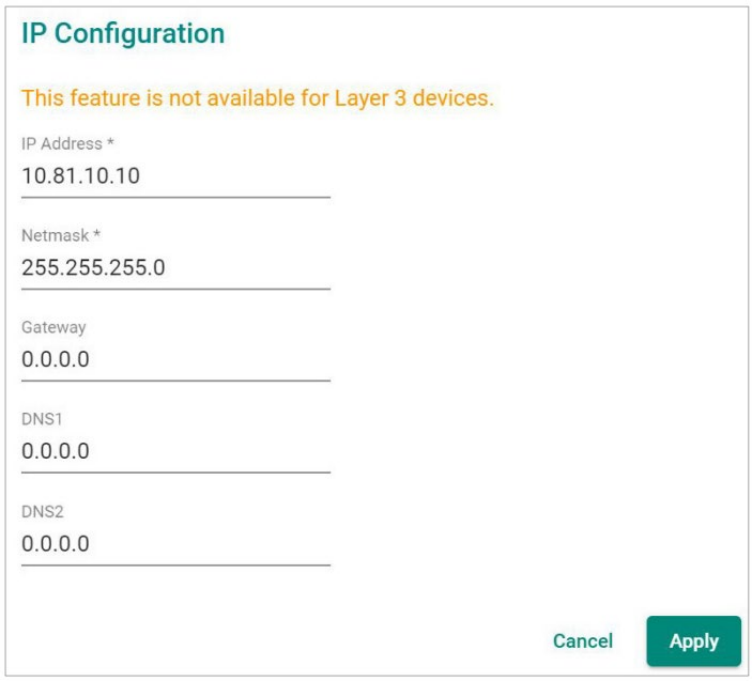
- To locate a device, navigate to the main menu and select **Topology**. You can view the devices in two kinds of views: **Topology view** (graphical) or **List view**. To switch between these two views, click the icon on the upper-right corner.
- You can use the **Device Locator** to locate a device in the field. When the **Device Locator** is activated, all the LEDs on the device blink to help you locate the device.
- Under both these views, select the device that you want to locate, click **Locator**, and click **Start**, then the LEDs on the device start blinking.



Note This feature is only available in MXview. It is no longer supported in MXview One.

3.5.6 IP configuration (configuring device IP settings)

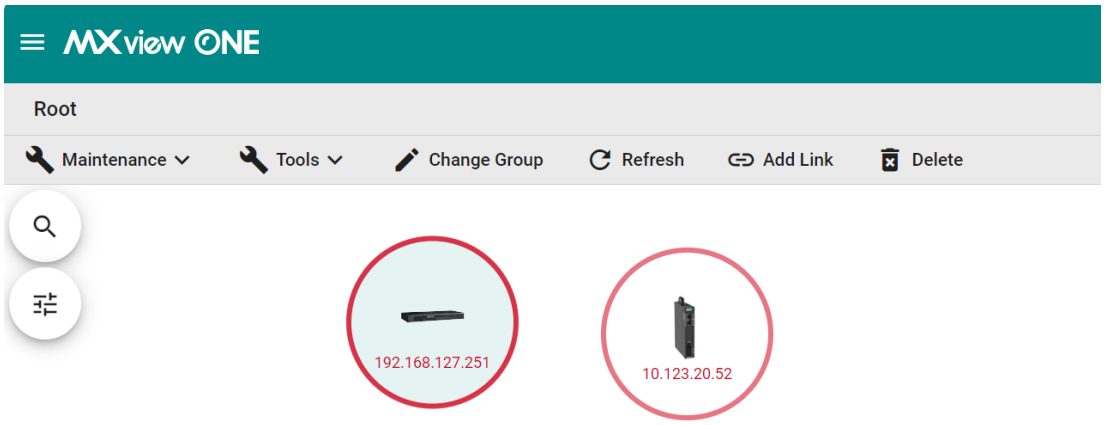
- To configure IP settings for a device, navigate to the main menu and select **Topology**. You can view the devices in two kinds of views: **Topology view** (graphical) or **List view**. To switch between these two views, click the icon on the upper-right corner.
- Under both these views, select the device that you want to change IP configuration, click **Maintenance**, then select **IP Configuration**.



Note This feature is only available in MXview. It is no longer supported in MXview One.

3.5.7 Device status

- To check the status of devices, navigate to the main menu and select **Topology**. You can view the devices in two kinds of views: **Topology view** (graphical) or **List view**. To switch between these two views, click the icon on the upper-right corner.
- If the device is not reachable from MXview using SNMP, the status turns to yellow. Please check the SNMP or other settings that may affect SNMP operation in the network. If the device is not reachable from MXview using ICMP (ping), the device status turns to red. Please check the network settings or examine for any network issues.

