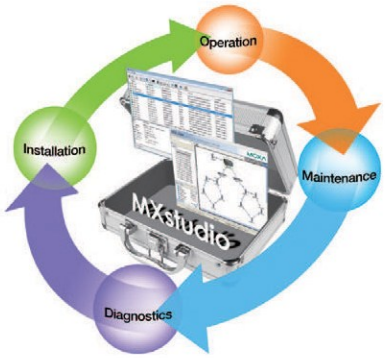
Introduction to Industrial Network Management

Every industrial network has a lifecycle consisting of four basic stages: installation, operation, maintenance, and diagnostics. Even with careful network planning and design, network management throughout all four aspects of the industrial network lifecycle can still present many challenges for integrators and operators. To optimize network efficiency and minimize total cost of ownership, industrial automation networks need user-centric software tools for efficient network deployment, monitoring, management, maintenance, and troubleshooting.



Automation-friendly Software Throughout the Network Lifecycle

Installation

Challenge:
Initial configuration of network devices is generally done one at a time manually, which can require many hours of labor.

Solution:
Moxa's MXconfig, a network configuration tool, can mass-configure every device on the network, including IP settings, redundancy protocol, VLAN, and related managed functions, to significantly reduce the time required for configuration. With MXconfig, you can make configuration 10 times faster.

Operation

Challenge:
Without effective network management software, industrial operators are unable to monitor, identify, and react to network issues immediately, which can result in production losses and safety concerns.

Solution:
Moxa's MXview industrial network management software is a graphical platform that allows operators to easily monitor and manage an industrial network of up to 2000 nodes in real time. MXview auto-detects network devices and displays a virtual ring topology. MXview also supports smart visualization, which allows operators to see color-coded VLAN/IGMP settings, a virtual device panel, PoE power consumption, and high-accuracy port monitoring (up to 4 decimal places).

Maintenance

Challenge:
Changes to device settings can cause unexpected network issues. When this happens, backup files will need to be restored to a previous state. For a large-scale network, this task is extremely time-consuming and can lead to extended system downtimes.

Solution:
Moxa's MXview allows network operators to select a group of devices and export their configuration files simultaneously for backup, saving a significant amount of time.

Diagnostics

Challenge:
Without knowing where to look and what to actually look for, maintenance engineers can spend hours troubleshooting the network and still fail to find a solution.

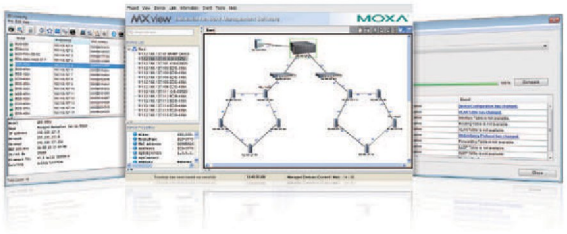
Solution:
Moxa's MXview offers a highly-intuitive event playback feature which can record network events, and replay past network incidents in the order they occurred. In addition, N-Snap industrial network snapshot tool can help collect device information. By comparing abnormal network data with healthy network data, N-Snap can help you troubleshoot the network more efficiently.

Integration with SCADA and Third-Party NMS

Moxa's industrial network management solutions supports built-in SNMP OPC server, which can convert SNMP information into OPC tags that can be seamlessly integrated into OPC-compatible HMI/SCADA systems. Moreover, our network management solutions can collaborate with third-party network management software, making it easier to monitor and maintain the high availability of larger-scale automation systems.

MXstudio

Industrial network management suite for installation, operation, maintenance, and diagnostics



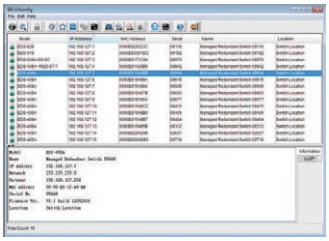
- An all-in-one toolset for installation, operation, maintenance, and diagnostics stages of the network lifecycle
- MXconfig, MXview, and N-Snap for easy and quick industrial network management
- Maximized productivity with Moxa industrial Ethernet solutions

Introduction

Moxa's MXstudio industrial network management suite combines all the tools you need throughout the network lifecycle into one toolbox, including MXview industrial management software, MXconfig industrial network configuration tool, and MXsnap industrial network snapshot tool. Whether it is for configuration, monitoring, maintenance, or troubleshooting, the all-in-one MXstudio software suite has a tool for every task. In addition, MXstudio's three key benefits, easy configuration, smart visualization, and quick troubleshooting, are designed to meet the demands of industrial automation networks.

