

CSM-400 User's Manual

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www.moxa.com/product

MOXA[®]

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CSM-400 User's Manual

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Introduction

The CSM-400 modules are slide-in Ethernet-to-fiber managed media converters for the NRack System™. The modules provide media conversions from 10/100BaseT(X) to 100BaseFX (with SC/ST connectors) and can be installed in any NRack System™ chassis. The CSM-400 modules support LFP and FEF to easily trace network link failures. They also support store-and-forward and pass-through modes, 802.3AM OAM for remote management and monitoring, as well as WDM-type fiber modules to reduce fiber cable costs.

The following topics are covered in this chapter:

- ❑ **Overview**
- ❑ **Package Checklist**
- ❑ **Product Features**
- ❑ **Why Convert Ethernet to Fiber?**
- ❑ **Product Specifications**

Overview

The CSM-400 Series is an Ethernet to optical-fiber media converter and is part of the NRack System. It provides Ethernet media conversion from 10/100 Base T(X)-to-100 Base FX (SC or ST connectors), and it can be installed in every chassis of the NRack System.

The CSM-400 Series includes the following models:

- **CSM-400-1213:** 10/100BaseT(X)-to-100BaseFX slide-in management module converter, multimode ST connector
- **CSM-400-1214:** 10/100BaseT(X)-to-100BaseFX slide-in management module converter, multimode SC connector
- **CSM-400-1218:** 10/100BaseT(X)-to-100BaseFX slide-in management module converter, single-mode SC connector
- **CSM-400-1224:** 10/100BaseT(X)-to-100BaseFX slide-in management module converter, WDM-A single-mode SC connector
- **CSM-400-1225:** 10/100BaseT(X)-to-100BaseFX slide-in management module converter, WDM-B single-mode SC connector

Package Checklist

The Moxa CSM-400 Series products are shipped with the following items:

- CSM-400 Series
- Quick installation guide (printed)
- Warranty card

NOTE Notify your sales representative if any of the above items are missing or damaged.

Product Features

- LFP(Link Fault Pass-through)
- Supports store-and-forward and pass-through modes
- Auto-negotiation
- Supports IEEE 802.3AH OAM protocol
- IP-based remote management
- Supports WDM-type modules

Why Convert Ethernet to Fiber?

Fiber communication not only extends the communication distance, but also provides many advantageous features.

- **IMMUNITY FROM ELECTRICAL INTERFERENCE:**

Fiber is not affected by electromagnetic interference or radio frequency interference. It provides a clean communication path and is immune to crosstalk.

- **INSULATION:**

Optical fiber is an insulator; glass fiber eliminates the need to use an electric current as a communication medium.

- **SECURITY:**

Fiber cannot be tapped by conventional electrical means and is very difficult to tap into optically. Furthermore, radio and satellite communication signals can be captured easily for decoding.

- **RELIABILITY & MAINTENANCE:**

Fiber is immune to adverse temperature and moisture conditions, does not corrode or lose its signal, and is not affected by short circuits, power surges, or static electricity.

Product Specifications

Technology

Standards: IEEE 802.3 for 10BaseT, IEEE 802.3u for 100BaseT(X), 100BaseFX

Interface

RJ45 ports: 10/100BaseT(X)

Fiber ports: 100BaseFX (SC/ST connector)

LED Indicators: PWR, Fiber Link, 10/100M(TP port)

Optical Fiber

	100BaseFX	
	Multi-mode	Single mode
Wavelength	1300 nm	1310 nm
Max. TX	-10 dBm	0 dBm
Min. TX	-20 dBm	-5 dBm
RX Sensitivity	-32 dBm	-34 dBm
Link Budget	12 dB	29 dB
Typical Distance	5 km ^a 4 km ^b	40 km ^c
Saturation	-6 dBm	-3 dBm

a. 50/125 μm, 800 MHz*km fiber optic cable
b. 62.5/125 μm, 500 MHz*km fiber optic cable
c. 9/125 μm, 3.5 PS/(nm*km) fiber optic cable

Physical Characteristics

Housing: SECC (1.2 mm)

Dimensions: 86.8 x 124.3 x 21 mm (3.42 x 4.89 x 0.83 in)

Weight:

Product only:

CSM-400-1213/1214/1218: 115 g (0.25 lb).

CSM-400-1224/1225: 125 g (0.28 lb)

Packaged:

CSM-400-1213/1214/1218: 170 g (0.37 lb)

CSM-400-1224/1225: 180 g (0.40 lb)

Environmental Limits**Operating Temperature:**

Standard Models: -20 to 55°C (-4 to 131°F)

Wide Temp. Models: -40 to 75°C (-40 to 167°F)

Storage Temperature: -40 to 85°C (-40 to 185°F)

Ambient Relative Humidity: 5 to 95% (non-condensing)

Power Requirements

Input Voltage: 12 VDC

Input Current: 220 mA @ 12 VDC max

Standards and Certifications

Safety: UL 60950-1, EN 60950-1

EMC: CE, FCC

EMI: EN 55022 Class A, FCC Part 15 Subpart B Class A

EMS:

EN 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV

EN 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m

EN 61000-4-4 EFT: Power: 1 kV, Signal: 0.5 kV

EN 61000-4-5 Surge: Power: 1 kV, Signal: 0.5 kV

EN 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m

EN 61000-4-8 PFMF

EN 61000-4-11

Green Product: RoHS, CRoHS, WEEE

MTBF (mean time between failures)

Time: 1,055,112 hrs.

Standard: Telcordia (Bellcore), GB

Warranty

Warranty Period: 5 years

Details: See www.moxa.com/warranty

Getting Started

This chapter covers the hardware installation of the CSM-400 and ME-10-T.

The following topics are covered in this chapter:

❑ **CSM-400 Installation**

- Installing or Removing a Chassis Faceplate
- Installing the Media Converter Slide-in Modules
- Replacing the Media Converter Slide-in Modules

❑ **Communication Connections**

- 10/100BaseT(X) Ethernet Port Connection
- 100BaseFX Fiber Port Connection

❑ **LED Indicators**

CSM-400 Installation

Ensure that the CSM-400 media converter slide-in module is firmly fitted inside the chassis. Push in and rotate the attached panel fastener screw clockwise to secure the module to the chassis.

Installing or Removing a Chassis Faceplate

Install a chassis faceplate over any unused slot by aligning the hole in the faceplate with a threaded hole in the chassis. Secure the faceplate with the enclosed screw.



ATTENTION

Each slot in the CSM-400 chassis without a slide-in module installed **MUST** have a chassis faceplate covering the empty slot for Class A compliance.

Remove the front plate by loosening the screw before installing any slide-in module. We suggest storing the removed faceplates together in case you need to use them again.

Installing the Media Converter Slide-in Modules



ATTENTION

Wear a grounding device and observe electrostatic discharge precautions when installing or replacing the media converter slide-in modules in the chassis. Failure to observe this caution could result in damage to, and subsequent failure of, the media converter slide-in modules.

Instructions to install the media converter slide-in module into the CSM-400 or ME-10-T chassis are as follows:

1. Slide-in modules can be installed in any empty slot of the chassis in any order.
2. Before installing the slide-in module, make sure the front plate has been removed. Please refer to the previous ***Installing or Removing Chassis Faceplate*** section.
3. Align the slide-in module with the chassis installation slot so that the panel fastener screw is at the top of the module.
4. Carefully insert the slide-in module into the slot while aligning the module's circuit board as per the installation guide.
5. Ensure that the slide-in module is firmly fitted inside the chassis.
6. Push in and rotate the attached panel fastener screw clockwise to secure the module to the chassis.
7. Repeat step 3 to 7 for any additional media converter slide-in module.