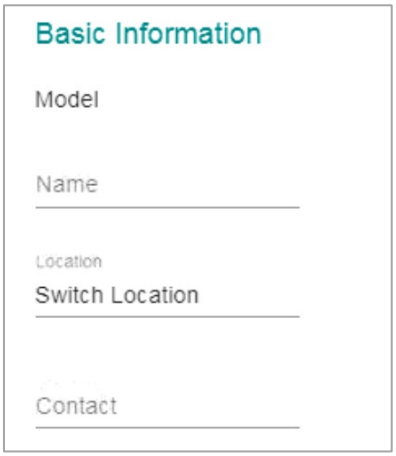


3.5.8 SNMP Trap (when the Ethernet link is down)

MXview can act as a trap server to show device events. After configuring the SNMP settings correctly, the Ethernet Link down trap can be received and viewed in MXview's **Topology**, and the device's status turns to red. The SNMP trap event can be viewed in the Topology page or the **Event Management** > **Event History** page.

3.5.9 Basic information (device information configuration)

- To check the change the **Name**, **Location** and **Contact** information of the devices, navigate to the main menu, and select **Topology**. You can view the devices in two kinds of views: **Topology view** (graphical) or **List view**. To switch between these two views, click the icon on the upper-right corner.
- Click on the device that you want to change, and navigate to **Maintenance** > **Basic Information**.

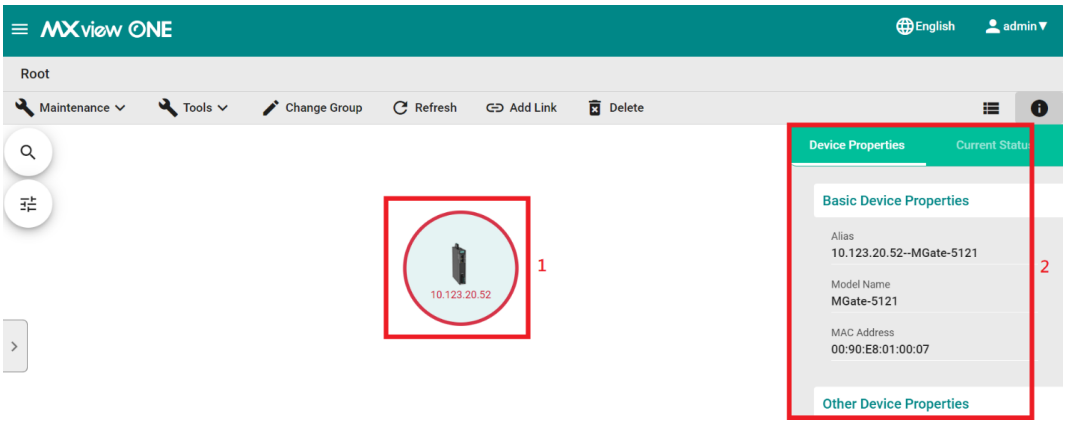


- After changing the basic information, click **Apply** to make the settings take effect.

Note This feature is only available in MXview. It is no longer supported in MXview One.

3.5.10 Device properties (detailed device information and status)

- To view the details of a specific device, select the device in the **Topology** map.
- The **Device Properties** panel, that shows the detailed information, appears on the right-hand side of the topology map.



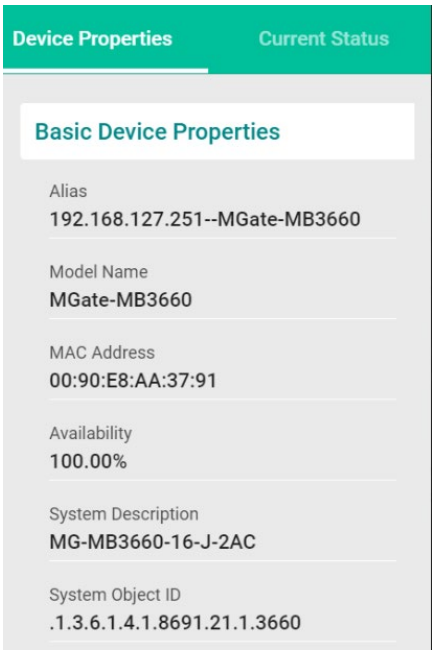
- The detailed supported information in the **Device Properties** is categorized in three parts: **Device Properties**, **Port Information**, and **Other Device Properties**.

