

TRC-2190 User's Manual

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www.moxa.com/product

MOXA®

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TRC-2190 User's Manual

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Introduction

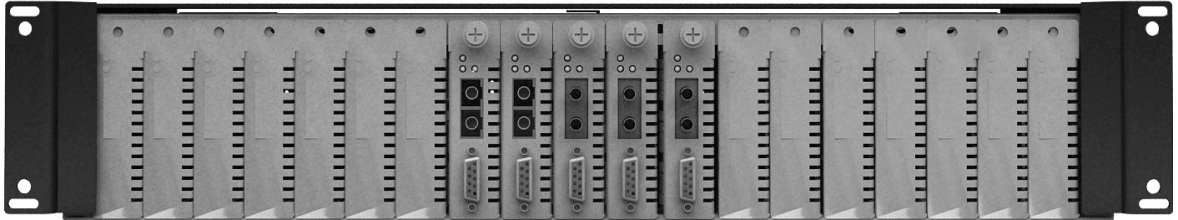
The TRC-2190 Series provides 18 slots for media converter modules from the CSM-400 Series of Ethernet-to-fiber management modules. It also supports SNMP/web console for remote management and monitoring. TRC-2190 chassis comes with one AC or DC power input, with an optional redundant power expansion module available for greater reliability. The TRC-2190 Series' power input module supports a fanless chassis design, as well as a -20 to 55°C operating temperature range.

The following topics are covered in this chapter:

- **Overview**
- **Package Checklist**
- **Product Specifications**

Overview

Moxa's NRack System includes the TRC-2190 Series, which is a 19-inch, rack-mountable chassis for selected Moxa media converter slide-in modules. The TRC-2190-series allows the network administrator to connect various copper and fiber-optic network media over protocols. It also supports SNMP/web console for remote management and monitoring. The TRC-2190 Series provides installation space for up to 18 single-slot media converter slide-in modules in the front of the unit.



The TRC-2190 Series is equipped with an AC or DC power supply installed in the back of the chassis. An extra installation space is available for an optional redundant power supply (AC or DC).



Package Checklist

The Moxa TRC-2190 Series products are shipped with the following items:

Standard Accessories

- TRC-2190 Series with one AC or DC power supply in the back of the chassis
- 17 units of chassis faceplates and screws
- Rackmount kit
- Power cord (for the TRC-2190 Series only)
- Quick installation guide (printed)
- Warranty card

Optional Accessories

- PWR-2190-AC: Redundant AC Power Supply Module
- PWR-2190-DC-48: Redundant DC Power Supply Module

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

Product Specifications

Physical Characteristics

Housing: SECC (1.2 mm)

Dimensions: 440 x 260 x 88 mm (17.32 x 10.24 x 3.46 in)

Weight: 5.2 kg (11.4 lb), with one power module installed

Number of Slots: 18 slots on the front for slide-in modules, 2 slots at the back for power supply modules

Environmental Limits

Operating Temperature: -20 to 55°C (-4 to 131°F)

Storage Temperature: -20 to 75°C (-4 to 167°F)

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

Power Requirements

Input Voltage: Universal 100 to 240 VAC (47 to 63 Hz) or ±48 VDC (36 to 53 VDC and -36 to -53 VDC)

Input Current: 3.2 A @ 36 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

EN 61000-4-5 Surge: Power: 1 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

This chapter covers the hardware installation of the TRC-2190.

The following topics are covered in this chapter:

❑ **Slide-in Module**

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

❑ **Powering the TRC-2190**

- AC Power Supply Modules
- DC Power Supply Modules
- Power Supply Module Installation
- Power Supply Module Replacement
- Power Supply Fuse Replacement for the TRC-2190-AC

❑ **TRC-2190 Rack mounting**

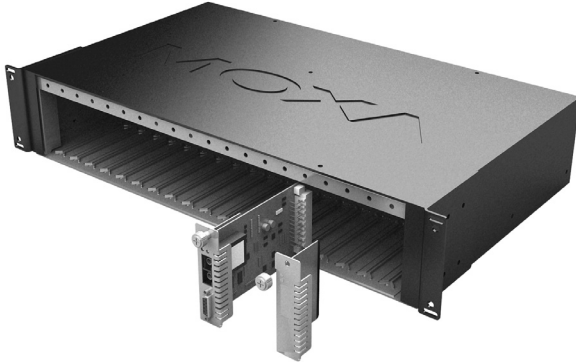
- Installing the TRC-2190 Chassis

❑ **TRC-2190 Grounding**

Slide-in Module

Installing or Removing 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 a TRC-2190 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 modules. We suggest storing the removed faceplates together in case you need to use them again.

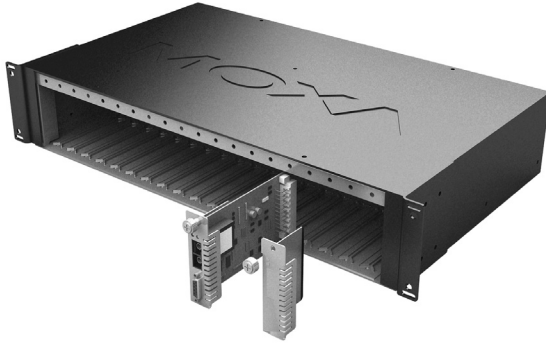
Installing the Media Converter Slide-in Modules



ATTENTION

Wear a grounding device and observe electrostatic discharge precautions when installing or replacing the media converter slide-in modules into 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 TRC-2190 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 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 steps 3 to 7 for any additional media converter slide-in modules.

Replacing the Media Converter Slide-in Modules

To replace a media converter slide-in module in the TRC-2190 chassis:

1. The media converter slide-in module can be hot-swapped, which means the chassis doesn't have to power off during the installation or when the module is being removed.
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.

The TRC-2190-AC chassis is equipped with an AC power supply in the back of the chassis. When the power supply module is correctly installed in the back of the chassis, powering on the power supply module will power on the whole TRC-2190-AC.

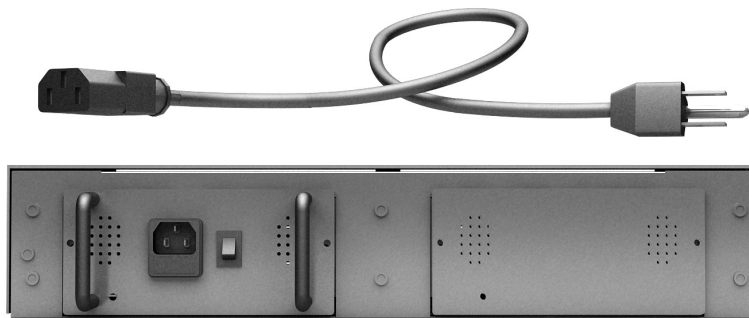
NOTE The CSM-MN01 management card must be installed in slot 1 and not in the other slots

Powering the TRC-2190

AC Power Supply Modules

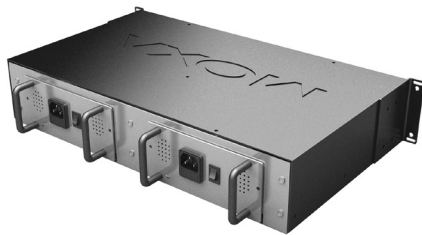
The AC power supply module includes:

- An AC power module that supports 110 to 220 VAC input and supplies power to the chassis and installed media converter slide-in modules.
- An AC power connector with a fuse holder.
- A power cord.
- An ON/OFF switch, which allows the module to supply power to the chassis and slide-in modules when set to "I".
- A power LED indicator.
- An additional fuse installed in a fuse holder on the PCB of the module.



Optional Redundant Power Supply Module

An extra space is available at the right side of the back of the chassis to install an optional power module, the PWR-2190-AC. The specification is the same as the one that comes with the TRC-2190-AC chassis.



Powering the AC Power Supply Module



ATTENTION

Ensure that the ON/OFF switch is set to "O" before connecting to an external power source. Failure to observe this caution could result in damage to, and subsequent failure of, the AC power supply module and human life.

To power on the power supply modules:

1. Set the ON/OFF switch to "O".
2. Connect the female end of the power cord to the AC power connector on the power supply module.
3. Plug the male end of the power cord into the correct voltage AC rack or wall socket.
4. Set the ON/OFF switch to "I".
5. Check whether or not the power LED is illuminated to see if the power supply module is working.

DC Power Supply Modules

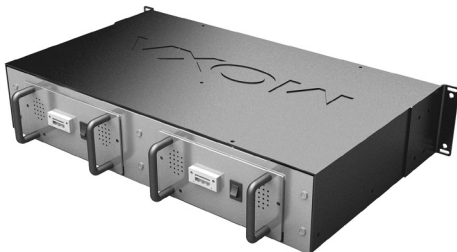
The TRC-2190-DC-48 is equipped with a DC power supply in the back of the chassis. When the power supply module is correctly installed in the back of the chassis, powering on the power supply module will power on the whole TRC-2190-DC-48.

The DC power supply module includes:

- A DC power module that supports 36 to 53 VDC input and supplies power to the chassis and installed media converter slide-in modules.
- A DC power connector.
- An ON/OFF switch, which allows the module to supply power to the chassis and slide-in modules when set to "I".
- A power LED indicator.

Optional Power Supply Modules

An extra space is available at the right side of the back of the chassis to install an optional power module, the PWR-2190-DC-48. This specification is the same as the one that comes with the TRC-2190-DC-48 chassis.



Powering the DC power supply module



ATTENTION

- Before connecting to the external power source, ensure that the ON/OFF switch is set to "O". Failure to observe this caution could result in damage to, and subsequent failure of, the DC power supply module and human life.
- This product is intended to be used in a restricted access location. Proper grounding (earth ground) is required to ensure safe operation. A grounding terminal is provided for proper grounding of the device as per customer installation requirements and local electrical codes. Before installation, use a voltmeter/ohmmeter to check the wiring.

To power on the power supply modules:

1. Set the ON/OFF switch to "O".
2. Be sure that the external power source is **NOT** powered.
3. Connect the power cord and the shielding ground to the male terminal block.
4. Link the male and female terminal blocks.
5. Tighten the screws (clockwise) to secure the male and female terminals.
6. Power up the external power source.
7. Set the ON/OFF switch to "I".
8. Check whether or not the power LED is illuminated to see if the power supply module is working.

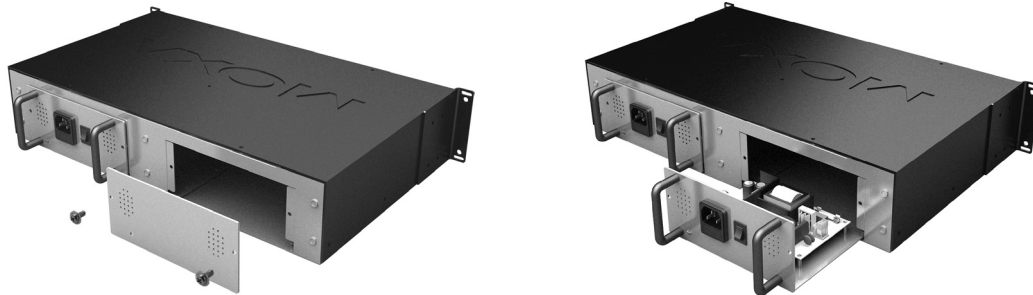
Power Supply Module Installation



ATTENTION

Do not connect the power supply module to the external power source before installing it into the chassis. Failure to observe this may cause equipment damage, personal injury, or even death.

1. Install the AC power supply module and DC power supply module the same way. The default power supply module will be at power module Slot A. We can install an additional power supply module in Slot B. You can install the power supply module or remove it from Slot A or Slot B in the same manner.
2. When installing a power supply module to Slot A or Slot B, be sure that there is no plate installed in the specific slot. If there is, remove the plate first. To remove the plate, remove the two screws that secure the plate to the chassis.



3. Where there is no plate on the chassis, slide the power supply module slowly and follow the installation guide in the chassis. Push the power supply module into the chassis till the end and ensure that the power supply module is firmly connected to the chassis.
4. Screw the power supply module clockwise and fix the power supply module.
5. Connect the power supply module to the external power source.