MXstudio's Offerings

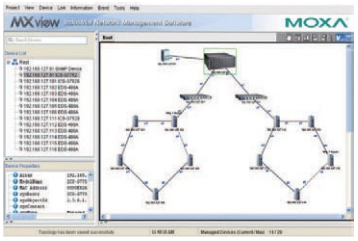
MXconfig Industrial Network Configuration Tool



- Mass configuration function to reduce setup time
- Topology analysis to eliminate manual setting errors
- Configuration overview for efficient management

See page 5-10 for details.

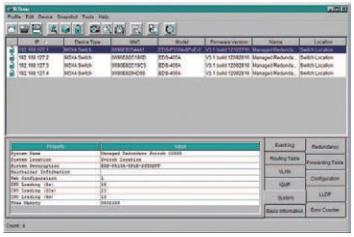
MXview Industrial Network Management Software



- Auto discovery of network devices and physical connections
- Event playback for quick trouble-shooting
- Color-coded VLAN/IGMP groups and other visualized network data

See page 5-12 for details.

N-Snap Industrial Network Snapshot Tool



- A standalone data collection tool to take network snapshots for quick troubleshooting
- Compare network and device data, and highlight the differences

System Requirements

CPU	2 GHz or faster dual core CPU
RAM	2 GB
Hard Disk Space	10 GB
OS	Windows XP Professional, Windows 7 (32/64-bit), Windows Server 2008 (32/64-bit)

Ordering Information

A free version is now available for download at Moxa's website.

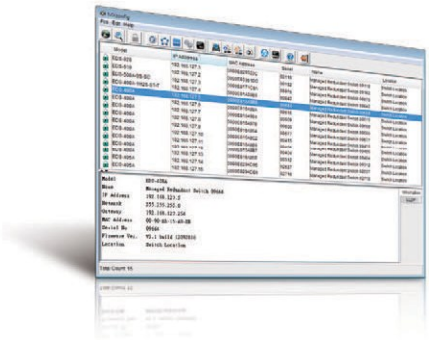
Supported Devices

Detailed model names are available in each product datasheet. Or check Moxa's website for the most up-to-date information.

Award-winning Product

MXconfig

Industrial network configuration tool



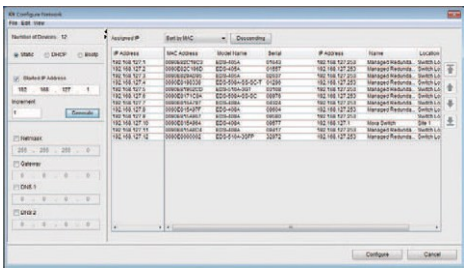
- Mass managed function configuration increases deployment efficiency and reduces setup time
- Mass configuration duplication reduces installation cost
- Link sequence detection eliminates manual setting errors
- Configuration overview and documentation for easy status review and management
- Three users privilege levels enhance security and management flexibility

Introduction

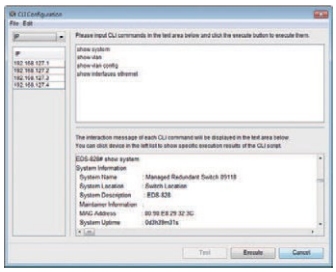
Moxa's MXconfig is a comprehensive Windows-based utility that is used to install, configure and maintain multiple Moxa switches in industrial networks. This suite of useful tools helps users set the IP addresses of multiple switches with one click, configure the redundant protocols and VLAN settings, modify multiple network configurations of multiple Moxa switches, upload firmware to multiple switches, export/import configuration files, copy configuration settings across switches, easily link to web and telnet consoles, and test device connectivity. MXconfig gives device installers and control engineers a powerful and easy way to mass configure devices, and effectively reduces the setup and maintenance cost.