Device Properties
Alias
Model Name
MAC Address
Availability
System Description
System Object ID
System Contact
System Name
System Location
Serial Number
Firmware Version (FW version)
System Uptime

Port Information	Value	Definition
ifNumber	0 to 100	The number of ports, including Ethernet ports and serial ports
Interface 1	Status: up/down speed: 10M/100M/1000M (If it is an Ethernet port)	If it is an Ethernet port, this field will show two parameters: Status and Speed, and it will also show which port these parameters belong to.
Interface 2	Speed: 50 bps~921.6 kbps mode: RS-232/RS-422/RS-485 (If it is a serial port)	If it is a serial port, this field will show two parameters: Speed and Mode (serial interface), and it will also show which port these parameters belong to.
Interface numbering		The number after 'interface' depends on the number of Ethernet and serial ports supported. For example, the MGate MB3660-16 supports 2 Ethernet ports and 16 serial ports, so there would be interfaces 1 to 18

Other Device Properties
Defined by a different model.

- The following is an example of detailed **Device Properties** of an MGate model:



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System Contact

System Name
MG-MB3660-16-J-2AC_6418

System Location

FW Version
3.1.5 Build 23050216

System Uptime
0d 0hr 47min 39sec

Port Information

ifNumber
18

interface.1
up / 100M

ethernetCsmacd /Moxa Ethernet port 01

Other Device Properties

Default Gateway
255.255.255.255

DNS 1 IP address
0.0.0.0

DNS 2 IP address
0.0.0.0

lan1Status
on

lan2Status
off

power1Status
off

power2Status
on

readyLedStatus
operational

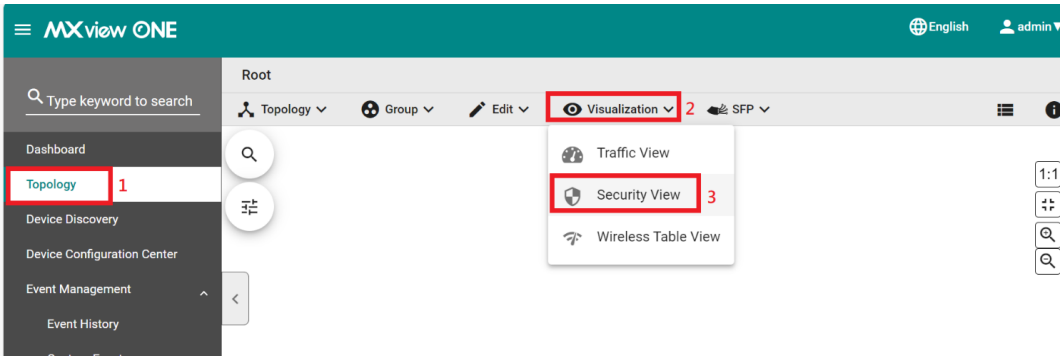
3.5.11 Security View (monitoring and detecting the security level of the device)

ISA/IEC 62443 is a continuously evolving cybersecurity standard that is being used in many industrial automation applications. This standard, including its subsections, covers general, policy and procedure, system-level, and component-level requirements.

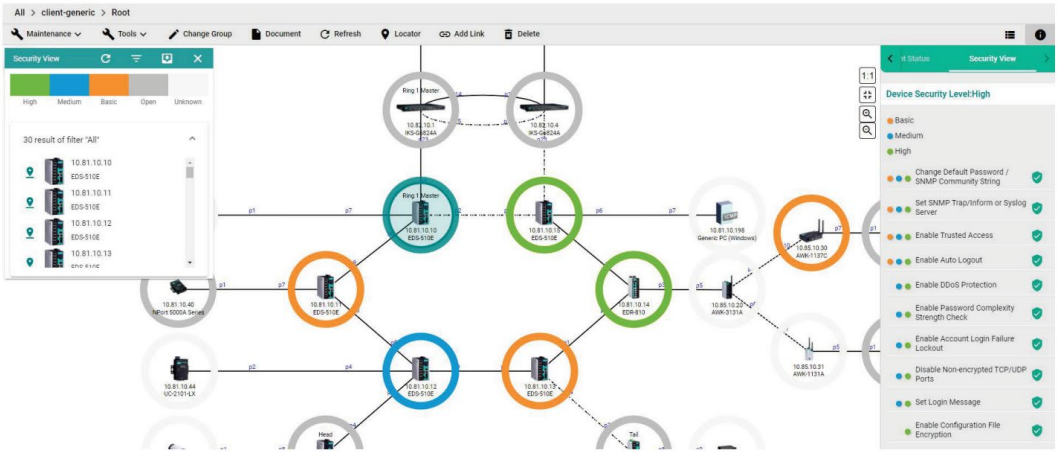
MXconfig follows Moxa's security guidelines, which are based on the IEC 62443-4-2 component-level recommendations. Security View checks the security level of Moxa's network devices. The five levels for checking the results in Security View:

- **High**
- **Medium**
- **Basic**
- **Open: Security Level below basic**
- **Unknown: Devices without security-related information for MXview One**

- To view the security levels of a device, navigate to the **Topology** view. If **List view** is selected, switch to **Topology view**.
- From the upper toolbar menu, navigate to **Visualization** > **Security View**. There is no need to select a device first to find the **Visualization** menu.