Replacing the Media Converter Slide-in Modules

To replace a media converter slide-in module in the CSM-400 or ME-10-T chassis:

1. Remove the slide-in module that needs to be replaced by loosening the panel fastener screw that secures the module to the chassis. Slide the module out from the chassis.
2. Align the replacement slide-in module with the chassis installation slot so that the panel fastener screw is at the top of the module.
3. Carefully insert the slide-in module into the slot while aligning the module's circuit board as per the installation guide.
4. Ensure the slide-in module is firmly fitted inside the chassis.
5. Push in and rotate the attached panel fastener screw clockwise to secure the module to the chassis.

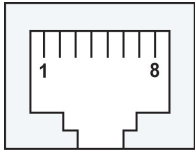
Communication Connections

The CSM-400 Series has one 10/100BaseT(X) Ethernet port and one 100BaseFX (SC or ST type connector) fiber port.

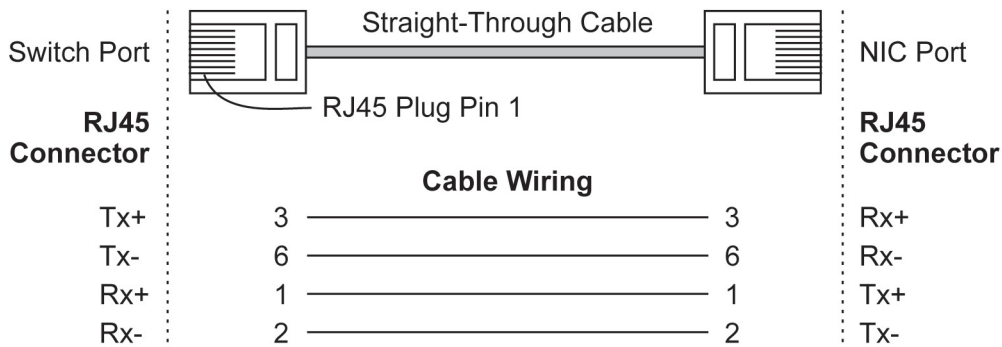
10/100BaseT(X) Ethernet Port Connection

The 10/100BaseT(X) Ethernet ports on the CSM-400 connect to Ethernet-enabled devices. Below, we illustrate the pinouts for both MDI (NIC-type) and MDI-X (HUB/Switch-type) ports, and also show the cable-wiring diagrams for straight-through and crossover Ethernet cables.

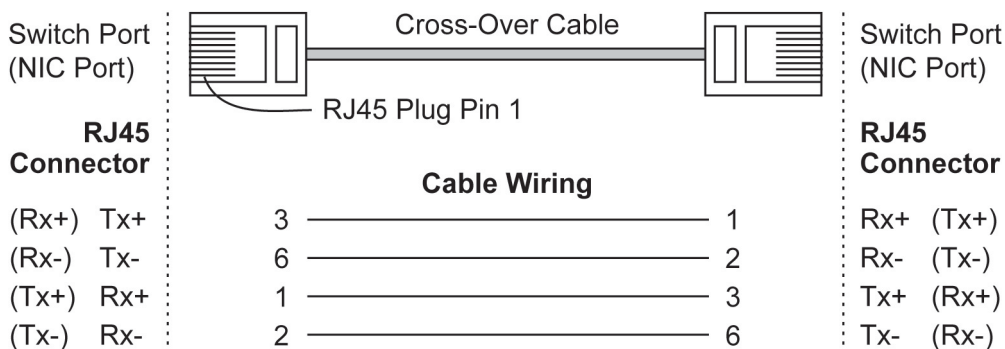
10/100BaseT(X) RJ45 Pinouts

MDI Port Pinouts		MDI-X Port Pinouts		8-pin RJ45
Pin	Signal	Pin	Signal	
1	Tx+	1	Rx+	
2	Tx-	2	Rx-	
3	Rx+	3	Tx+	
6	Rx-	6	Tx-	

RJ45 (8-pin) to RJ45 (8-pin) Straight-Through Cable Wiring



RJ45 (8-pin) to RJ45 (8-pin) Crossover Cable Wiring



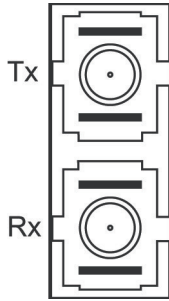
100BaseFX Fiber Port Connection

The concept behind the optical fiber port and cable is quite straightforward. Suppose you are connecting devices I and II. Contrary to electrical signals, optical signals do not require a circuit in order to transmit data. Consequently, one of the optical lines is used to transmit data from device I to device II, and the other optical line is used to transmit data from device II to device I, for full-duplex transmission.

All you need to remember is to connect the Tx (transmit) port of device I to the Rx (receive) port of device II, and the Rx (receive) port of device I to the Tx (transmit) port of device II.

If you are making your own cable, we suggest labeling the two sides of the same line with the same letter (A-to-A and B-to-B, as shown below, or A1-to-A2 and B1-to-B2).

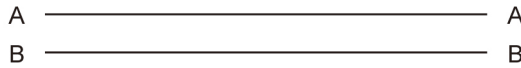
SC-Port Pinouts



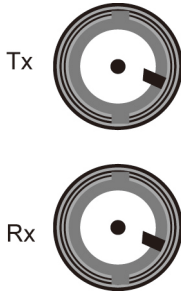
SC-Port to SC-Port Cable Wiring



Cable Wiring



ST-Port Pinouts



ST-Port to ST-Port Cable Wiring



Cable Wiring



LED Indicators

There are two LEDs on the front bracket of the CSM-400 slide-in modules.

LED	Color	State	Function
PWR	Green	On	Power is being supplied to power input.
		Off	Power is not being supplied to power input.
Fault	Red	On	LED is on and the CSM-400 is booting up, or a power error condition exists
		Blinking	Indicates an IP conflict, or the DHCP server did not respond properly
		Off	LED is off and the CSM-400 is functioning normally; a power error condition does not exist
Fiber Link	Green	On	FX port's 100 Mbps is active.
		Blinking	Data is being transmitted at 100 Mbps.
		Off	100BaseFX port is inactive.
10M (TP)	Yellow	On	TP port's 10 Mbps is active.
		Blinking	Data is being transmitted at 10 Mbps.
		Off	TP port's 10 Mbps link is inactive.
100M (TP)	Green	On	TP port's 100 Mbps is active.
		Blinking	Data is being transmitted at 100 Mbps.
		Off	TP Port's 100 Mbps is inactive.

Initial IP Address Configuration

When setting up the CSM-400 for the first time, the first thing you should do is configure its IP address. This chapter introduces the different methods that can be used. Refer to **Chapter 5, *System Management Settings***, for more details about network settings.

The following topics are covered in this chapter:

- ❑ **Static and Dynamic IP Addresses**
- ❑ **Factory Default IP Address**
- ❑ **Configuration Options**
 - Device Search Utility
 - Web Console

Static and Dynamic IP Addresses

Determine whether your CSM-400 needs to use a static IP or dynamic IP address (either DHCP or BOOTP/PPPoE application).

- **If your CSM-400 is used in a static IP environment**, you will assign a specific IP address, using one of the tools described in this chapter.
- **If your CSM-400 is used in a dynamic IP environment**, the IP address will be assigned automatically from over the network. In this case, set the IP configuration mode to DHCP, DHCP/BOOTP, and PPPoE.