Device Discovery and Fast Group Configuration

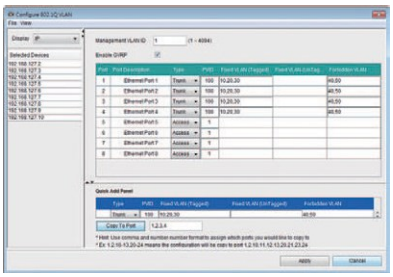
- Easy broadcast search of the network for all supported Moxa managed Ethernet switches
- Mass network setting (such as IP addresses, gateway, and DNS) deployment reduces setup time
- Mass managed functions deployment increases configuration efficiency
- User-friendly port selection panel provides physical port descriptions
- VLAN Quick-Add Panel speeds up setup time
- Deploy multiple devices with one click using CLI execution



Network Setting



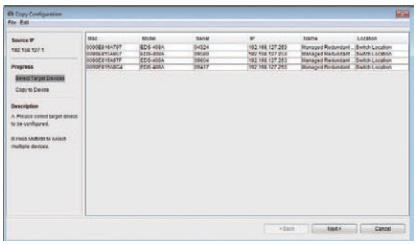
Execute CLI



Quick Add Panel

Fast Configuration Deployment

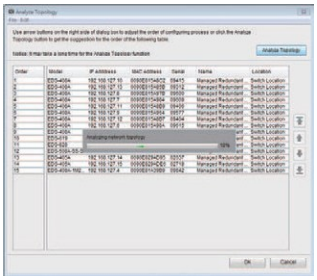
- Quick configuration: copy a specific setting to multiple devices and change IP addresses with one click



Copy Configuration

Link Sequence Detection

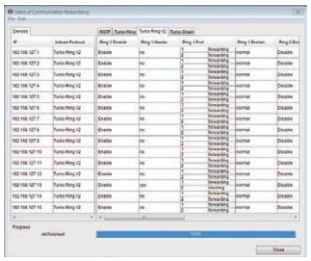
- Link sequence detection eliminates manual configuration errors and avoids disconnections, especially when configuring redundancy protocols or VLAN settings for a network in a daisy chain topology (line topology).



Analyze Topology

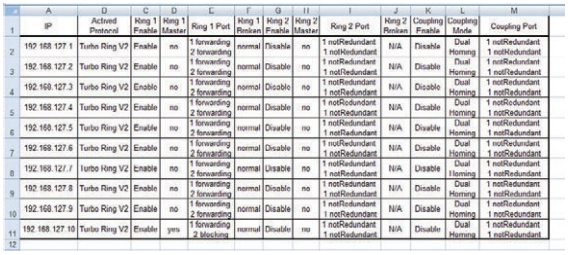
Configuration Overview and Documentation

- Useful mass status overview and configuration check for each managed function
- Generate reports on each managed function for multiple devices in the network



Status Overview

- Export multiple configuration files with flexible filenames and import configuration setting to multiple devices



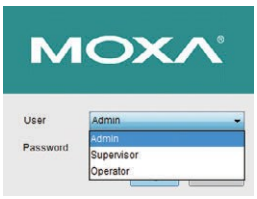
File Export

Unlock Devices and User Privileges

- Mass device unlocking and password file export for quick unlocks

Unlock Devices

- Three user privilege levels to enhance management flexibility and security: Admin, Supervisor, and Operator.



Three User Privilege Levels

System Requirements

CPU	2 GHz or faster dual core CPU
RAM	256 MB
Hard Disk Space	1 GB
Operating System	Windows XP, Windows 7 (32/64-bit), Windows Server 2008 (32/64-bit)

Supported Devices

MXconfig v1.2 supports the following devices:

Series	Model Name	Firmware
EDS Series	EDS-405A/408A	V3.1 or higher
	EDS-405A-EIP/408A-EIP/ 405A-PN/408A-PN	V3.1 or higher
	EDS-505A/508A/516A/ 510A/518A	V3.1 or higher
	EDS-608/611/616/619	V3.1 or higher
	EDS-728/828	V3.1 or higher
	EDS-G509	V3.1 or higher
	EDS-P510/P510A-8PoE/P506A-4PoE	V3.1 or higher
	EDS-G508E/G512E/G516E/510E	V4.0 or higher
IKS Series	IKS-6726/6728/6524/6526/6852	V3.1 or higher
	IKS-G6524/G6824	V3.1 or higher
	IKS-6726-8PoE	V3.1 or higher