Power Supply Module Replacement

Replace the AC power supply module or DC power supply module by the same way. Do not remove the power supply module from the chassis when the power source is connected and the external power switch is set to "O."

1. Set the power supply module power switch to "O".
2. Disconnect the power supply module from the external power source.
3. Loosen the two screws on the power supply module.
4. Slide the power supply module smoothly.
5. Install another new power supply module following the instructions in the previous section.

Power Supply Fuse Replacement for the TRC-2190-AC

To replace a fuse on the power supply module does not require pulling the power supply module out of the chassis.

Replacing the Fuse

**ATTENTION**

Wear a grounding device and observe electrostatic discharge precautions when replacing the fuse in the power supply module. Failure to observe this caution could result in damage to, and subsequent failure of, the power supply module.

Follow the instructions below when you need to change the fuse:

1. Set the power switch on the power supply module to "O".
2. Disconnect the power supply module from the external power source.
3. Remove the fuse from the holder carefully.
4. Install a same-sized fuse with the same current rating in the fuse holder.

NOTE

Failure to use a fuse of the same size and same rating may damage your power module or even the entire equipment setup.

5. Connect the power supply module to the external power source.

**ATTENTION**

Do not connect the power supply module to the external power source before installing it into the chassis. Failure to observe this may cause the equipment damage, personal injury, or even death.

TRC-2190 Rack mounting

Installing the TRC-2190 Chassis

The TRC-2190 Series can be installed in a standard 19-inch rack.

NOTE

Rack mounted equipment must be reliably grounded. Power supply connections other than direct connections to the branch circuit (e.g., use of power strips) should be employed.

The TRC-2190 series chassis is designed so that the installation brackets can be installed to align the chassis either flush against the front of the rack or recessed from the front of the rack.

**ATTENTION**

Select mounting bracket locations on the chassis that will keep the chassis balanced when mounted to the rack. Failure to observe this warning could allow the chassis to fall, resulting in equipment damage and/or possible injury to personnel.

To install the TRC-2190 chassis into a standard 19-inch rack:

1. Determine the preferred alignment of the chassis in the rack.

NOTE Installation bracket mounting screws are provided. Rackmount screws and clip nuts are **NOT** provided.

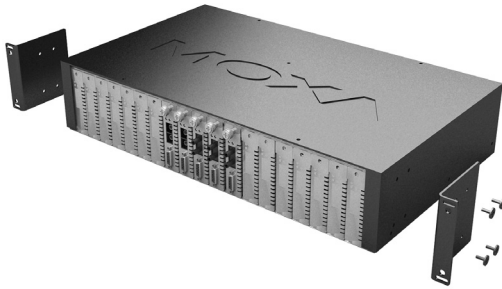
2. Locate four (4) installation bracket mounting screws (provided) for each chassis to be installed.



ATTENTION

Mount the chassis evenly and securely onto the rack. Failure to observe this warning could allow the chassis to fall, resulting in equipment damage and/or possible injury to personnel.

3. Align the mounting bracket in the selected position against the side of the chassis so that the chassis installation holes are visible through the bracket installation holes.
4. Using a Phillips (crosshead) screwdriver, install the four (4) screws through the mounting bracket into the installation holes on the side of the chassis.
5. Repeat steps 3 4 for the second mounting bracket.



6. Carefully align the chassis at a secure and level position between the 19-inch site rack mounting rails.
7. Install two (2) screws through the bracket at each side into the mounting rail, using the clip nuts to secure, if necessary.



TRC-2190 Grounding

Grounding and wire routing help limit the effects of noise caused by electromagnetic interference (EMI). Run the ground connection from the ground screw to the grounding surface prior to connecting devices. Attach the grounding wire (12 AWG copper wire gauge or larger) to the chassis grounding lug carefully.

Initial IP Address Configuration

When setting up the TRC-2190 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
 - ARP
 - Telnet Console
 - USB Console

Static and Dynamic IP Addresses

Determine whether your TRC-2190 needs to use a static IP or dynamic IP address (either DHCP application).

- **If your TRC-2190 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 TRC-2190 is used in a dynamic IP environment**, IP address will be assigned automatically from over the network. In this case, set the IP configuration mode to DHCP.



ATTENTION

Consult your network administrator on how to reserve a fixed IP address for your TRC-2190 in the MAC-IP mapping table when using a DHCP Server. For most applications, you should assign a fixed IP address to your TRC-2190.

Factory Default IP Address

The TRC-2190 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 TRC-2190 will need a valid public IP address, which can be leased from a local ISP.

Configuration Options

Device Search Utility

You may configure your TRC-2190 with the bundled Device Search Utility for Windows.

Web Console

You may configure your TRC-2190 using a standard web browser. Please refer to **Chapter 4, Configuration with the Web Console**, for details on how to access and use the TRC-2190 web console.

ARP

You may use the ARP (Address Resolution Protocol) command to set up an IP address for your TRC-2190. The ARP command tells your computer to associate the TRC-2190's MAC address with an IP address. Afterwards, use Telnet to access the TRC-2190, and its IP address will be reconfigured.



ATTENTION

In order to use the ARP setup method, both your computer and the TRC-2190 must be connected to the same LAN. Alternatively, you may use a crossover Ethernet cable to connect the TRC-2190 directly to your computer's Ethernet card. Before executing the ARP command, your TRC-2190 must be configured with the factory default IP address (192.168.127.254), and your computer and the TRC-2190 must be on the same subnet.

To use ARP to configure the IP address, complete the following:

1. Obtain a valid IP address for your TRC-2190 from your network administrator.
2. Obtain your TRC-2190's MAC address from the label on the CSM-MN01 bracket.
3. Execute the arp s command from your computer's MS-DOS prompt as follows:

arp -s <IP address> <MAC address>

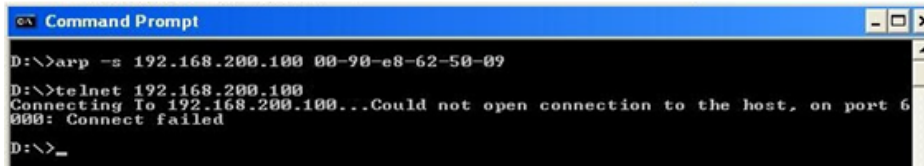
For example,

C:\> arp -s 192.168.200.100 00-90-E8-04-00-11

4. Next, execute a special Telnet command by entering the following exactly:

telnet 192.168.200.100

When you enter this command, a "Connect failed" message will appear, as shown below.



```

C:\>arp -s 192.168.200.100 00-90-e8-62-50-09
C:\>telnet 192.168.200.100
Connecting To 192.168.200.100...Could not open connection to the host, on port 6
000: Connect failed
C:\>_
  
```

5. After the TRC-2190 reboots, its IP address will be assigned to the new address, and you can reconnect using Telnet to verify that the update was successful.

Telnet Console

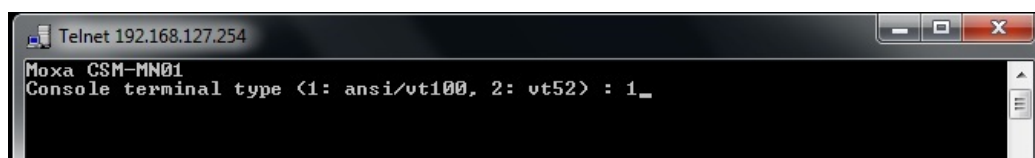
Depending on how your computer and network are configured, you may find it convenient to use network access to set up your TRC-2190's IP address. This can be done using Telnet.

1. From the Windows desktop, select **Start → Run** and type the following in the Run window:

telnet 192.168.127.254

If your IP address is different from the default setting, use your IP address instead. Click **OK**.

2. The console terminal type selection is displayed as shown. Enter **1** for **ansi/vt100** and press **ENTER** to continue.



```

Telnet 192.168.127.254
Moxa CSM-MN01
Console terminal type <1: ansi/vt100, 2: vt52> : 1_
  
```

3. The following page will only appear if the TRC-2190 is password protected. Enter the console username and password if you are prompted to do so, and press **ENTER**.

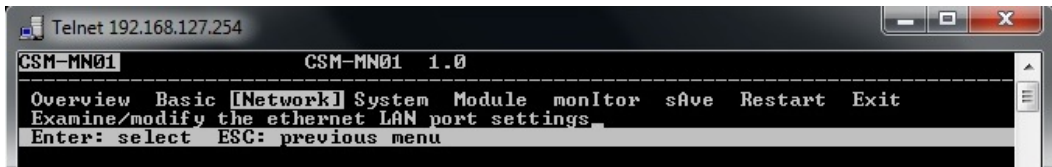
(Default Setting: Console user name is "admin" and console password is "moxa")



```

Telnet 192.168.127.254
Serial No: 02354
+-----+
| Console user name : - |
| Console password  : - |
+-----+
  
```

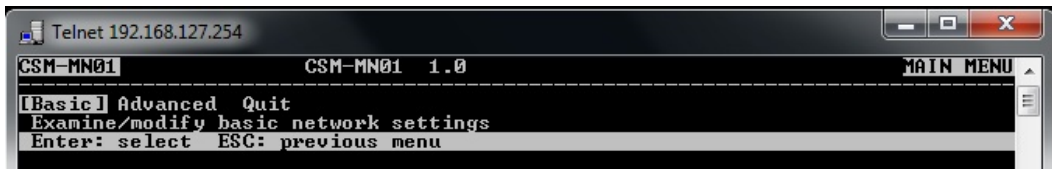
4. Press **N** or use the arrow keys to select **Network** and then press **ENTER**.



```

Telnet 192.168.127.254
CSM-MN01 CSM-MN01 1.0
-----
Overview Basic [Network] System Module monitor save Restart Exit
Examine/modify the ethernet LAN port settings
Enter: select ESC: previous menu
  
```

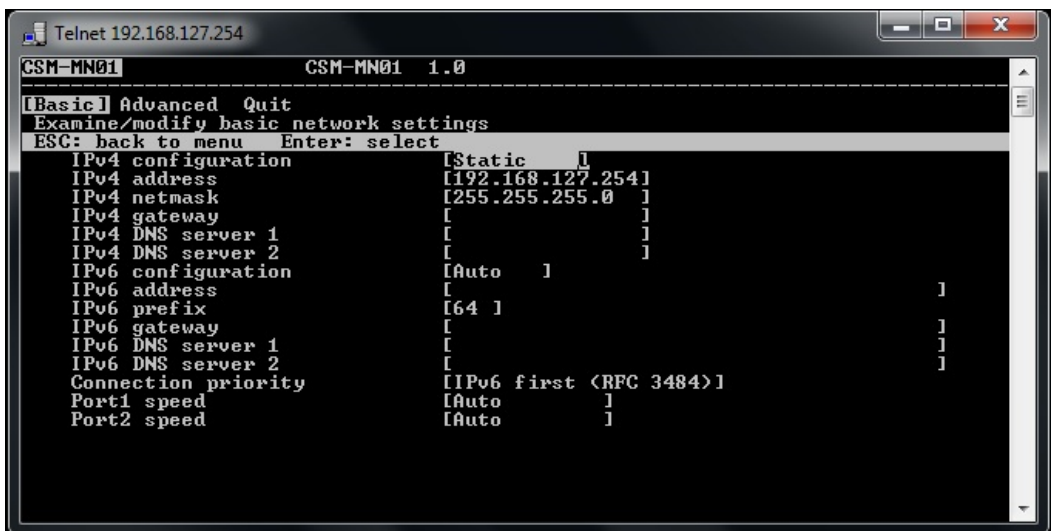
5. Press **B** or use the arrow keys to select **Basic** and then press **ENTER**.



```

Telnet 192.168.127.254
CSM-MN01 CSM-MN01 1.0 MAIN MENU
-----
[Basic] Advanced Quit
Examine/modify basic network settings
Enter: select ESC: previous menu
  