ATTENTION

Consult your network administrator on how to reserve a fixed IP address for your CSM-400 in the MAC-IP mapping table when using a DHCP Server or BOOTP Server. For most applications, you should assign a fixed IP address to your CSM-400.

Factory Default IP Address

The CSM-400 is configured with the following default private IP address:

192.168.127.254

Note that IP addresses that begin with "192.168" are referred to as private IP addresses. Devices configured with a private IP address are not directly accessible from a public network. For example, you would not be able to ping a device with a private IP address from an outside Internet connection. If your application requires sending data over a public network, such as the Internet, your CSM-400 will need a valid public IP address, which can be leased from a local ISP.

Configuration Options

Device Search Utility

You may configure your CSM-400 with the bundled Device Search Utility for Windows.

Web Console

You may configure your CSM-400 using a standard web browser. Please refer to **Chapter 4, Configuration with the Web Console**, for details on how to access and use the CSM-400 web console.

When a CSM-400 Sslide-in module is installed on the TRC-2190, a management card needs to be used to configure all the settings of the CSM-400.

Configuration with the Web Console

The web console is the most user-friendly method available to configure the CSM-400. With a standard web browser, you have easy and intuitive access to all settings and options. In this chapter, we introduce the web console and go through the basic configuration options.

The following topics are covered in this chapter:

▣ **Using Your Web Browser**

- Browser Cookie Settings
- Trusted Site Settings
- Opening the Web Console

▣ **Web Console Navigation**

▣ **Basic Settings**

- Server Settings
- Time Settings

▣ **Network Settings**

- Basic Network Settings
- Advanced Network Settings

Using Your Web Browser

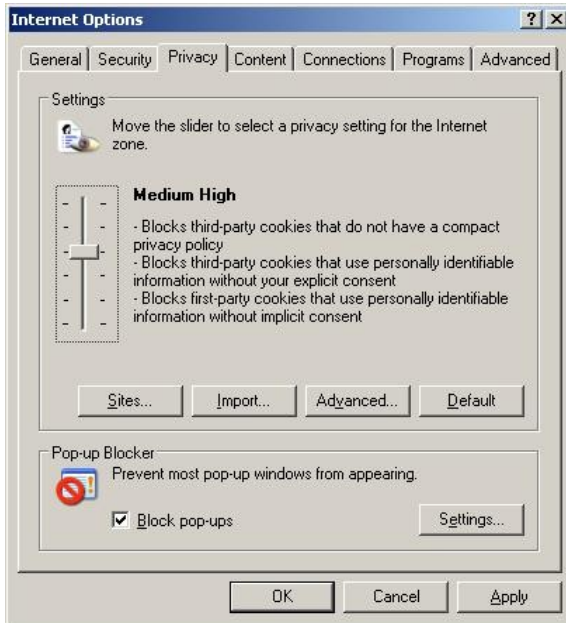
Browser Cookie Settings


Verify that cookies are enabled for your browser. If the cookies are disabled, you will not be able to use the web console. (Cookies are only used for password transmission.)

1. For Internet Explorer, enable cookies by selecting **Internet Options** from the **Tools** menu:



2. Select the **Privacy** tab. There are six levels for privacy settings: Block All Cookies, High, Medium High, Medium, Low, and Accept All Cookies. Users must select **Medium High** (as the image shows below) to access the CSM-400 web console.



 **ATTENTION** If you are not using Internet Explorer, cookies are usually enabled through a web browser setting such as "allow cookies that are stored on your computer" or "allow per-session cookies."

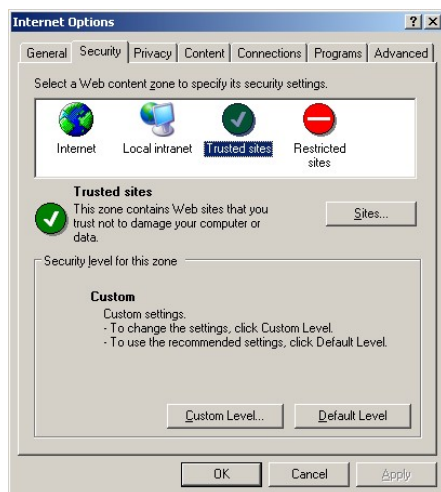
Trusted Site Settings

For Windows 2003 users, you may need to add the CSM-400's IP address to your browser's list of trusted sites.

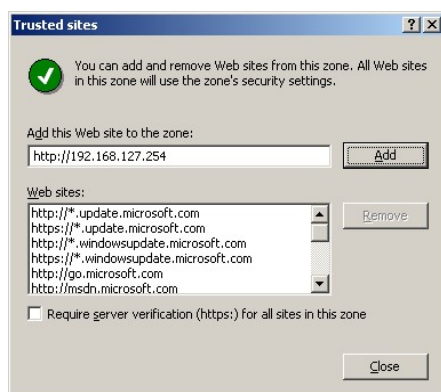
1. If you see the following window while attempting to view the web console, click on **Add...** to modify the list of trusted sites:



You may also directly access the list of trusted sites through **Internet Options** in the **Tools** menu of Internet Explorer. Select the **Security** tab, then click on the **Trusted Sites** icon and on the **Sites...** button:



2. In either case, the window below should appear, showing the list of sites that you have configured Internet Explorer to trust. Add the IP address of your CSM-400 here (the factory default IP address is 192.168.127.254).



After adding the CSM-400's IP address as a trusted site, you should be able to view the web console by entering the CSM-400's IP address in your browser's address bar.

Opening the Web Console

Open your web browser and enter **192.168.127.254** in the website address line. This is the default IP address for the CSM-400—if a new address has been assigned, enter the new address instead. Press **ENTER** to load the page.



ATTENTION

The examples and figures in this chapter use the CSM-400 factory default IP address of 192.168.127.254. If you have assigned a different IP address to your CSM-400, be sure to adjust accordingly when following these directions. Please refer to **Chapter 3, Initial IP Address Configuration**, for details on how to configure the IP address.

The default login username is **admin** and the password is **moxa**. Note that only the user admin can upgrade the firmware.

Total Solution for N Rack System			
- CSM-400-1214	■ IP	- 192.168.127.254	■ MAC Address
- CSM_400	■ Serial NO.	- M40012140008	■ Firmware

Account :

Password :

Login



ATTENTION

If you forget your password, the **ONLY** way to configure the CSM-400 is by using the reset button to reset all settings and load the factory defaults. If you have disabled the reset button in your CSM-400 configuration, you may still use it to load the factory defaults within the first 60 seconds that the CSM-400 is powered on.

Remember to back up your configuration by exporting it to a file. Your configuration can be easily restored by importing the file to the CSM-400. This will save time if you have forgotten the password and need to reload the factory defaults.

The CSM-400's web console will appear.

Total Solution for N Rack System

■ IP	- 192.168.127.254	■ MAC Address
■ Serial NO.	- 2354	■ Firmware

Overview |
 Basic Settings |
 Network Settings ▾ |
 System Management ▾ |
 System Monitoring ▾ |
 Remote Management ▾

Welcome to CSM-400-1214

Model name	CSM-400-1214
Serial No.	CSM400_12345
Firmware version	1.0 Build 17030316
Ethernet IP address	192.168.127.254
Ethernet MAC address	00:90:E8:AA:BB:CC
Ethernet LAN speed	No link
Fiber speed	No link
Up time	0 days 00h:00m:38s

Web Console Navigation

On the CSM-400 web console, the top panel is the navigation panel and contains an expandable menu tree for navigating among the various settings and categories. When you click on a menu item in the navigation panel, the main window will display the corresponding options for that item. Configuration changes can then be made in the main window. For example, if you click on **Basic Settings** in the navigation panel, the main window will show a page of basic settings that you can configure.