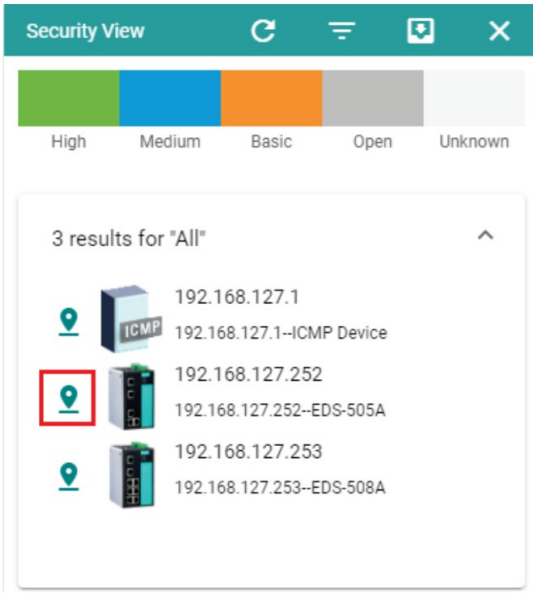


- The Security View window will appear, and the Topology Map shows the security level of each device with a color-coded circle.

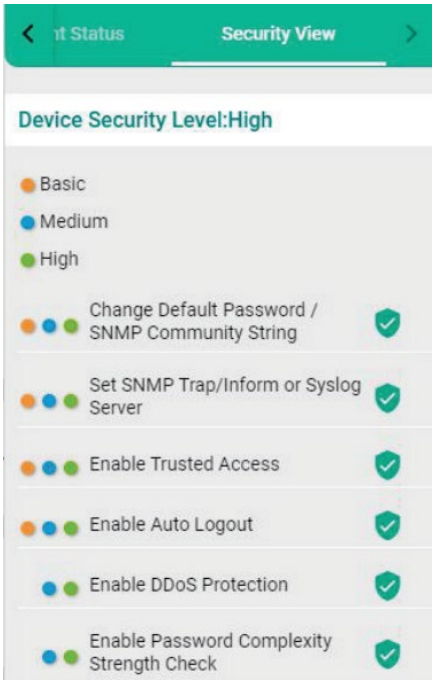


Note The corresponding color of the security levels can be defined by the user. Please check the MXview/MXview One user manual to change the **Preferences**.

- To quickly locate and identify a specific device in the topology view, click the device in the **Security View** pop-up window. In this stage, you can also select a specific device in the map to check its security-related information.



- The **Security View** details panel will appear on the right, and the Topology Map highlights the circle around the device. It displays the device security level and security-related configuration statuses.



- The definition of security levels: Basic, Medium and High are listed below:

Security Level and the Corresponding Configuration Items	Basic	Medium/ IEC62443-4-2 Level 1	High/ IEC 62443-4-2 Level 2
Change Default Password/SNMP Community String	✓	✓	✓
Set Syslog Server	✓	✓	✓
Enable Trusted Access	✓	✓	✓
Disable Non-encrypted TCP/UDP Ports	✓	✓	✓
Enable Password Complexity Strength Check		✓	✓
Enable Account Login Failure Lockout		✓	✓
Set Login Message		✓	✓

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- The description of the items in the Security View are listed below. You can also refer to the MXview user manual.

Item	Description
Enable Auto Logout	Check if the Auto Logout function is enabled.
Set Login Message	Check if both the Web Login Message and Web Login Fail Message are configured.
Disable Nonencrypted TCP/UDP Ports	Check if non-encrypted TCP/UDP Ports are disabled. HTTP, Telnet, and Moxa Proprietary Protocol should be disabled. SNMP must be set to V3 only.
Enable Account Login Failure	Lockout Check if the Account Login Failure Lockout function is enabled.
Enable Trusted Access	Check if the Trusted Access function is enabled or not. At least one rule must be set.
Enable Password Complexity Strength Check	Check if the Password Complexity Strength Check function is enabled.
Enable Configuration File Encryption	Check if the Configuration File Encryption function is enabled. At least one rule must be enabled.
Set SNMP Trap/Inform or Syslog	Server Check if the SNMP Trap/Inform or Syslog Server is set.
Change Default Password/SNMP Community String	Check if the Default Password or SNMP Community String is set.
Enable SSL/TLS High Secure Mode	Check if the HTTPS is enabled and HTTP is disabled.

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