```

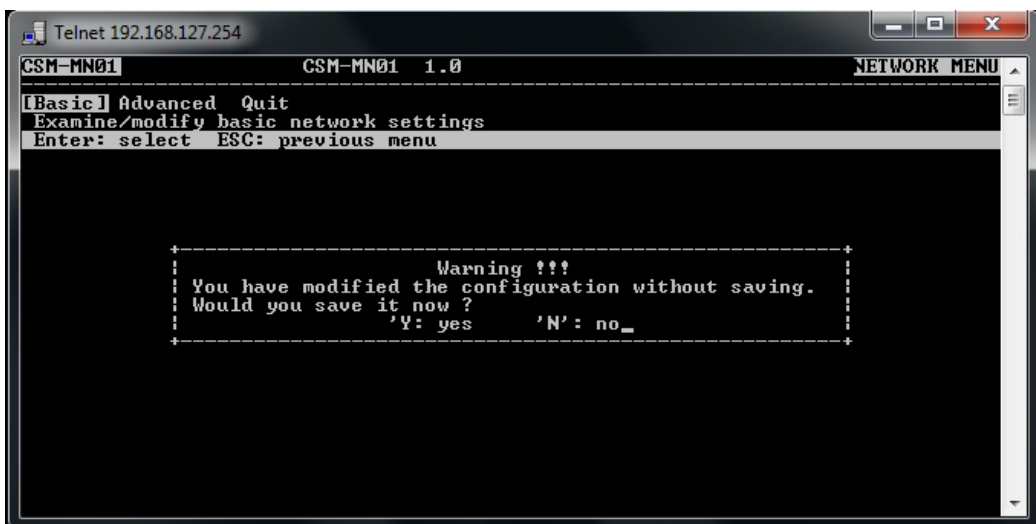
6. Use the arrow keys to move the cursor to **IP address**. Use the **DELETE**, **BACKSPACE**, or **SPACE** keys to erase the current IP address; then, type in the new IP address and press **ENTER**. Note that if you are using a dynamic IP configuration, you will need to go to the **IP configuration field** and press **ENTER** to select the appropriate configuration.



```

Telnet 192.168.127.254
CSM-MN01 CSM-MN01 1.0
-----
[Basic] Advanced Quit
Examine/modify basic network settings
ESC: back to menu Enter: select
IPv4 configuration [Static 1]
IPv4 address [192.168.127.254]
IPv4 netmask [255.255.255.0 ]
IPv4 gateway [ ]
IPv4 DNS server 1 [ ]
IPv4 DNS server 2 [ ]
IPv6 configuration [Auto ]
IPv6 address [ ]
IPv6 prefix [64 ]
IPv6 gateway [ ]
IPv6 DNS server 1 [ ]
IPv6 DNS server 2 [ ]
Connection priority [IPv6 first <RFC 3484>]
Port1 speed [Auto ]
Port2 speed [Auto ]
  
```

7. Press **ESC** twice to return to previous page. Press **Y** to confirm the modification.



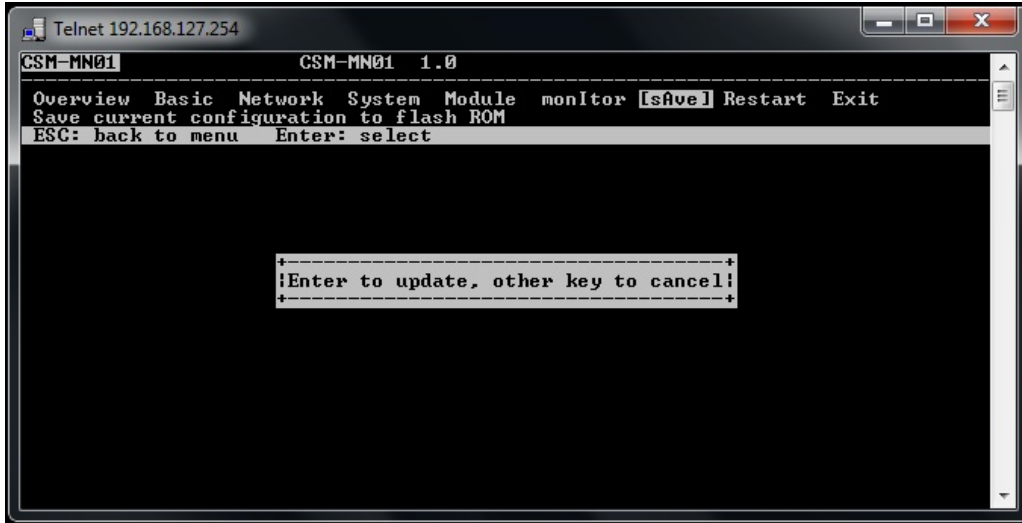
```

Telnet 192.168.127.254
CSM-MN01 CSM-MN01 1.0 NETWORK MENU
-----
[Basic] Advanced Quit
Examine/modify basic network settings
Enter: select ESC: previous menu

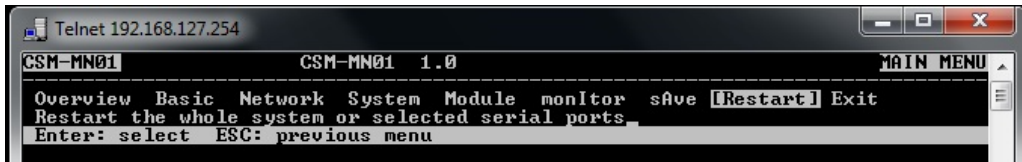
Warning !!!
You have modified the configuration without saving.
Would you save it now ?
'Y': yes 'N': no_
  
```

8. Press **ESC** to return to previous page.

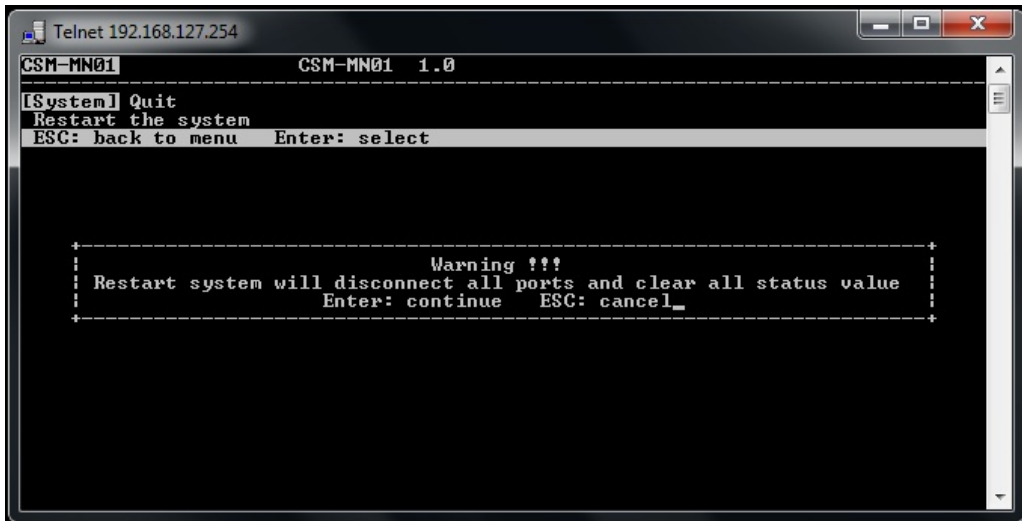
- 9. Press **A** or use the arrow keys to select **Save** and then press **ENTER**. Press **ENTER** again to confirm the save command.



- 10. Press **R** or use the arrow keys to select **Restart** and then press **ENTER**.



- 11. Press **S** or use the arrow keys to select **System**; then press **ENTER** to restart the TRC-2190.

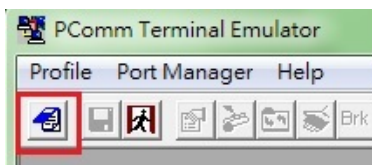


USB Console

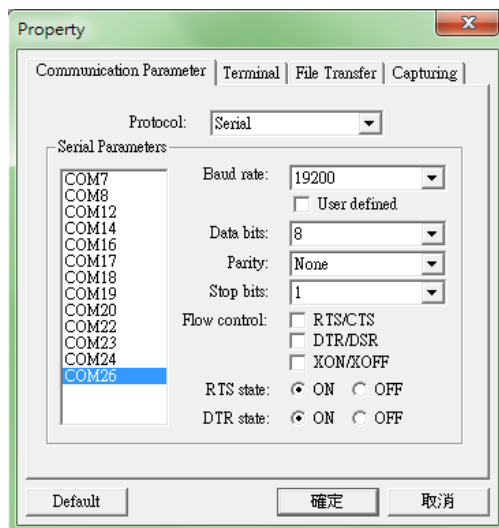
The TRC-2190 supports configuration through a USB console, which is the same as the Telnet console but accessed through a USB console port rather than through a network. Once you have entered the USB console, the configuration options and instructions are the same as if you were using the Telnet console.

The following instructions and screenshots show how to enter the USB console using PComm Terminal Emulator, which is available free of charge as part of the PComm Lite suite. You may use a different terminal emulator utility, although your actual screens and procedures may vary slightly from the following instructions.

1. Turn off the power to the TRC-2190. Use a USB cable to connect the TRC-2190's USB console port to your computer's male USB port.
2. From the Windows desktop, select **Start → All Programs → PComm Lite → Terminal Emulator**.
3. The PComm Terminal Emulator window should appear. From the Port Manager menu, select Open, or simply click the Open icon as shown below:

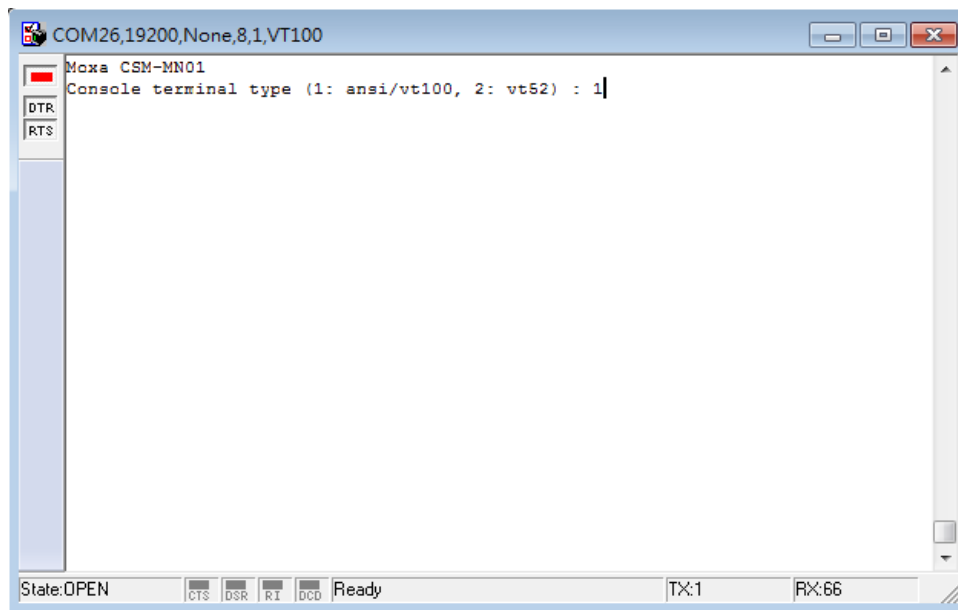


4. The Property window opens automatically. Select the **Communication Parameter** tab; then, select the appropriate COM port for the connection (COM26 in this example). Configure the parameters for **19200, 8, N, 1** (19200 for Baudrate, 8 for Data Bits, None for Parity, and 1 for Stop Bits).