You must click on the **Submit** button to keep your configuration changes. The **Submit** button will be located at the bottom of every page that has configurable settings. If you navigate to another page without clicking the **Submit** button, your settings will not be retained.

Changes will not take effect until they are saved and the CSM-400 is restarted! You may complete this in one step by clicking on the **Save/Restart** option after you submit a change. If you need to make several changes before restarting, you may save your changes without restarting by selecting **Save Configuration** in the navigation panel. If you restart the CSM-400 without saving your configuration, the CSM-400 will discard all submitted changes.

Basic Settings

You may access Basic Settings in the navigation panel.

Server Settings

Converter name: This is an optional free text field for your own use; it does not affect operation of the CSM-400. It can be used to help differentiate one CSM-400 server from another.

Converter location: This is an optional free text field for your own use; it does not affect operation of the CSM-400. It is useful for assigning or describing the location of a CSM-400. In a network environment of multiple servers, this can be a valuable aid when performing maintenance.

Time Settings

Before making any adjustments to the time, first select the correct time zone and submit the change. The console will display the real time according to the time zone. To modify the real-time clock, click on **Modify** next to the **Local time** field. Once you submit the new time, the CSM-400’s firmware will modify the GMT time according to your time zone and local time settings.

Time zone (default=GMT Greenwich Mean Time): This field shows the currently selected time zone and allows you to select a different time zone.

Local time: To set the local time for the CSM-400, click on the **Modify...** button, then submit your changes in the screen as shown below.

Modify time settings

Date(yy:mm:dd)	Time(hh:mm:ss)
<input style="width: 20px;" type="text" value="2017"/> / <input style="width: 20px;" type="text" value="3"/> / <input style="width: 20px;" type="text" value="20"/>	<input style="width: 20px;" type="text" value="16"/> : <input style="width: 20px;" type="text" value="23"/> : <input style="width: 20px;" type="text" value="45"/>
<input type="button" value="Submit"/> <input type="button" value="Close"/>	

Time server: The CSM-400 uses SNTP (RFC-1769) for automatic time calibration. You may enter a time server IP address or domain name in this optional field. Once the CSM-400 is configured with the correct time server address, it will request time information from the time server every 10 minutes.

Network Settings

Basic Network Settings

Network Settings

IPv4 Configuration

IPv4 configuration	Static ▾
IPv4 address	<input style="width: 100%;" type="text" value="192.168.127.254"/>
Netmask	<input style="width: 100%;" type="text" value="255.255.255.0"/>
Gateway	<input style="width: 100%;" type="text"/>
IPv4 DNS server 1	<input style="width: 100%;" type="text"/>
IPv4 DNS server 2	<input style="width: 100%;" type="text"/>

Port Configuration

Copper speed	Auto ▾
---------------------	--------

You can access **Basic Network Settings** by expanding the **Network Settings** item in the navigation panel. Basic Network Settings is where you assign the CSM-400 IP address, netmask, gateway, and other IP parameters.

NOTE You must assign a valid IP address to your CSM-400 before it will work in your network environment. Your network system administrator should provide you with a unique IP address and related settings for your network. First-time users can refer to **Chapter 3, Initial IP Address Configuration**, for more information.

IPv4 Configuration (default=Static): You can choose from four possible IP configuration modes.

Option	Description
Static	User-defined IP address, netmask, gateway.
DHCP	DHCP server-assigned IP address, netmask, gateway, DNS, and time server
AUTOIP	AUTOIP protocols automatically negotiate and assign IP in 169.254/16 network

IPv4 Address (default=192.168.127.254): Enter the IP address that will be assigned to your CSM-400. All ports on the CSM-400 will share this IP address. An IP address is a number assigned to a network device (such as a computer) as a permanent address on the network. Computers use the IP address to identify and talk to each other over the network. Choose a proper IP address that is unique and valid in your network environment.

Netmask (default=255.255.255.0): Enter the subnet mask. A subnet mask represents all of the network hosts at one geographic location, in one building, or on the same local area network.

When a packet is sent out over the network, the CSM-400 will use the subnet mask to check whether the desired TCP/IP host specified in the packet is on the local network segment. If the address is on the same network segment as the CSM-400, a connection is established directly from the CSM-400. Otherwise, the connection is established through the given default gateway

Gateway: Enter the IP address of the gateway if applicable. A gateway is a network computer that acts as an entrance to another network. Usually, the computers that control traffic within the network or at the local Internet service provider are gateway nodes. The CSM-400 needs to know the IP address of the default gateway computer in order to communicate with the hosts outside the local network environment. For correct gateway IP address information, consult the network administrator.



ATTENTION

In dynamic IP environments, the firmware will try to get the network settings from the DHCP or BOOTP server three times every 30 seconds until network settings are assigned by the DHCP or BOOTP server. The first try times out after 1 second, the second try times out after 3 seconds, and the third try times out after 5 seconds.

If the DHCP/BOOTP server is unavailable, the firmware will use the default IP address (192.168.127.254), netmask, and gateway settings.

IPv4 DNS server 1: This is an optional field. If your network has access to a DNS server, you may enter the DNS server's IP address in this field. This allows the CSM-400 to use domain names instead of IP addresses to access hosts.

Domain Name System (DNS) is the way that Internet domain names are identified and translated into IP addresses. A domain name is an alphanumeric name, such as `www.moxa.com`, which is easier to remember than the numerical IP address. A DNS server is a host that translates this kind of text-based domain name into the actual IP address that is used to establish a TCP/IP connection.

When the user wants to visit a particular website, the user's computer sends the domain name (e.g., `www.moxa.com`) to a DNS server to request that website's numerical IP address. When the IP address is received from the DNS server, the user's computer uses that information to connect to the website's web server

The CSM-400 will play the role of a DNS client, in the sense that it will actively query the DNS server for the IP address associated with a particular domain name. The following functions on the CSM-400 web console support the use of domain names in place of IP addresses: Time Server, Destination IP Address (in TCP Client mode), Mail Server, SNMP Trap Server, Destination Address (in Pair Connection mode), Primary/Secondary Host Address (in Terminal mode), RADIUS Server, TACACS+ Server and SMTP Server.

IPv4 DNS server 2: This is an optional field. The IP address of another DNS server can be entered in this field for when DNS server 1 is unavailable.

Advanced Network Settings

You can access **Advanced Network Settings** by expanding the Network Settings item in the navigation panel. Advanced Network Settings is where gratuitous ARP is configured.

Network Settings - Advanced

Data forwarding mode	Store and Forward ▾
LFP	<input type="radio"/> Enable <input checked="" type="radio"/> Disable
Gratuitous ARP	<input type="checkbox"/> Enabled Send period <input type="text" value="300"/> (10 - 1000 sec)

Data forwarding mode:

The CSM-400 supports two kinds of data forwarding mode as below:

Store-and-forward: When the CSM-400 works in "store-and-forward" mode, it begins to forward a packet to a destination port after the entire packet is received. The latency depends on the packet length. The maximum packet length is up to 2046 bytes in this mode

Cut-through: The CSM-400 operates with small latency in this mode. The transmission flow does not wait until entire frame is ready, but instead it forwards the received data immediately after the data has been received.

LFP: The link fault on the one side (local side) media converter will be passed to the media converter on the other side (remote side).