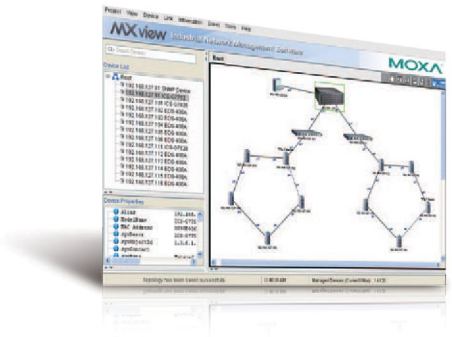
Series	Model Name	Firmware
ICS Series	ICS-G7526/G7528/G7826/G7828	V3.1 or higher
	ICS-G7748/G7750/G7752/G7848/G7850/ G7852	V3.1 or higher
IEX Series	IEX-402-SHDSL	V1.0 or higher
PT Series	PT-7528/7710/7728/7828/G7509/7728-PTP	V3.1 or higher
	PT-508/510	V3.1 or higher
TN Series	TN-5508/5510/5516/5518	V3.1 or higher
	TN-5508-4PoE/5510-PoE/5516-8PoE/ 5518-PoE	V3.1 or higher
	TN-5816/5818	V3.1 or higher

Note: Additional model names will be added in the near future. Please check Moxa's website for the most up-to-date information.

MXview

Award-winning Product
TAIWAN EXCELLENCE 2010

Industrial network management software designed for converged automation networks



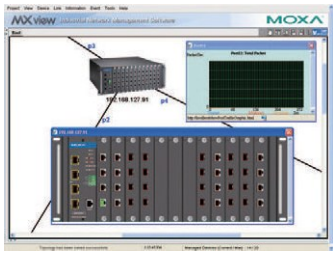
- Event Playback records network events, and replays past network incidents
- Discovers and visualizes network devices and physical connections automatically
- Provides central management of configurations and firmware for Moxa devices
- Supports third-party devices with MIB compiler and MIB browser
- Provides comprehensive reports, including inventory, traffic, and availability reports
- Generates OPC 2.0 compliant tags automatically to integrate with SCADA/HMI applications

Introduction

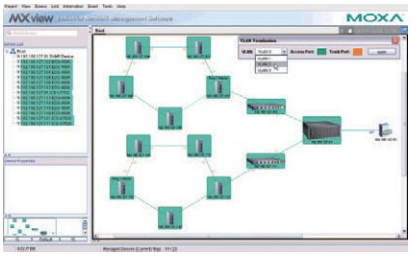
Moxa's MXview network management software is designed for configuring, monitoring, and diagnosing networking devices in industrial networks. MXview provides an integrated management platform that can discover networking devices and SNMP/IP devices installed in subnets. All selected network components can be managed graphically via web browser from both local and remote sites—anytime and anywhere.

Visualization

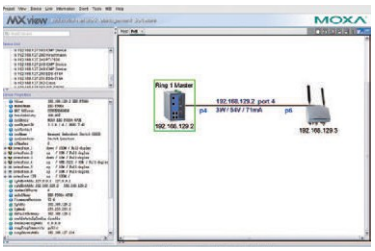
- Discovers up to 2,000 Moxa devices and SNMP/ICMP devices within scan range
- Visualizes redundant link status and device roles of network redundancy protocols
- Graphic VLAN groups and IGMP snooping roles visualization
- Device front panel visualization, including ports and LED indicators
- Visualizes managed PoE device power consumption
- Displays third-party device icons



Virtual Device Panel



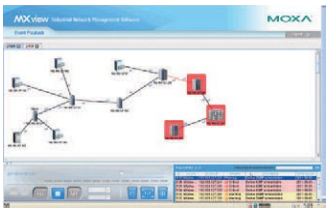
VLAN Visualization



PoE Visualization

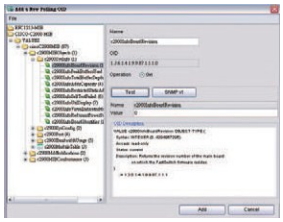
Network Diagnostics and Event Notification

- Event Playback records network events, and replays past network incidents
- Generate trend graphs to track bandwidth utilization and error packet rate statistics, accurate to four decimal points
- Detect problems in real-time with SNMP trap/inform, or periodic polling
- Configurable event notification alarms sent through SMS and email, or locally through program notifications and audio alerts
- Real-time device availability monitoring
- Supports third-party devices with MIB compiler and MIB browser
- Collaborates with third-party NMS through SNMP traps
- Generates OPC 2.0 compliant tags automatically to integrate with SCADA/HMI applications.