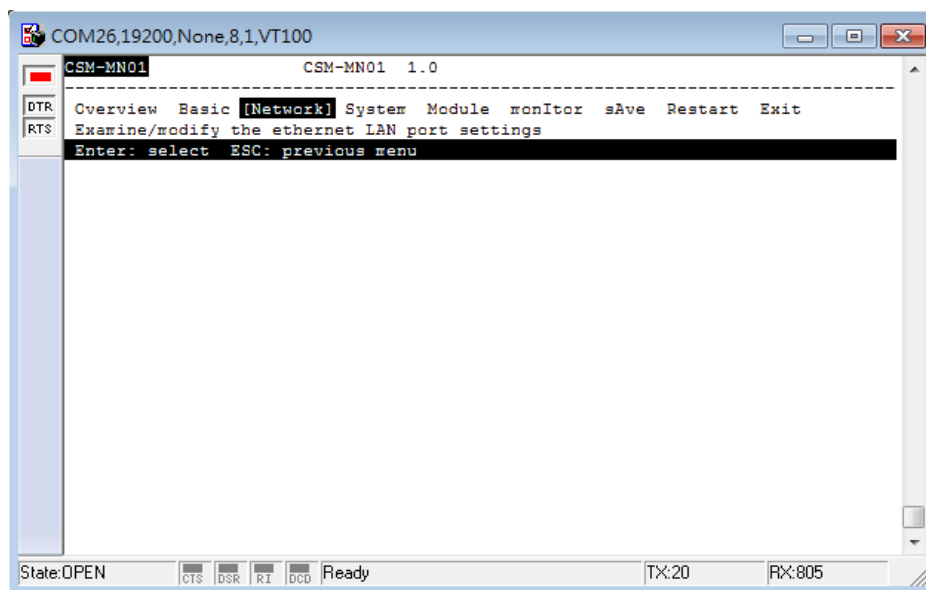


5. From the Property window's Terminal page, select **ANSI** or **VT100** for **Terminal Type** and click **OK**

- If the TRC-2190 has been set up for password protection, you will be prompted to enter the password. After you have entered the password, or if password protection was not enabled, you will be prompted to select the terminal mode. Press **1** for **ansi/vt100** and then press **ENTER**.



- The main menu should come up. Once you are in the console, you may configure the IP address through the **Network** menu item, just as with the Telnet console. Please refer to steps 4 to 11 in the **Telnet Console** section to complete the initial IP configuration.



Configuration with the Web Console

The web console is the most user-friendly method available to configure the TRC-2190. 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 same configuration options are also available through the Telnet and USB console.

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

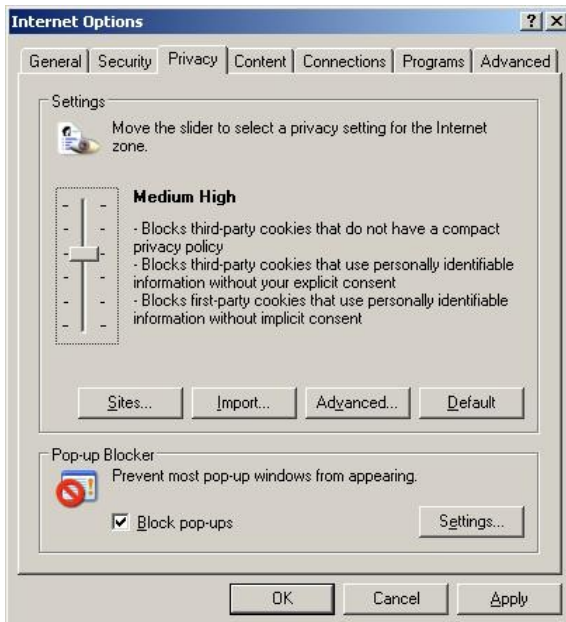
Browser Cookie Settings


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 of 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 TRC-2190 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."

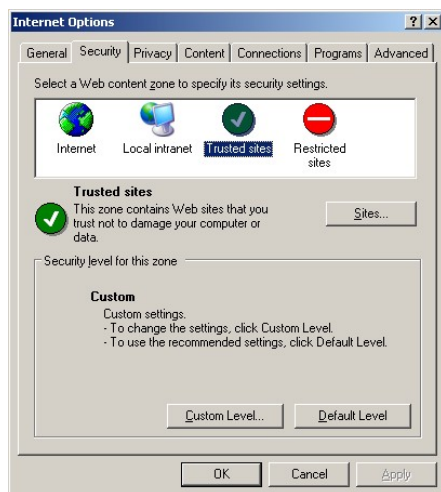
Trusted Site Settings

For Windows 2003 users, you may need to add the TRC-2190's IP address to your browser's list of trusted sites.

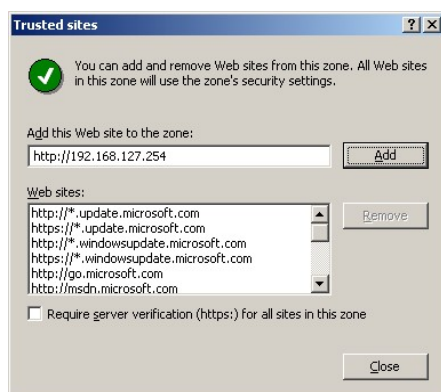
1. If you see the following window while attempting to view the web console, click on **Add...** to modify the list of trusted sites:



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 TRC-2190 here (the factory default IP address is 192.168.127.254).



After adding the TRC-2190's IP address as a trusted site, you should be able to view the web console by entering the TRC-2190's IP address in your browser's address bar.

Opening the Web Console

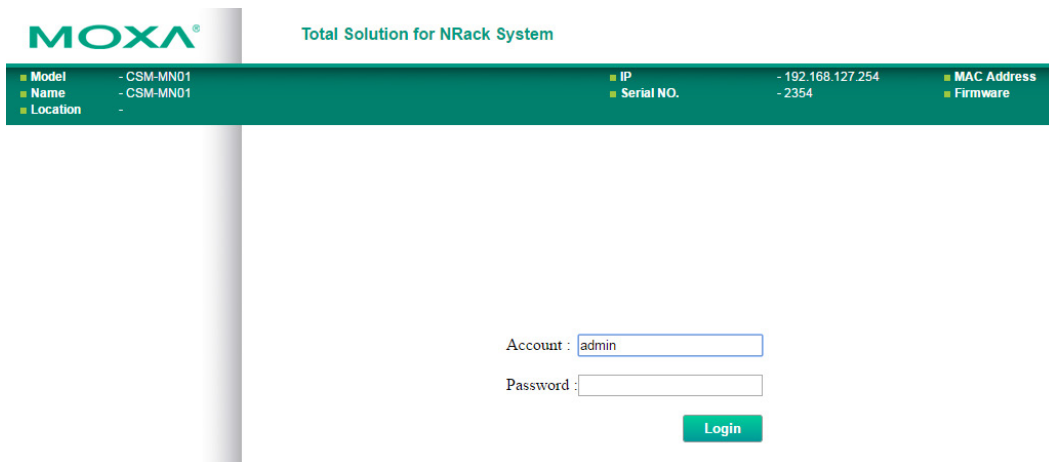
Open your web browser and enter **192.168.127.254** in the website address line. This is the default IP address for the TRC-2190—if a new address has been assigned, enter the new address instead. Press **ENTER** to load the page.



ATTENTION

The examples and figures in this chapter use the TRC-2190 factory default IP address of 192.168.127.254. If you have assigned a different IP address to your TRC-2190, 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 password is **moxa**. Note that only the user admin can upgrade the firmware.

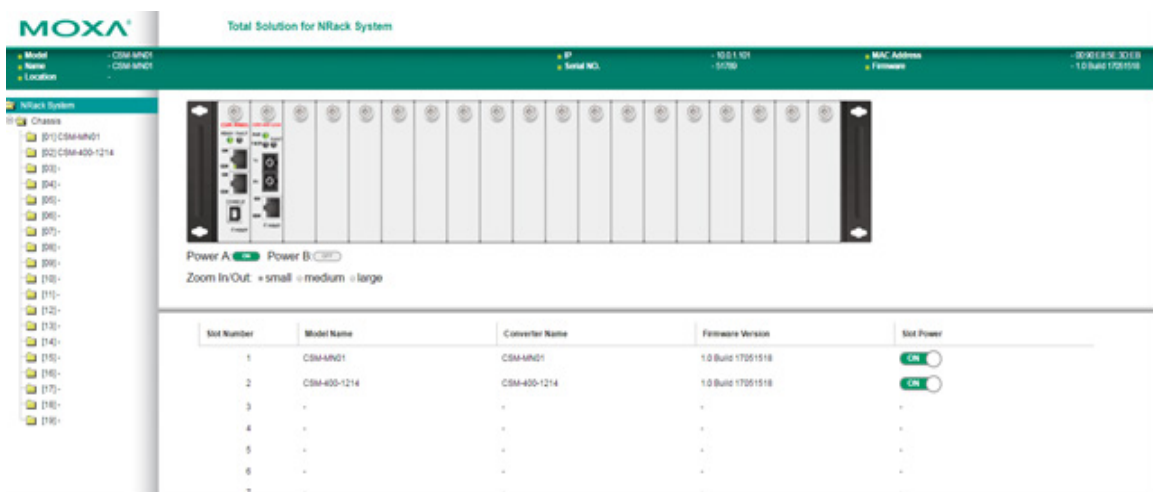


ATTENTION

If you forget your password, the **ONLY** way to configure the TRC-2190 is by using the reset button to reset all settings and load the factory defaults. If you have disabled the reset button in your TRC-2190 configuration, you may still use it to load the factory defaults within the first 60 seconds that the TRC-2190 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 TRC-2190. This will save time if you have forgotten the password and need to reload the factory defaults.

The TRC-2190’s web console will appear.



Web Console Navigation

On the TRC-2190 web console, the left 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 TRC-2190 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 TRC-2190 without saving your configuration, the TRC-2190 will discard all submitted changes.

Basic Settings

You may access Basic Settings in the navigation panel.

Server Settings

Basic Settings

System Identification

Converter name

Converter location

Time Settings

Time zone

Local time (24-hour) / / : :

Time server

Converter name: This is an optional free text field for your own use; it does not affect the operation of the TRC-2190. It can be used to help differentiate one TRC-2190 server from another.

Converter location: This is an optional free text field for your own use; it does not affect the operation of the TRC-2190. It is useful for assigning or describing the location of a TRC-2190. In a network environment of multiple servers, this can be a valuable aid when performing maintenance.

Time Settings

The TRC-2190 has a built-in Real-Time Clock for time calibration functions. Functions such as Auto Warning Email or SNMP Trap can add real-time information to messages.

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 TRC-2190's firmware will modify the GMT time according to your time zone and local time settings.



ATTENTION

A risk of an explosion exists if the real-time clock battery is replaced with the wrong type!

The TRC-2190's real time clock is powered by a lithium battery. We strongly recommend that you do not attempt to replace the lithium battery without help from a qualified Moxa support engineer. If you need to change the battery, please contact the Moxa RMA service team.

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 TRC-2190, 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)
2017 / 3 / 20	16 : 23 : 45
<input type="button" value="Submit"/>	<input type="button" value="Close"/>

Time server: The TRC-2190 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 TRC-2190 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

Basic Network Settings

IPv4 Configuration	
IPv4 configuration	Static ▼
IPv4 address	192.168.127.254
Netmask	255.255.255.0
Gateway	
IPv4 DNS server 1	
IPv4 DNS server 2	
IPv6 Configuration	
IPv6 configuration	Auto ▼
IPv6 address	
Prefix	64
IPv6 Gateway	
IPv6 DNS server 1	
IPv6 DNS server 2	
Connection priority	<input checked="" type="radio"/> IPv6 first (RFC 3484) <input type="radio"/> IPv4 first
Port Configuration	
Port1 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 TRC-2190 IP address, netmask, gateway, and other IP parameters.

NOTE You must assign a valid IP address to your TRC-2190 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

IPv4 Address (default=192.168.127.254): Enter the IP address that will be assigned to your TRC-2190. All ports on the TRC-2190 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 TRC-2190 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 TRC-2190, a connection is established directly from the TRC-2190. 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 TRC-2190 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 server three times every 30 seconds until network settings are assigned by the DHCP 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 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 TRC-2190 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 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 TRC-2190 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 TRC-2190 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.

What is IPv6?