- NOTE**
1. When you enable the LFP function of the CSM-400 series media converter to use on the TRC-2190, you must choose the CSM-200/400 product for use at a remote site to make sure the LFP function can successfully use this function .
 2. When you enable the LFP and auto-negotiation function of the CSM-400 Series at the same time, Moxa suggests you fix the MDI/MDIX function at the remote site of all Ethernet devices.

Gratuitous ARP: In some applications, you may need the CSM-400 to send broadcast packets to update the ARP table on the server. If you enable this function and set the send period, the CSM-400 will send periodically send broadcast packets at the specified time interval.

System Management Settings

In this chapter, we describe additional server settings on the CSM-400. The same configuration options are also available through the Telnet and serial console.

The following topics are covered in this chapter:

❑ **Misc. Network Settings**

- SNMP Agent Settings

❑ **Auto Warning Settings**

- Event Settings
- SNMP Trap

❑ **Maintenance**

- Ping
- OAM Remote Loopback Test
- Firmware Upgrade
- Configuration Import/Export
- Load Factory Defaults
- Change Password

❑ **Remote Management**

- Network Control

❑ **Remote Monitoring**

- Port Status

❑ **System Monitoring**

- Port Status
- Network Statistics

❑ **Save Configuration**

❑ **Restart**

- Restart System

Misc. Network Settings

SNMP Agent Settings

SNMP: To enable the SNMP Agent function, select the **Enable** option and enter a community name (e.g., **public**).

Read community string (default=public_admin): This is a text password mechanism that is used to weakly authenticate queries to agents of managed network devices.

Write community string (default=private_admin): This is a text password mechanism that is used to weakly authenticate changes to agents of managed network devices.

Contact name: The optional SNMP contact information usually includes an emergency contact name and telephone or pager number.

Location: Use this optional field to specify the location string for SNMP agents such as the CSM-400. This string is usually set to the street address where the CSM-400 is physically located.

Auto Warning Settings

Event Settings

On the Event Settings page, you may configure how administrators are notified of certain system, network, and configuration events. Depending on the event, different options for automatic notification are available, as shown above. **Trap** refers to sending an SNMP Trap.

Cold start: This refers to starting the system from a power-off state, or after upgrading your firmware

Warm start: This refers to restarting the CSM-400 without turning the power off.

Power 1 up/down: The CSM-400 can monitor the power status for ME-10-T. This refers to the power 1 status of ME-10-T.

Power 2 up/down: The CSM-400 can monitor the power status for ME-10-T. This refers to the power 2 status of ME-10-T.

Console(web/text) login auth fail: This field refers to a failed attempt to log in to a password-protected CSM-400 console.

IP changed: With this option selected, the CSM-400 will attempt to send an e-mail warning before it reboots after an IP address change. However, the CSM-400 will reboot with the new IP address, regardless of whether or not the e-mail transmission is successful.

Password changed: With this option selected, the CSM-400 will attempt to send an e-mail warning before it reboots with a new console password. If the CSM-400 is unable to send an e-mail message to the mail server within 15 seconds, it will still reboot without sending the e-mail.

Fiber link up/down: This refers to the fiber link status of the CSM-400.

Copper link up/down: This refers to the copper link status of the CSM-400.

SNMP Trap

SNMP Trap

SNMP Trap	
SNMP trap server IP or domain name	<input type="text"/>
Trap community	<input type="text" value="public"/>
<input type="submit" value="Submit"/>	

SNMP trap server IP: Use this field to indicate the IP address to use for receiving SNMP traps.

Trap community (default=public_admin): Use this field to designate the SNMP trap community.

Maintenance

Ping

Ping Test

Ping Destination	
Destination	<input type="text"/>
<input type="submit" value="Start"/>	

You can ping an IP address from the CSM-400 web console in order to test the Ethernet connection. Enter the IP address or domain name in the **Destination** field to make sure that the connection is OK.

OAM Remote Loopback Test

⚙️ OAM Remote Loopback Test

Packet Settings

Packet format	<input type="text" value="5A"/>	(0x00 - 0xFF)
Packet size	<input type="text" value="64"/>	(64 - 1514 bytes)
Packet internal time	<input type="text" value="200"/>	(200 - 1000 ms)
Receive timeout	<input type="text" value="1"/>	(1 - 10 s)

You can use OAM remote loopback test to verify the optical fiber link status of the CSM-400 at the remote side.

Packet format: Use the field to set Ethernet packet format for testing.

Packet size: Use the field to set Ethernet packet size for testing and packet size range from 64 to 1514 bytes.

Packet Internal time: Use the field to set packet interval time for testing.

Receive timeout: Use the field to set receives timeout for testing.

Firmware Upgrade

⚙️ Firmware Upgrade

!!! Warning !!!

Select firmware file Note: Upgrade firmware will discard your un-saved configuration changes and restart the system!

No file selected.

The CSM-400’s firmware can be upgraded though the web consoleor through the Device Search Utility (DSU). If you have made any changes to your configuration, remember to save the configuration first before upgrading the firmware. Please refer to **Save Configuration** later in this chapter for more information. Any unsaved changes will be discarded when the firmware is upgraded. To upgrade the firmware, simply enter the file name and click **Submit**. The latest firmware can be downloaded at www.moxa.com.

Configuration Import/Export

The CSM-400 can share or back up its configuration by exporting all settings to a file, which can then be imported into another CSM-400.

⚙️ Configuration Import

Configuration Import

Select configuration file No file selected.

IP configuration Import all configurations including IP configurations.

To import a configuration, go to **System Management → Maintenance → Configuration Import**. Enter the configuration file path/name and click **Submit**. The CSM-400’s configuration settings will be updated according to the configuration file.

If you also wish to import the IP configuration (i.e., the CSM-400’s IP address, netmask, gateway, etc.), make sure that **Import all configurations including IP configurations** is checked off.

Configuration Export

Configuration Export

Download

To export a configuration, go to **System Management, Maintenance, Configuration Export** and click **Download**. A standard download window will appear, and you will be able to download the configuration into a file name and location of your choice.

Load Factory Defaults

Load Factory Default

Click on **Submit** to reset all settings, including the console password, to the factory default values. To leave the IP address, netmask, and gateway settings unchanged, make sure that **Keep IP Settings** is enabled.

Reset to Factory Default

Keep IP settings

Submit

This function will reset all of the CSM-400’s settings to the factory default values. All previous settings including the console password will be lost. If you wish to keep the CSM-400 IP address, netmask, and other IP settings, make sure **Keep IP settings** is checked off before loading the factory defaults.

Change Password

Change Password

Password

Old password

New password

Confirm password

Submit

For all changes to the CSM-400’s password protection settings, you will first need to enter the old password. The password is moxa if you are setting up password protection for the first time. To set up a new password or change the existing password, enter your desired password under both **New password** and **Confirm password**. To remove password protection, leave the **New password** and **Confirm password** boxes blank.



ATTENTION

If you forget the password, the ONLY way to configure the CSM-400 is by using the reset button on the CSM-400’s casing to load the factory defaults.

Before you set a password for the first time, it is a good idea to export the configuration to a file when you have finished setting up your CSM-400. Your configuration can then be easily imported back into the CSM-400 if you need to reset the CSM-400 due to a forgotten password or for other reasons. Please refer to the section on **Configuration Import/Export** earlier in this chapter for more details.

Remote Management

Network Control

Remote Network Controls

Port Configuration

Copper speed 100Mbps Half ▼

Advanced Network Settings

LFP Enable Disable

Activate

Copper speed: Users can set the auto-negotiation, speed, and duplex function in this field for the CSM-400 at the remote side.