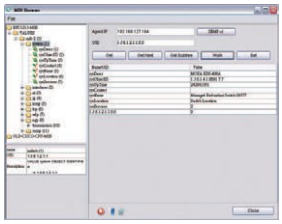


Event Playback

Traffic Monitoring



MIB Compiler



MIB Browser

Comprehensive Reports

- Maintains device availability reports and records for up to 90 days
- Generates an inventory report for each device in the network
- Compiles comprehensive device properties report
- Generates network traffic trend reports

Availability and Inventory Report

Centralized Configuration and Firmware Management

- Bulk deployment of device configurations and firmware
- In one click, back up the entire MXview database in one click, including topology, job scheduling, events, and device properties
- Scheduling for periodic configuration backup
- Save history of configuration changes
- Comparison tool for checking differences between 2 configurations

System Requirements

CPU	2 GHz or faster dual core CPU
RAM	2 GB
Hard Disk Space	10 GB
OS	Windows XP Professional, Windows 7 (32/64-bit), Windows Server 2008 (32/64-bit)
Browser	Internet Explorer 6/8/9

Ordering Information

Commercial Versions

MXview-2000: Industrial network management software with a license for 2000 nodes (by IP address)
MXview-1000: Industrial network management software with a license for 1000 nodes (by IP address)
MXview-500: Industrial network management software with a license for 500 nodes (by IP address)
MXview-250: Industrial network management software with a license for 250 nodes (by IP address)
MXview-100: Industrial network management software with a license for 100 nodes (by IP address)
MXview-50: Industrial network management software with a license for 50 nodes (by IP address)

Package Checklist

- MXview CD (includes the MXview software and related documents)
- License card

License Upgrade

MXview Upgrade-50: License expansion of MXview industrial network management software by 50 nodes (by IP address)

Trial Version

MXview Trial Version: A free trial version of MXview is available for download from Moxa's website

Supported Devices

MXview v2.3 supports the following devices by default.

Series	Model Name	Firmware
AWK Series	AWK-3121/4121	1.6 or higher
EDR Series	EDR-G902	1.0 or higher
	EDR-G903	2.1 or higher
EDS Series	EDS-405A/408A/505A 508A/510A/516A/518A/ G509/728/828	2.6 or higher
	EDS-608/611/616/619	1.1 or higher
	EDS-P506A-4PoE	2.6 or higher
	EDS-P510	2.6 or higher
	EDS-P510A-8PoE	3.1 or higher
EOM Series	EOM-104/104-FO	1.2 or higher
ICS Series	ICS-G7526/G7528	1.0 or higher
	ICS-G7748/G7750/G7752	1.2 or higher
	ICS-G7848/G7850/G7852	1.2 or higher
	ICS-G7826/G7828	1.1 or higher
IEX Series	IEX-402-SHDSL	1.0 or higher

Series	Model Name	Firmware
IKS Series	IKS-6524/6526/ 6726/6728	2.6 or higher
	IKS-6726-8PoE	3.0 or higher
	IKS-G6524	1.0 or higher
	IKS-G6824	1.1 or higher
PT Series	PT-508/510	3.0 or higher
	PT-7528	3.0 or higher
	PT-7710	1.2 or higher
	PT-7728/7828	2.6 or higher
	PT-G7509	1.1 or higher
TN Series	TN-5508/5510	1.1 or higher
	TN-5516/5518	1.2 or higher
	TN-5508-4PoE/ 5516-8PoE	2.6 or higher
ioLogik Series	ioLogik E2210/E2212/ E2214/E2240/E2242/ E2260/E2262	3.7 or higher
	ioLogik W5312	1.7 or higher
	ioLogik W5340	1.8 or higher
MGate Series	MGate 5102-PBM-PN	1.0 or higher

Series	Model Name	Firmware
NPort Series	NPort S8455/S8458	1.3 or higher
	NPort 5110	2.4 or higher
	NPort 5130/5150	3.4 or higher
	NPort 5210/5230/5232	2.6 or higher
	NPort 5410/5430/5450	3.9 or higher
	NPort 5600-8-DT/5650-8-DT	2.2 or higher
	NPort 5600	3.5 or higher
	NPort 5610-8-DTL/ 5650-8-DTL	1.1 or higher
	NPort 5110A/5130A/ 5150A/ 5210A/ 5230A/5250A	1.1 or higher
	NPort IA5150/IA5250	1.4 or higher
	NPort IA5150A/IA5250A	1.1 or higher
	NPort IA5450A	1.2 or higher
	NPort 6150/6250/6450	1.9 or higher
	NPort 6610-8/ 6610-16/6610-32	1.9 or higher
	NPort 6650-8/6650-16/6650-32	1.9 or higher
	NPort 5150AI-M12/ 5250AI-M12/ 5450AI-M12	1.0 or higher

Note: Additional model names will be added in the near future. Please check Moxa's website for the most up-to-date information.