IPv6 stands for Internet Protocol version 6. It is the second version of the Internet Protocol, introduced after the first version, which is IPv4. The difference between the two versions is the length of the IP address. IPv4 uses 32-bit IP addresses; IPv6 uses 128-bit IP addresses. IPv4 is still the predominant protocol used over most of the Internet.

IPv6 Configuration (default=Static): You can choose from three possible IP configuration modes.

Option	Description
Auto	<p>IPv6 router assigned prefix</p> <p>Step 1: TRC-2190 generates the Link local address automatically</p> <p>Step 2: TRC-2190 sends the "Router solicitation" to the router to apply for an IP address.</p> <ul style="list-style-type: none"> 2.1 Router assigns an IP address to TRC → Step 4 2.2 Router assigns the DHCPv6 Server to offer an IP address → Step3 2.3 Router has no response (e.g., router does not exist) → Step 3 <p>Step 3. The TRC applies for an IP address from the DHCPv6 Server</p> <p>Step 4. Process closed</p>
Static	User-defined IP address, Prefix, gateway.
Disable	Use IPv4

IPv6 Address (default= Auto): Enter the IPv6 address that will be assigned to your TRC-2190. All ports on the TRC-2190 will share this IPv6 address. An IPv6 address is a number assigned to a network device (such as a computer) as a permanent address on the network. Computers use the IPv6 address to identify and talk to each other over the network. Choose a proper IPv6 address that is unique and valid in your network environment.

Prefix: The prefix is the part of the address that indicates the bits that have fixed values or are the bits of the subnet prefix. Prefixes for IPv6 subnets, routes, and address ranges are expressed in the same way as Classless Inter-Domain Routing (CIDR) notation for IPv4. An IPv6 prefix is written in address/prefix-length notation. For example, 21DA:D3::/48 and 21DA:D3:0:2F3B::/64 are IPv6 address prefixes.

NOTE IPv4 implementations commonly use a dotted decimal representation of the network prefix known as the subnet mask. A subnet mask is not used for IPv6. Only the prefix length notation is supported.

IPv6 Gateway

Gateway: Enter the IPv6 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 TRC-2190 needs to know the IPv6 address of the default gateway computer in order to communicate with the hosts outside the local network environment. For correct gateway IPv6 address information, consult the network administrator.

IPv6 DNS server 1: This is an optional field. The IP address of another DNS server may be entered in this field for when DNS server 1 is unavailable.

IPv6 DNS server 2: This is an optional field. The IP address of another DNS server may be entered in this field for when DNS server 1 is unavailable.

Connection Priority: This function should work with the TRC-2190 functions that use the domain name to obtain the IP address of the remote host/server. For this kind of application, the TRC-2190 will ask for the IP address of the remote host/server through the DNS, and the DNS will reply with both the IPv4 and IPv6 IP addresses if both exist simultaneously in the remote host/server. For this reason, you need to define which one has higher priority, "IPv6 first (RFC 3484) or IPv4 first."

Applications that obtain the IP address from the domain name:

Application	Time Server, DDNS, WINS, RADIUS Server, TACACS+ Server, Remote Syslog, E-mail Alert, SNMP Tarp Alert.
OP Mode	TCP Client, Reverse RealCOM, Pair connection, Terminal

LAN1 speed (default=Auto): You may configure the network speed for the built-in Ethernet connection on the TRC-2190. IEEE 802.3 Ethernet supports auto negotiation of transfer speed. However, some switches/hubs require that the communication speed be fixed at 100 Mbps or 10 Mbps.

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.

⚙️ Advanced Network Settings

Advanced Network Settings

Gratuitous ARP

Enabled Send period (10 - 1000 sec)

Submit

Gratuitous ARP: In some applications, you may need the TRC-2190 to send broadcast packets to update the ARP table on the server. If you enable this function and set the send period, the TRC-2190 will send periodically send broadcast packets at the specified time interval.

System Management Settings

In this chapter, we describe additional server settings on the TRC-2190. 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
- Authentication Server
- System Log Settings
- Configure the Remote Log Server

❑ **Auto Warning Settings**

- Event Settings
- E-mail Alert
- SNMP Trap

❑ **Maintenance**

- Console Setting
- Ping
- Firmware Upgrade
- Configuration Import/Export
- Load Factory Defaults
- Change Password

❑ **Certificate**

- Ethernet SSL Certificate Import
- Certificate/Key Delete

❑ **System Monitoring**

- Network Connections
- Network Statistics
- System Log

❑ **Save Configuration**

❑ **Restart**

- Restart System

Misc. Network Settings

SNMP Agent Settings

The screenshot shows the Moxa web interface for the TRC-2190. The top status bar displays system information: Model (CSM-MN01), Name (CSM-MN01), Location, IP (192.168.127.254), Serial NO. (2354), MAC Address, and Firmware. The navigation menu on the left shows the hierarchy: N Rack System > Chassis > [01] CSM-MN01. The main content area is titled "SNMP Agent Settings" and includes a "Configuration" section with the following fields:

- SNMP:** Radio buttons for Enable and Disable.
- Read community string:** Text input field containing "public".
- Write community string:** Text input field containing "private".
- Contact name:** Text input field.
- Location:** Text input field.
- SNMP agent version:** Checkboxes for v1, v2, and v3.
- Read only user name:** Text input field.
- Read only authentication mode:** Dropdown menu set to "Disable".
- Read only password:** Text input field.
- Read only privacy mode:** Dropdown menu set to "Disable".
- Read only privacy:** Text input field.
- Read/write user name:** Text input field.
- Read/write authentication mode:** Dropdown menu set to "Disable".
- Read/write password:** Text input field.
- Read/write privacy mode:** Dropdown menu set to "Disable".
- Read/write privacy:** Text input field.

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 TRC-2190. This string is usually set to the street address where the TRC-2190 is physically located.

SNMP agent version: The TRC-2190 supports SNMP V1, V2, and V3.

Read-only and Read/write access control

The following fields allow you to define user names, passwords, and authentication parameters for two levels of access: read-only and read/write. The name of the field will indicate which level of access it refers to. For example, **Read-only** authentication mode allows you to configure the authentication mode for read-only access, whereas **Read/write** authentication mode allows you to configure the authentication mode for read/write access. For each level of access, you may configure the following:

User name: Use this optional field to identify the username for the specified level of access.

Authentication mode (default=Disable): Use this field to select MD5 or SHA as the method of password encryption for the specified level of access, or to disable authentication

Privacy mode (default=Disable): Use this field to enable to disable DES_CBC data encryption for the specified level of access.

Password: Use this field to set the password for the specified level of access.

Privacy: Use this field to define the encryption key for the specified level of access

Authentication Server

The screenshot shows the Moxa web interface for the 'Total Solution for NRack System'. The top status bar displays system information: Model (CSM-MN01), Name (CSM-MN01), Location, IP (192.168.127.254), Serial NO. (2354), MAC Address, and Firmware. The navigation menu on the left shows a tree structure under 'NRack System' and 'Chassis', with '[01] CSM-MN01' selected. The main configuration area is titled 'Authentication Server' and contains the following sections:

- RADIUS**
 - RADIUS server: [Text input field]
 - RADIUS key: [Text input field]
 - UDP port: [Dropdown menu showing 1645]
 - RADIUS accounting: Enable Disable
- TACACS+**
 - TACACS+ server: [Text input field]
 - TACACS+ secret: [Text input field]
 - TACACS+ accounting: Enable Disable

A 'Submit' button is located at the bottom of the configuration area.

RADIUS server IP: If you are using a RADIUS server for user authentication, enter its IP address here.

RADIUS key: If you are using a RADIUS server for user authentication, enter its password here.

UDP port (default=1645): If you are using a RADIUS server, enter its UDP port assignment here.

RADIUS accounting: Use this field to enable or disable RADIUS accounting.

TACACS+ server: If you are using a TACACS+ server for user authentication, enter its IP address or domain name here.

TACACS+ secret: If you are using a TACACS+ server for user authentication, enter its password here.

TACACS+ accounting: Use this field to enable or disable TACACS+ accounting.

System Log Settings

The screenshot shows the MOXA web interface for the TRC-2190. The top navigation bar includes 'Overview', 'Basic Settings', 'Network Settings', 'System Management', 'System Monitoring', 'Module Management', 'Module Monitoring', and 'Save/Restart'. The 'System Log Settings' page is active, displaying a table of event groups and their logging options.

Event Group	Local Log	Remote Log	Summary
System	<input type="checkbox"/>	<input type="checkbox"/>	System Cold Start, System Warm Start, Power A/Power B Changed
Network	<input type="checkbox"/>	<input type="checkbox"/>	DHCP/BOOTP Get/IP/Renew, NTP, Mail Fail, NTP Connect Fail, IP Conflict, Network Link Down
Config	<input type="checkbox"/>	<input type="checkbox"/>	Login Fail, IP Changed, Password Changed, Config Changed, Firmware Upgrade, SSL Certificate Import, Config Import, Config Export
Module	<input type="checkbox"/>	<input type="checkbox"/>	Insert/remove, Cold/Warm start, Fiber link up/down, Cooper link up/down

System Log Settings allow the administrator to customize which network events are logged by the TRC-2190. Events are grouped into four categories, known as event groups, and the administrator selects which groups to log under Local Log. The actual system events that would be logged for each system group are listed under summary. For example, if **System** was enabled, then System Cold Start events and System Warm Start events would be logged

Local Log

Keep the log into the flash of TRC-2190 up to 512 items.

Remote Log

Keep the log into the remote defined Log Server.

You will need to assign a remote Log Server in the System Management / Misc. Network Settings / Remote Log Settings if remote log is checked.

System

System Cold Start

TRC-2190 cold start.

System Warm Start

TRC-2190 warm start.

Network

DHCP Get

IP/Renew

IP of the TRC-2190 is refreshed.

NTP

Time synchronization was successful.

NTP Connect Fail

The TRC-2190 failed to connect to the NTP Server.

Mail Fail

Failed to deliver an E-mail.

IP Conflict

There is an IP conflict on the local network.

Network Link Down

LAN 1 Link is down.

Config

Login Fail

IP Changed

Static IP address was changed.

Password Changed

Administrator Password was changed.

Config Changed

The TRC-2190's configuration was changed.

Firmware Upgrade

Firmware was upgraded.

SSL Certificate Import

SSL Certificate was imported.

Config Import

Config was imported.

Config Export

Config was exported.

Module

Insert

CSM-400 insert into the TRC-2190

Remove

CSM-400 remove from the TRC-2190

Cold start

Starting the system from a power off state

Warm start

Restarting the system without turning the power off

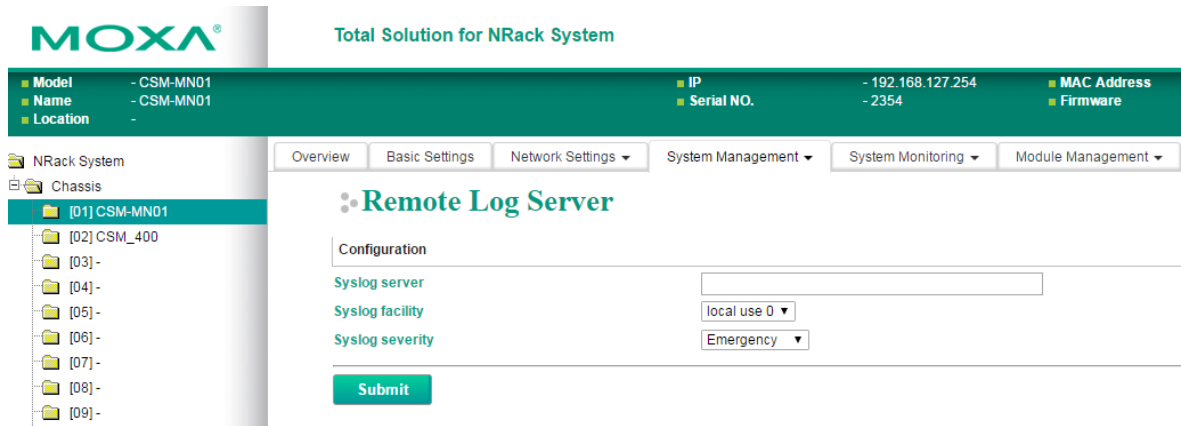
Fiber link up /down

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.