LFP: Users can enable or disable the LFP function of the CSM-400 at the remote side.

Remote Monitoring

Port Status

Remote Port Status

Auto refresh

Port	Link Status	Speed	Duplex
Copper	Link Down	No Link	No Link
Fiber	Link Down	No Link	No Link

You can use this function to monitor the copper and fiber link status of the CSM-400 at the remote side.

Link status: Use this field to monitor copper and fiber link status.

Speed: Users can use this field to find out the Ethernet speed.

Duplex: Users can use this field to find out the Ethernet duplex.

System Monitoring

Port Status

Port Status

Auto refresh

Port	Link Status	Speed	Duplex
Copper	Link Down	No Link	No Link
Fiber	Link Down	No Link	No Link

You can use this function to monitor the copper and fiber link status of the CSM-400 at the central side.

Link status: Use this field to monitor copper and fiber link status.

Speed: Users can use this field to find out the Ethernet speed.

Duplex: Users can use this field to find out the Ethernet duplex.

Network Statistics

Go to **Network Statistics** under **System Monitoring** to view network statistics.

Network Statistics

Auto refresh

Items	Copper	Fiber
Rx byte count	39049	0
Dropped packet event	0	0
Rx packet count	368	0
Rx broadcast packet count	224	0
Rx multicast packet count	131	0
Rx CRC/Align error packet count	0	0
Rx under size packet count (<64 bytes, CRC ok)	0	0
Rx over size packet count (>1522 bytes, CRC ok)	0	0
Rx fragment packet count (<64 bytes, bad CRC)	0	0
Rx jabber packet count (>1522 bytes, bad CRC)	0	0
Collision count	0	0
Rx 64 byte packet count	47	0
Rx 65-127 byte packet count	255	0

You can use this page to monitor the RX status of copper and fiber port.

Rx byte count: The total number of input datagram bytes received from the Ethernet.

Dropped packet: The total number of dropped packets.

Rx packet count: The total number of input datagram packets received from the Ethernet.

Rx broadcast packet count: The total number of broadcast packets.

Rx multicast packet count: The total number of multicast packets.

Rx CRC/Align error packet count: The total number of CRC / Align error packets received from the Ethernet.

Rx under size packet count: The total number of packets of which the size is under 64 bytes and the CRC is correct.

Rx over size packet count: The total number of packets of which the size is under 1514 bytes and the CRC is correct.

Rx fragment packet count: The total number of packets of which the size is under 64 bytes and the CRC is bad

Rx jabbers packet count: The total number of packets of which the size is under 1514 bytes and the CRC is bad.

Collision count: The total number of collision packets

Rx 64~ 1522 bytes count: The total received packet count for 64 ~ 1522 bytes packet size.

Save Configuration

Go to **Save Configuration** and then click **Save** to save the submitted configuration changes to the CSM-400's flash memory. The configuration changes will then be effective when the CSM-400 is restarted. If you do not save your changes before restarting, they will be discarded.

Save Configuration

If you have submitted any configuration changes, you must save the changes and restart the server before they take effect. Click **Save** to save the changes in the CSM-400-1214's memory. To restart the server, go to **Restart** in the navigation panel.

Save

Restart

Restart System

Go to **Restart System** under **Restart** and then click **Restart** to restart the CSM-400. Ensure that you save all your configuration changes before you restart the system or else these changes will be lost.

Restart System

!!! Warning !!!

Clicking Restart will reboot the CSM-400-1214 server.

Restart

Software Installation/Configuration

The following topics are covered in this chapter:

- **Overview**
- **Device Search Utility**
 - Installing Device Search Utility
 - Configuring Device Search Utility

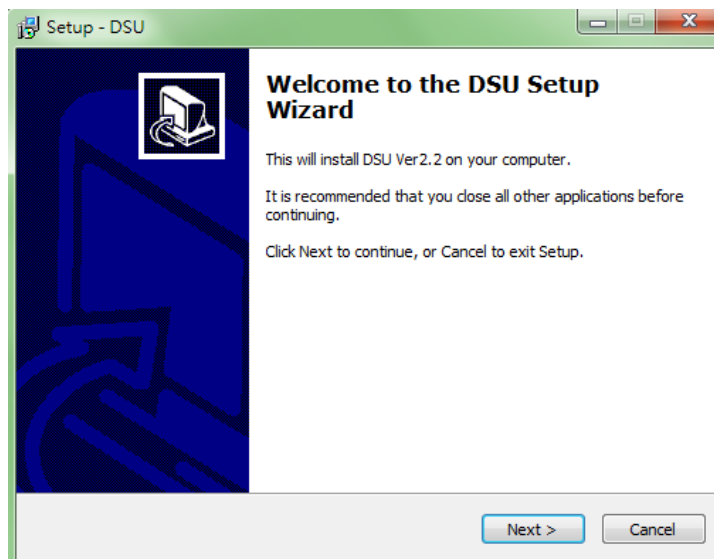
Overview

The Documentation & Software CD included with your CSM-400 is designed to make the installation and configuration procedure easy and straightforward. This auto-run CD includes Windows Driver Manager (for COM mapping), Device Search Utility (to broadcast search for all the CSM-400s accessible over the network), the CSM-400 User's Manual, and the CSM-400 firmware upgrade utility.

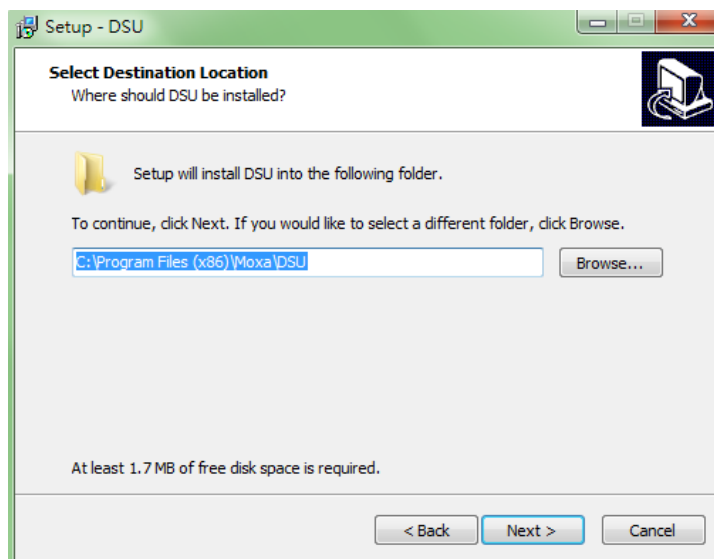
Device Search Utility

Installing Device Search Utility

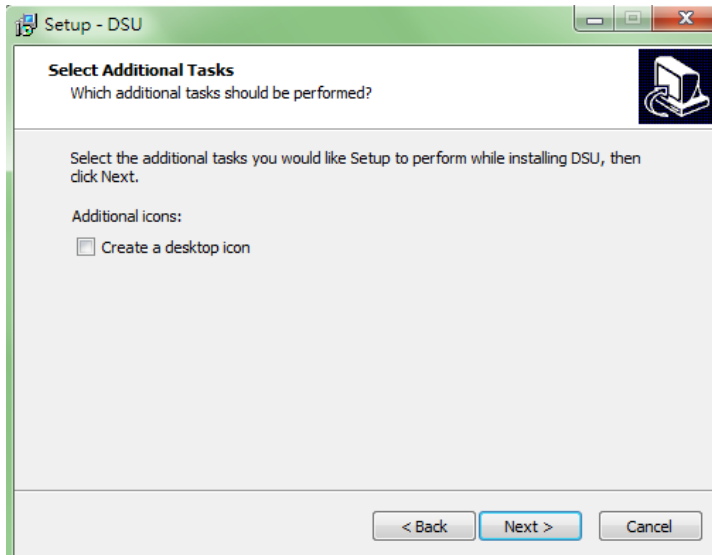
1. Click the **INSTALL UTILITY** button in the Device Installation CD auto-run window to install Device Search Utility. Once the program starts running, click **Yes** to proceed.
2. When the Welcome screen opens, click **Next** to proceed with the installation.