Configure the Remote Log Server



SYSLOG server

IP address or domain name of remote log server.

SYSLOG facility

Syslog Facility is one information field associated with a syslog message.

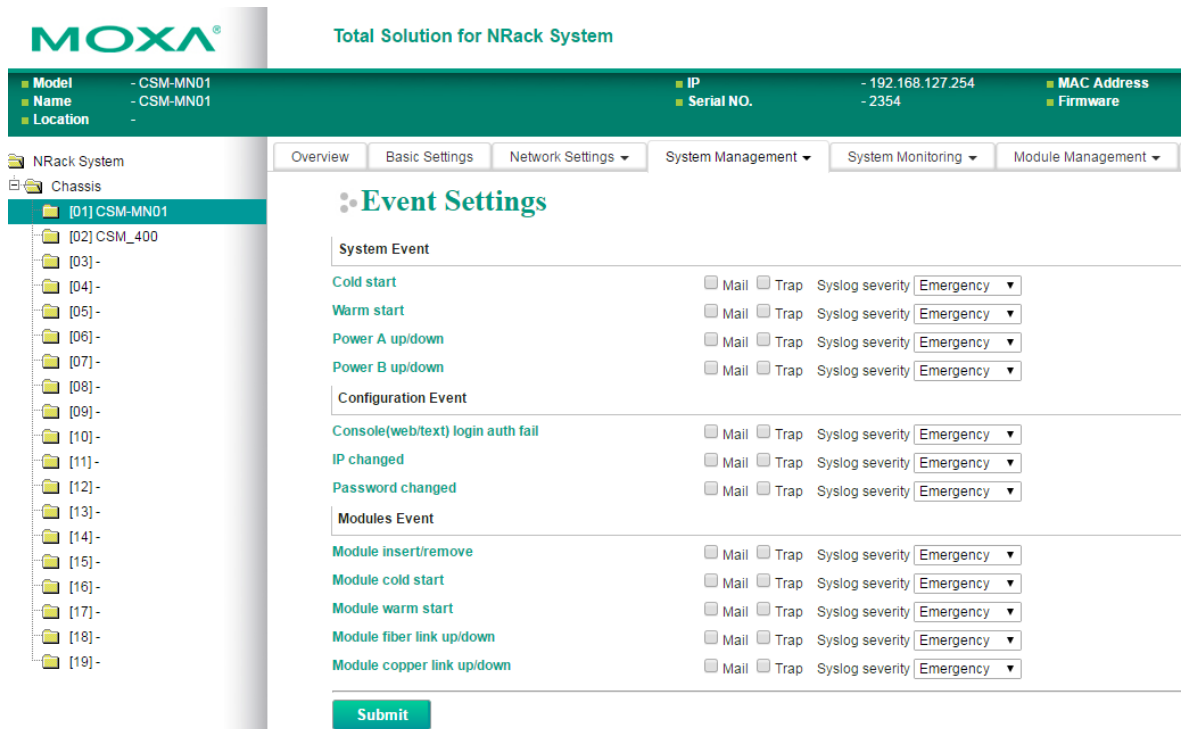
SYSLOG severity

Order of severity, listed from the most to the least severe.

0	Emergency
1	Alert
2	Critical
3	Error
4	Warning
5	Notice
6	Informational
7	Debug

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 notifications are available, as shown above. **Mail** refers to sending an e-mail to a specified address. **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 TRC-2190 without turning the power off.

Power A up/down: CSM-MN01 can monitor the power status for the TRC-2190. This refers to the power 1 status of TRC-2190.

Power B up/down: CSM-MN01 can monitor the power status for the TRC-2190. This refers to the power 2 status of TRC-2190.

Console(web/text) login auth fail: This field refers to a failed attempt to log in to a password-protected TRC-2190 console.

IP changed: With this option selected, the TRC-2190 will attempt to send an e-mail warning before it reboots after an IP address change. However, the TRC-2190 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 TRC-2190 will attempt to send an e-mail warning before it reboots with a new console password. If the TRC-2190 is unable to send an e-mail message to the mail server within 15 seconds, it will still reboot without sending the e-mail.

Module insert: The CSM-400 is inserted into the TRC-2190

Module remove: The CSM-400 is removed from the TRC-2190

Module Cold start: Starting the CSM-400 from a powered-off state

Module Warm start: Restarting the CSM-400 without turning the power off

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

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

E-mail Alert

The E-mail Alert settings configure how e-mail warnings are sent for system events. You may configure up to four e-mail addresses to receive automatic warnings.



ATTENTION

Consult your Network Administrator or ISP for the proper mail server settings. The Auto warning function may not work properly if it is not configured correctly. The TRC-2190's SMTP AUTH supports LOGIN, PLAIN, and CRAM-MD5 (RFC 2554).

Mail server: This field is for your mail server's domain name or IP address.

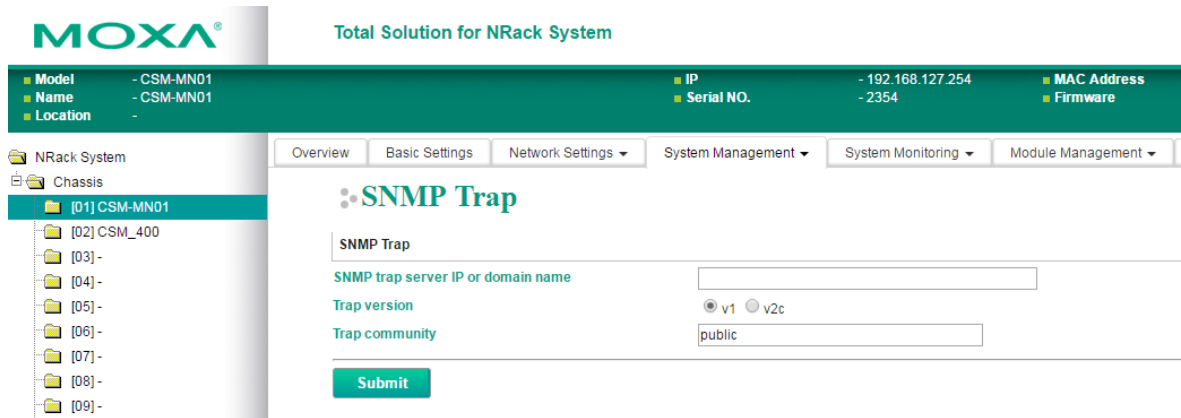
User name: This field is for your mail server's user name, if required.

Password: This field is for your mail server's password, if required.

From e-mail address: This is the e-mail address from which automatic e-mail warnings will be sent.

To e-mail address 1 to 4: This is the e-mail address or addresses to which the automatic e-mail warnings will be sent.

SNMP Trap



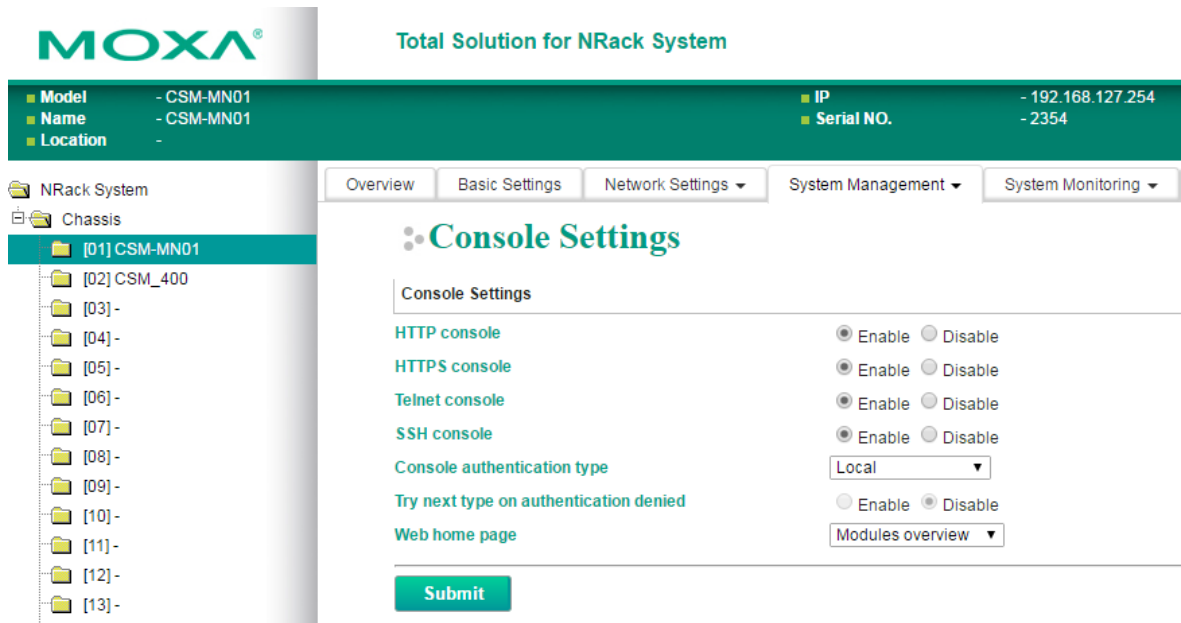
SNMP trap server IP: Use this field to indicate the IP address to use for receiving SNMP traps.

Trap version (default=v1): Use this field to select the SNMP trap version.

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

Maintenance

Console Setting



On this screen, access to different TRC-2190 configuration console options (HTTP, HTTPS, Telnet, SSH) can be enabled or disabled.

Ping

The screenshot shows the Moxa web console interface. At the top, there's a green header with the Moxa logo and the text 'Total Solution for NRack System'. Below this is a table with system information: Model (CSM-MN01), Name (CSM-MN01), Location, IP (192.168.127.254), Serial NO. (2354), MAC Address, and Firmware. A navigation menu on the left shows 'NRack System' and 'Chassis' with sub-items [01] CSM-MN01, [02] CSM_400, [03]-, [04]-, [05]-, and [06]-. The main content area has tabs for Overview, Basic Settings, Network Settings, System Management, System Monitoring, and Module Management. The 'Ping Test' section is active, showing a 'Ping Destination' label, a 'Destination' input field, and a 'Start' button.

You can ping an IP address from the TRC-2190 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.

Firmware Upgrade

The screenshot shows the 'Firmware Upgrade' section of the web console. It features a warning icon and the text '!!! Warning !!!'. Below this is a 'Select firmware file' section with a 'Browse...' button and the text 'No file selected.'. A green 'Submit' button is located below the file selection area. A note at the top right states: 'Note: Upgrade firmware will discard your un-saved configuration changes and restart the system!'.

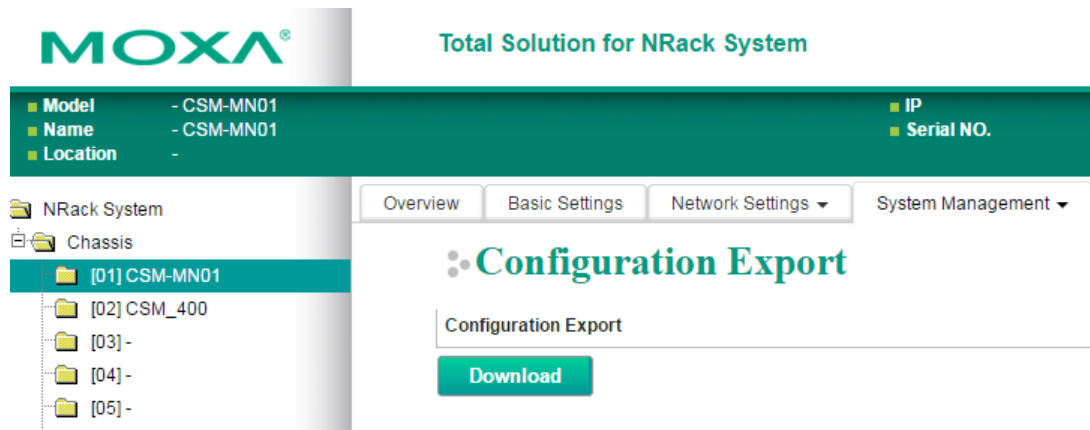
The TRC-2190's firmware can be upgraded through the web console, serial console, or through Device Search Utility (DSU). If you have made any changes to your configuration, remember to save the configuration first before upgrading the firmware. Please refer to **Save Configuration** later in this chapter 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 TRC-2190 can share or back up its configuration by exporting all settings to a file, which can then be imported into another TRC-2190.

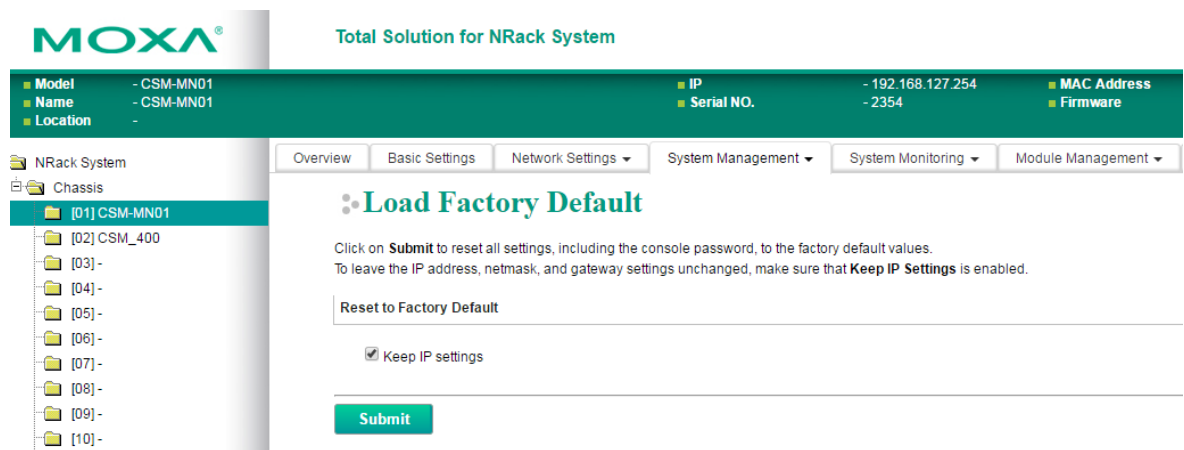
The screenshot shows the 'Configuration Import' section of the web console. It features a 'Configuration Import' title. Below this is a 'Select configuration file' section with a 'Browse...' button and the text 'No file selected.'. There is also a checkbox labeled 'Import all configurations including IP configurations.' and a green 'Submit' button.

To import a configuration, go to **System Management** → **Maintenance** → **Configuration Import**. Enter the configuration file path/name and click **Submit**. The TRC-2190's configuration settings will be updated according to the configuration file. If you also wish to import the IP configuration (i.e., the TRC-2190's IP address, netmask, gateway, etc.), make sure that **Import all configurations including IP configurations** is checked off.



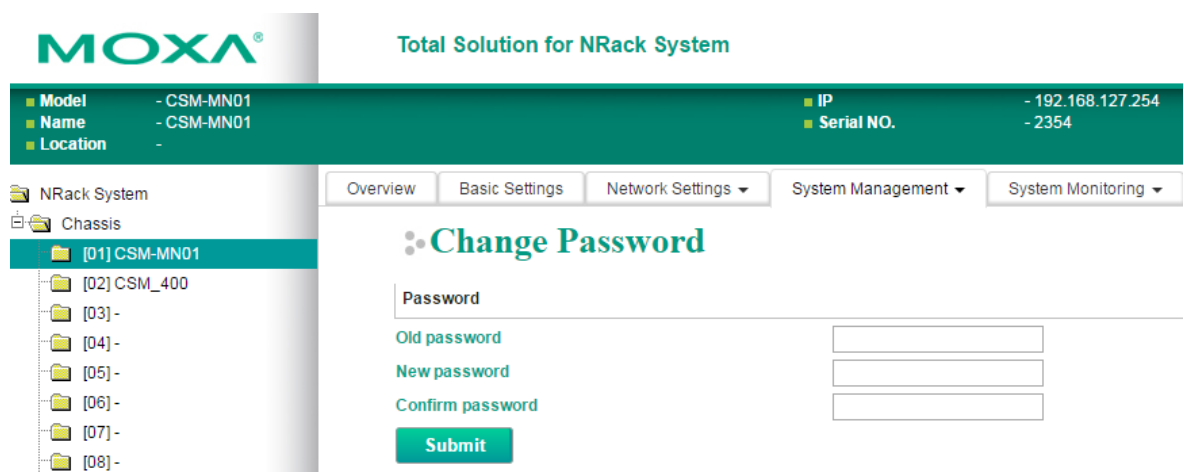
To export a configuration, go to **System Management, Maintenance, Configuration Export** and click **Download**. A standard download window will appear, and you will be able to download the configuration into a file name and location of your choice.

Load Factory Defaults



This function will reset all of TRC-2190's settings to the factory default values. All previous settings, including the console password, will be lost. If you wish to keep the TRC-2190 IP address, netmask, and other IP settings, make sure **Keep IP settings** is checked off before loading the factory defaults.

Change Password



For all changes to the TRC-2190's password-protection settings, you will first need to enter the old password. This 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 TRC-2190 is by using the reset button on the TRC-2190'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 TRC-2190. Your configuration can then be easily imported back into the TRC-2190 if you need to reset the TRC-2190 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.

Certificate

Ethernet SSL Certificate Import

The certificate/key imported here will be used for HTTPS/SSH/Secure OP modes and will only accept PEM format

Certificate/Key Delete

System Monitoring

Network Connections

Go to **Network Connections** under **System Status** to view network connection information.

Overview Basic Settings Network Settings System Management System Monitoring Module Management Module Monitoring Save/Restart Logout

Network Connections

Auto refresh

Protocol	Recv-Q	Send-Q	Local Address	Foreign Address	State
TCP	0	0	192.168.127.254:4900	**	LISTEN
TCP	0	0	*:4900	**	LISTEN
TCP	0	0	192.168.127.254:80	**	LISTEN
TCP	0	0	192.168.127.254:443	**	LISTEN
TCP	0	0	192.168.127.254:23	**	LISTEN
TCP	0	0	*:80	**	LISTEN
TCP	0	0	192.168.127.254:22	**	LISTEN
TCP	0	0	*:443	**	LISTEN
TCP	0	0	*:23	**	LISTEN
TCP	0	0	*:22	**	LISTEN
TCP	0	0	192.168.127.254:80	192.168.127.12:53138	ESTAB
TCP	0	0	192.168.127.254:80	192.168.127.12:53141	ESTAB
TCP	0	0	192.168.127.254:80	192.168.127.12:53142	ESTAB

Network Statistics

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

MOXA Total Solution for NRack System

Model - CSM-MN01 IP - 192.168.127.254
 Name - CSM-MN01 Serial NO. - 2354
 Location -

NRack System Overview Basic Settings Network Settings System Management System Monitoring

Network Statistics

Auto refresh

ETHERNET	Received	5136		Sent	4769
IP	Received	5074		Sent	4725
	RDiscard	0	SNoRoute 0	SDiscard	0
	ErrHeader	0	ErrProto 0	ErrAddr	0
ICMP	Received	8		Sent	4
	REchoReq	4		SEchoReq	0
	REchoRply	0		SEchoRply	4
UDP	Received	1538		Sent	29
	ErrHeader	0	ErrPorts 0		
TCP	Received	2626		Sent	4444
	ErrHeader	0	ErrPorts 230	ReSent	60
	CurrEstab	3	Opens 82		

Ethernet statistics

Received: Total number of input datagram packets received from the Ethernet.

IP statistics

Received: Received IP datagram packets.

RDiscard: Received but discarded PPP datagram packets.

ErrHeader: Received but discarded IP datagram packets due to errors in IP headers.

ICMP statistics

Received: Received packets of ICMP messages.
 REchoReq: Received packets from remote Ping request.
 REchoRply: Responding packets to remote Ping request.

UDP statistics

Received: Received UDP datagram packets.
 ErrHeader: Received UDP datagram packet with an incorrect header.

TCP statistics

Received: Total received packets of segments, including error packets.
 ErrHeader: Error packets (e.g., bad TCP checksums).
 CurrEstab: The counter of TCP connections for which the current state is either ESTABLISHED or CLOSE-WAIT.

System Log

This option displays the system log. You may click **Select all** to select the entire log if you wish to copy and paste the contents into a text file.

The screenshot shows the MOXA web interface for an NRack System. The top navigation bar includes tabs for Overview, Basic Settings, Network Settings, System Management, System Monitoring, and Module Management. The left sidebar shows a tree view of the system components, including Chassis and various modules like [01] CSM-MN01, [02] CSM_400, and modules [03] through [19]. The main content area is titled 'System Log' and contains a large empty box for the log entries. Below the log box are three buttons: 'Select all', 'Clear log', and 'Refresh'. The top status bar displays system information such as Model (CSM-MN01), Name (CSM-MN01), Location, IP (192.168.127.254), Serial NO. (2354), MAC Address, and Firmware.

Save Configuration

Go to **Save Configuration** and then click **Save** to save your submitted configuration changes to the TRC-2190's flash memory. The configuration changes will then be effective when the TRC-2190 is restarted. If you do not save your changes before restarting, they will be discarded.

The screenshot shows the MOXA web interface for the TRC-2190. The top navigation bar includes 'Overview', 'Basic Settings', 'Network Settings', 'System Management', 'System Monitoring', and 'Module Management'. The main content area is titled 'Save Configuration' and contains a warning message: '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-MN01's memory. To restart the server, go to **Restart System** in the navigation panel.' A green 'Submit' button is located at the bottom of the main content area.

Restart

Restart System

Go to **Restart System** under **Restart** and then click **Restart** to restart the TRC-2190. Ensure that you save all your configuration changes before you restart the system or else these changes will be lost.

The screenshot shows the MOXA web interface for the TRC-2190. The top navigation bar includes 'Overview', 'Basic Settings', 'Network Settings', 'System Management', and 'System Monitoring'. The main content area is titled 'Restart System' and contains a warning message: '!!! Warning !!!' and 'Clicking Restart will reboot the CSM-MN01 server.' A green 'Restart' button is located at the bottom of the main content area.

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 TRC-2190 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 TRC-2190's accessible over the network), the TRC-2190 User's Manual, and the TRC-2190 firmware upgrade utility.

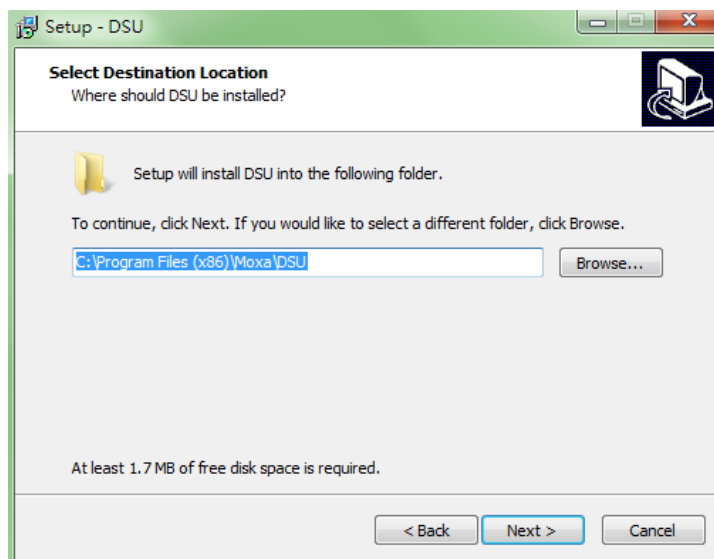
Device Search Utility

Installing Device Search Utility

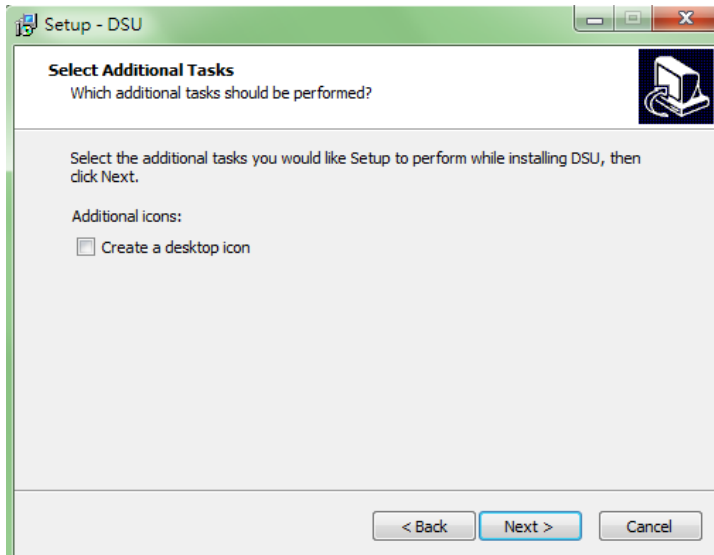
1. Click the **INSTALL UTILITY** button in the Device Installation CD auto-run window to install Device Search Utility. Once the program starts running, click **Yes** to proceed.
2. When the Welcome screen opens, click **Next** to proceed with the installation.