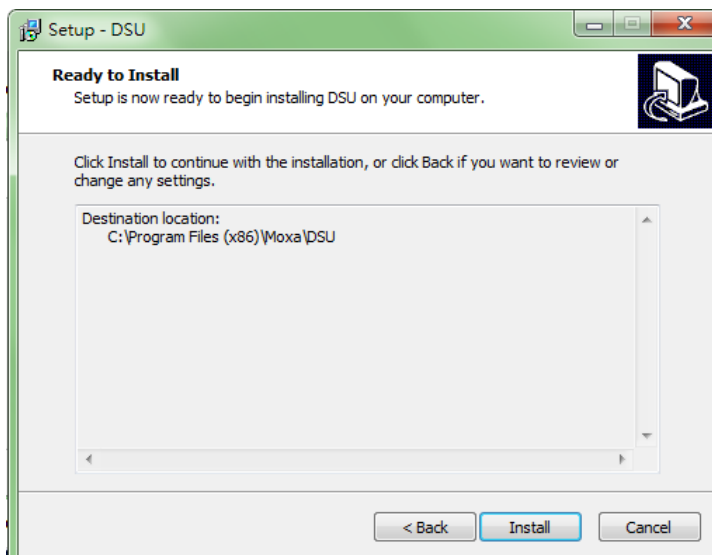
3. Click **Next** to install program files to the default directory, or click **Browse** to select an alternate location.



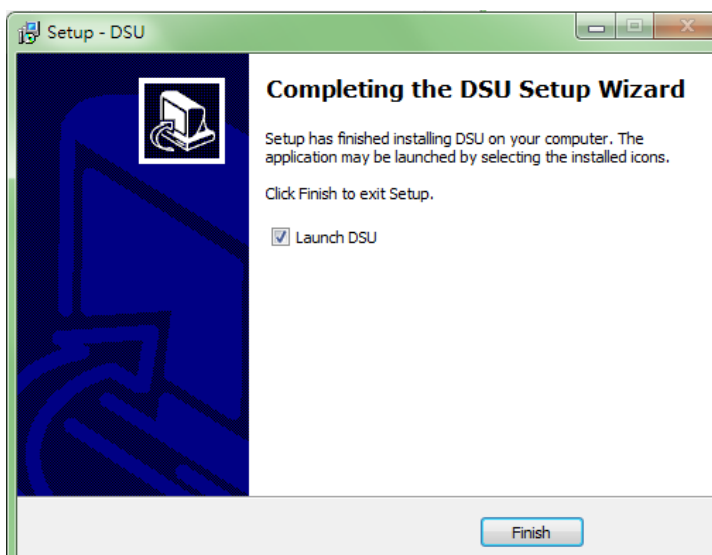
- Click **Next** to install the program's shortcuts in the appropriate Start Menu folder.



- Click **Next** to proceed with the installation. The installer then displays a summary of the installation options.



- Click **Install** to begin the installation. The setup window will report the progress of the installation. To change the installation settings, click **Back** and navigate to the previous screen.
- Click **Finish** to complete the installation of Device Search Utility.

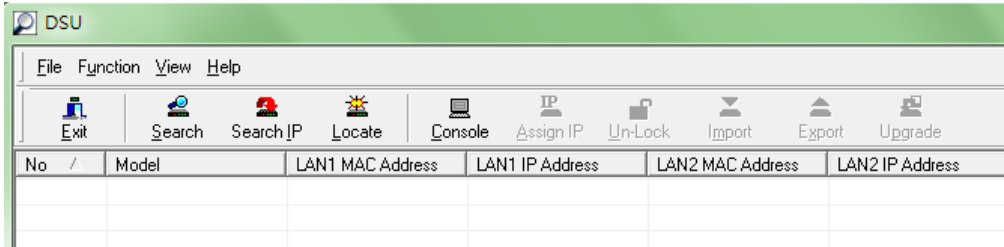


Configuring Device Search Utility

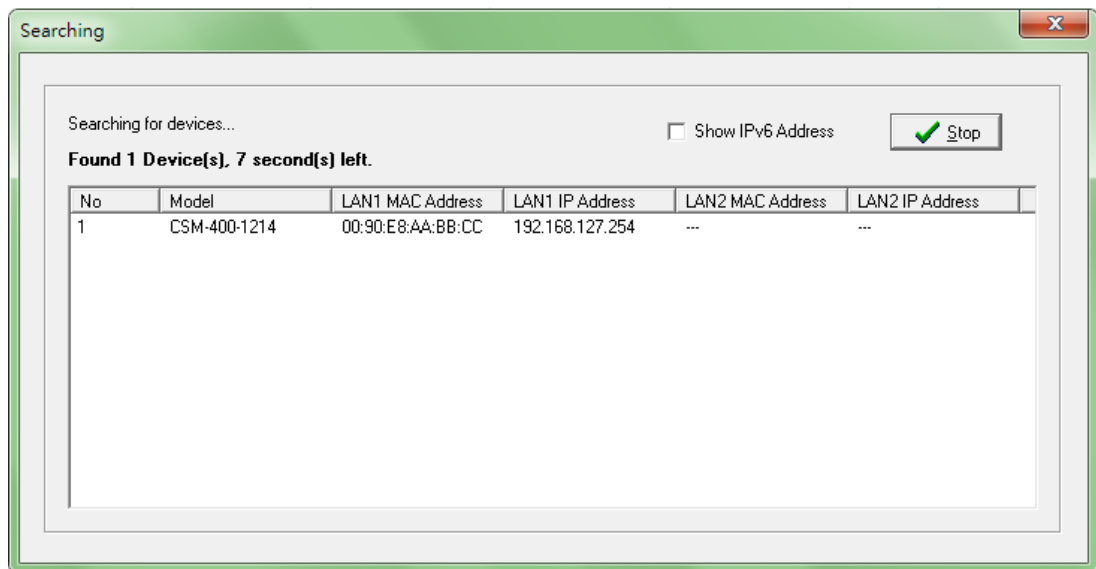
The Broadcast Search function is used to locate all the CSM-400 servers that are connected to the same LAN as your computer. After locating a CSM-400, you will be able to change its IP address.

Since the Broadcast Search function searches by MAC address and not IP address, all the CSM-400 servers connected to the LAN will be located, regardless of whether or not they are part of the same subnet as the host.

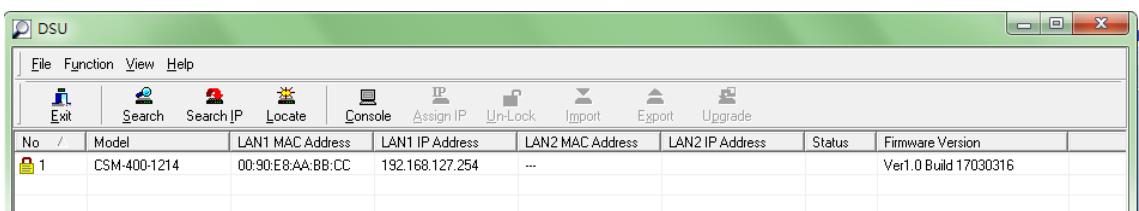
1. Open Device Search Utility and then click the Search icon.



The Searching window indicates the progress of the search.



2. When the search is complete, all the CSM-400 servers that were located will be displayed in the Device Search Utility window.



To modify the configuration of the highlighted CSM-400, click on the Console icon to open the web console. This will take you to the web console, where you can make all configuration changes. Please refer to **Chapter 4, Configuration with the Web Console**, for information on how to use the web console.

A

CSM-400 Port Numbers

In this appendix, which is included for your reference, we provide a list of CSM-400 port numbers that may cause network problems if you set the CSM-400 to one of these ports.

Process Name	Option	Type	Port Number	Description
DSCI	Always Enable	TCP	4900	For Utility communication
		UDP	4800	
SNMP	Always Enable	UDP	161	SNMP Handle routine
HTTP	Always Enable while standalone	TCP	80	Web console
DHCP	Always Enable	UDP	68	DHCP client
SNTP	Always Enable	UDP	Random port	SNTP client
DNS	Always Enable	UDP	Random port	DNS client

B

SNMP Agents with MIB II

The CSM-400 has built-in SNMP (Simple Network Management Protocol) agent software that supports SNMP Trap, RFC1317 and RFC 1213 MIB-II. The following table lists the standard MIB-II groups as well as the variable implementation for the CSM-400.

RFC1213 MIB-II Supported SNMP Variables

System MIB	Interfaces MIB	IP MIB	ICMP MIB
sysDescr	ifNumber	ipForwarding	icmpInMsgs
sysObjectID	ifIndex	ipDefaultTTL	icmpInErrors
sysUpTime	ifDescr	ipInReceives	icmpInDestUnreachs
sysContact	ifType	ipInHdrErrors	icmpInTimeExcds
sysName	ifMtu	ipInAddrErrors	icmpInParmProbs
sysLocation	ifSpeed	ipForwDatagrams	icmpInSrcQuenchs
sysServices	ifPhysAddress	ipInUnknownProtos	icmpInRedirects
	ifAdminStatus	ipInDiscards	icmpInEchos
	ifOperStatus	ipInDelivers	icmpInEchoReps
	ifLastChange	ipOutRequests	icmpInTimestamps
	ifInOctets	ipOutDiscards	icmpTimestampReps
	ifInUcastPkts	ipOutNoRoutes	icmpInAddrMasks
	ifInNUcastPkts	ipReasmTimeout	icmpInAddrMaskReps
	ifInDiscards	ipReasmReqds	icmpOutMsgs
	ifInErrors	ipReasmOKs	icmpOutErrors
	ifInUnknownProtos	ipReasmFails	icmpOutDestUnreachs
	ifOutOctets	ipFragOKs	icmpOutTimeExcds
	ifOutUcastPkts	ipFragFails	icmpOutParmProbs
	ifOutNUcastPkts	ipFragCreates	icmpOutSrcQuenchs
	ifOutDiscards	ipAdEntAddr	icmpOutRedirects
	ifOutErrors	ipAdEntIfIndex	icmpOutEchos
	ifOutQLen	ipAdEntNetMask	icmpOutEchoReps
	ifSpecific	ipAdEntBcastAddr	icmpOutTimestamps
		ipAdEntReasmMaxSize	icmpOutTimestampReps
		ipRouteDest	icmpOutAddrMasks
		ipRouteIfIndex	icmpOutAddrMaskReps
		ipRouteMetric1	
		ipRouteMetric2	
		ipRouteMetric3	
		ipRouteMetric4	
		ipRouteNextHop	
		ipRouteType	
		ipRouteProto	
		ipRouteAge	
		ipRouteMask	
		ipRouteMetric5	
		ipRouteInfo	
		ipNetToMediaIfIndex	
		ipNetToMediaPhysAddress	
		ipNetToMediaNetAddress	
		ipNetToMediaType	
		ipRoutingDiscards	

Address Translation MIB	TCP MIB	UDP MIB	SNMP MIB
atIfIndex	tcpRtoAlgorithm	udpInDatagrams	snmpInPkts
atPhysAddress	tcpRtoMin	udpNoPorts	snmpOutPkts
atNetAddress	tcpRtoMax	udpInErrors	snmpInBadVersions
	tcpMaxConn	udpOutDatagrams	snmpInBadCommunityNames
	tcpActiveOpens	udpLocalAddress	snmpInBadCommunityUses
	tcpPassiveOpens	udpLocalPort	snmpInASNParseErrs
	tcpAttemptFails		snmpInTooBigs
	tcpEstabResets		snmpInNoSuchNames
	tcpCurrEstab		snmpInBadValues
	tcpInSegs		snmpInReadOnlys
	tcpOutSegs		snmpInGenErrs
	tcpRetransSegs		snmpInTotalReqVars
	tcpConnState		snmpInTotalSetVars
	tcpConnLocalAddress		snmpInGetRequests
	tcpConnLocalPort		snmpInGetNexts
	tcpConnRemAddress		snmpInSetRequests
	tcpConnRemPort		snmpInGetResponses
	tcpInErrs		snmpInTraps
	tcpOutRsts		snmpOutTooBigs
			snmpOutNoSuchNames
			snmpOutBadValues
			snmpOutGenErrs
			snmpOutGetRequests
			snmpOutGetNexts
			snmpOutSetRequests
			snmpOutGetResponses
			snmpOutTraps
			snmpEnableAuthenTraps

Moxa-CSM-400-MIB

Overview	Basic settings	Network settings	SNMP Agent Settings
modelName	converterName	ipv4Configuration	snmpEnable
serialNumber	converterLocation	ipv4Address	snmpContactName
firmwareVersion	timeZone	ipv4NetMask	snmpLocation
macAddress	localTime	ipv4DefaultGateway	
viewLanSpeed	timeServer	ipv4DnsServer1IpAddr	
viewFiberSpeed		ipv4DnsServer2IpAddr	
upTime		portSpeed	
		dataForwardMode	
		lfpSetting	
		gratuitousArp	
		gratuitousArpSendPeriod	

Event Settings	SNMP Trap	Load Factory Default
trapServerColdStart	snmpTrapReceiverIp	loadFactoryDefaultSetting
trapServerWarmStart		
trapPower1		
trapPower2		
trapServerAuthFailure		
trapIpChanged		
trapPasswdChanged		
trapFiberLink		
trapCopperLink		

System Monitoring	Remote Management
monSysPortIndex	remotePortSpeed
monSysLinkStatus	remoteLfpSetting
monSysPortSpeed	
monSysPortDuplex	
monNetPortIndex	
monNetRxByteCount	
monNetDropPktEvt	
monNetRxPktCount	
monNetBoadcastPktCount	
monNetMulticastPktCount	
monNetRxCRCErrPktCount	
monNetRxUnderSizePktCount	
monNetRxOverSizePktCount	
monNetRxFragmentPktCount	
monNetRxJabberPktCount	
monNetCollisionCount	
monNetRx64BytePktCount	
monNetRx65to127BytePktCount	
monNetRx128to255BytePktCount	
monNetRx256to511BytePktCount	
monNetRx512to1023BytePktCount	
monNetRx1024to1522BytePktCount	

Remote Monitoring	Save Configuration	Restart
monRemotePortIndex	saveConfig	restartSystem
monRemoteLinkStatus		
monRemotePortSpeed		
monRemotePortDuplex		