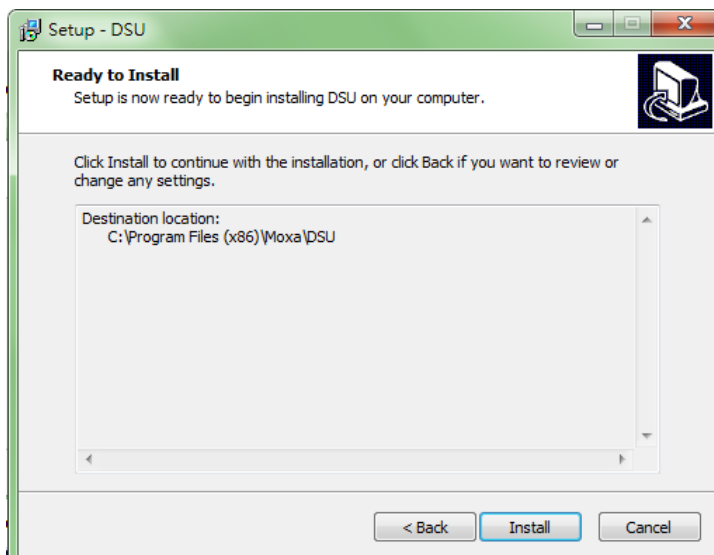
3. Click **Next** to install program files to the default directory, or click **Browse** to select an alternate location.



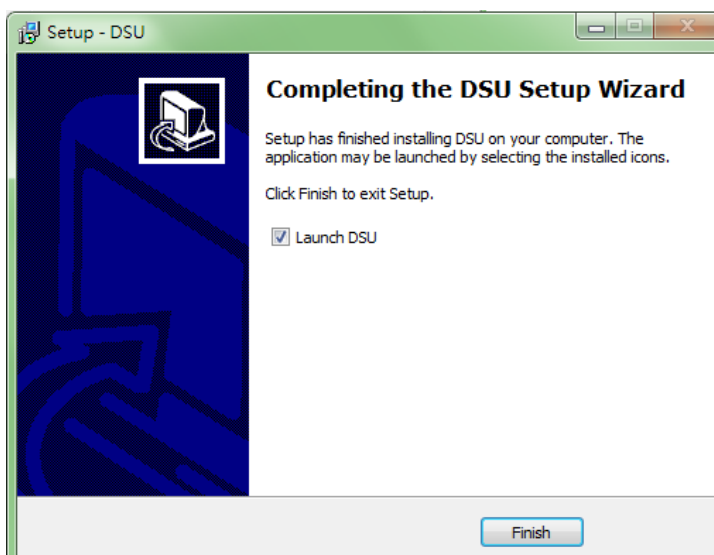
- Click **Next** to install the program's shortcuts in the appropriate Start Menu folder.



- 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 the DSU.

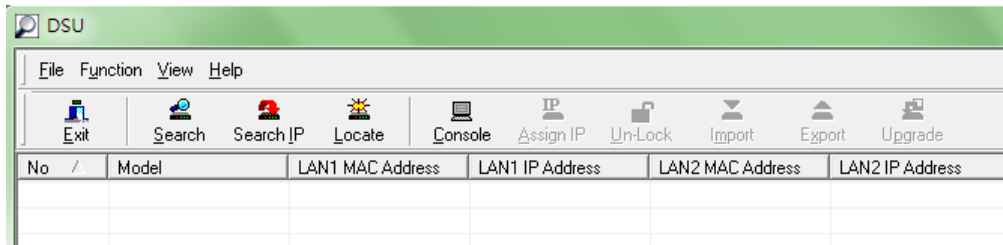


Configuring Device Search Utility

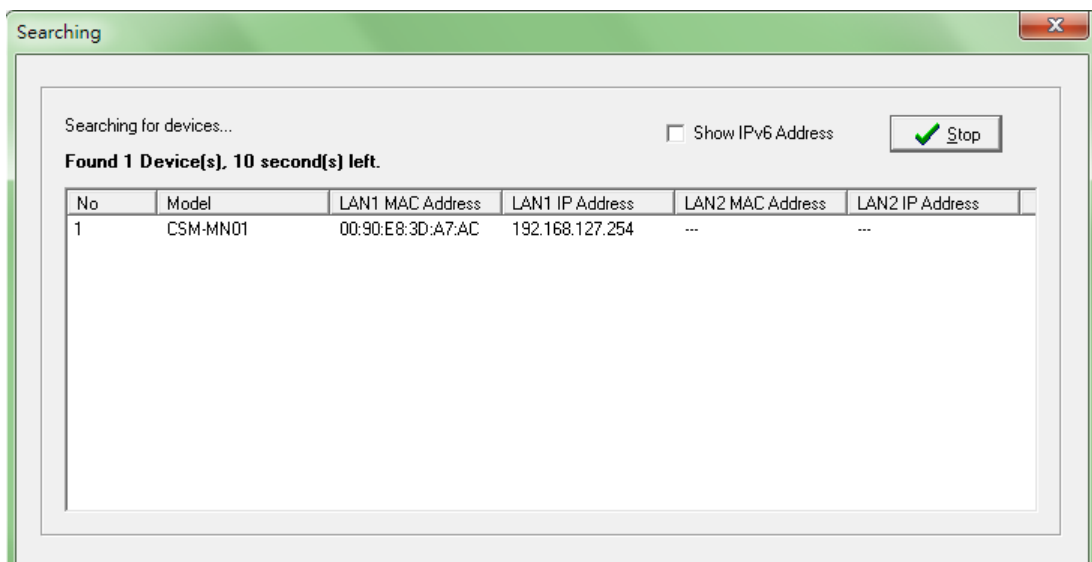
The Broadcast Search function is used to locate all TRC-2190 servers that are connected to the same LAN as your computer. After locating a TRC-2190, you will be able to change its IP address.

Since the Broadcast Search function searches by MAC address and not IP address, all TRC-2190 servers connected to the LAN will be located, regardless of whether or not they are part of the same subnet as the host.

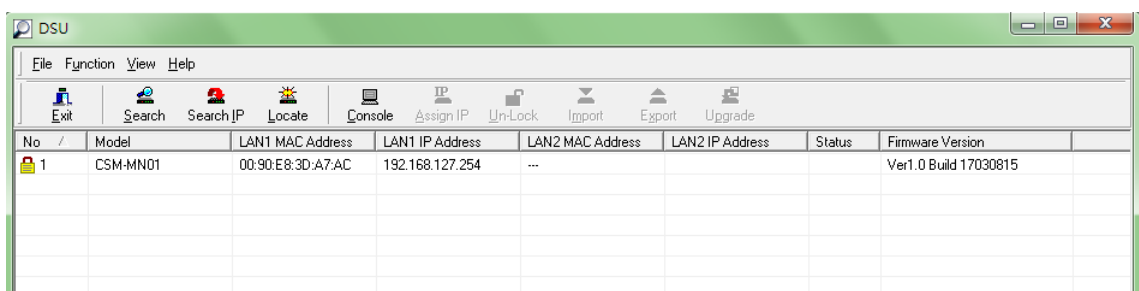
1. Open the DSU and then click the Search icon.



The Searching window indicates the progress of the search.



2. When the search is complete, all TRC-2190 servers that were located will be displayed in the DSU window.



To modify the configuration of the highlighted TRC-2190, 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 5, Configuration with the Web Console**, for information on how to use the web console.

TRC-2190 Port Numbers

In this chapter, which is included for your reference, we provide a list of TRC-2190 port numbers that may cause network problems if you set the TRC-2190 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
HTTPS	Enable/Disable	TCP	443	Secure web console
SSH	Enable/Disable	TCP	22	SSH console
Telnet	Enable/Disable	TCP	23	Telnet Console
DHCP	Always Enable	UDP	68	DHCP client
SNTP	Always Enable	UDP	Random port	SNTP client
DNS	Always Enable	UDP	Random port	DNS client
Remote System Log	Enable/Disable	UDP	Random port	Log Server

SNMP Agents with MIB II

The TRC-2190 has built-in SNMP (Simple Network Management Protocol) agent software that supports SNMP Trap, RFC1317 and RFC 1213 MIB-II.

RFC1213 MIB-II Supported SNMP Variables

The following table lists the standard MIB-II groups as well as the variable implementation for the TRC-2190.

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
			snmpSilentDrops
			snmpProxyDrops

Moxa-TRC2190-MIB

Overview	Basic settings	Network settings
modelName	converterName	ipv4Configuration
serialNumber	converterLocation	ipv4Address
firmwareVersion	timeZone	ipv4NetMask
viewIpv4Address	localTime	ipv4DefaultGateway
viewIpv6LinkLocalAddress	timeserver	ipv4DnsServer1IpAddr
viewIpv6GlobalAddress		ipv4DnsServer2IpAddr
macAddress		ipv6Configuration

Overview	Basic settings	Network settings
viewPort1Speed		ipv6Address
viewPort2Speed		ipv6Prefix
upTime		ipv6DefaultGateway
		ipv6DnsServer1IpAddr
		ipv6DnsServer2IpAddr
		connectionPriority
		port1Speed
		port2Speed
		gratuitousArp
		gratuitousArpSendPeriod

SNMP Agent Settings	Authentication Server
snmpEnable	radiusServerIp
snmpContactName	radiusKey
snmpLocation	udpPortAuthenticationServer
	radiusAccounting
	tacacsPlusServerIp
	tacacsPlusSecret
	tacacsPlusAccounting

System Log Settings	Remote Log Server
sysLocalLog	syslogServerIp
networkLocalLog	syslogFacility
configLocalLog	syslogSeverity
moduleLocalLog	
sysRemoteLog	
networkRemoteLog	
configRemoteLog	
moduleRemoteLog	

Event Settings	E-mail Alert
mailWarningColdStart	emailWarningMailServer
mailWarningWarmStart	emailRequiresAuthentication
mailWarningPower1	emailWarningUserName
mailWarningPower2	emailWarningFromEmail
mailWarningAuthFailure	emailWarningFirstEmailAddr
mailWarningIpChanged	emailWarningSecondEmailAddr
mailWarningPasswordChanged	emailWarningThirdEmailAddr
mailWarningModuleChanged	emailWarningFourthEmailAddr
mailWarningModuleColdStart	
mailWarningModuleWarmStart	
mailWarningModuleFiberLink	
mailWarningModuleCopperLink	
trapServerColdStart	
trapServerWarmStart	
trapServerPower1	
trapServerPower2	
trapServerAuthFailure	
trapServerIpChanged	

Event Settings	E-mail Alert
trapServerPasswordChanged	
trapServerModuleChanged	
trapServerModuleColdStart	
trapServerModuleWarmStart	
trapServerModuleFiberLink	
trapServerModuleCopperLink	
syslogSeverityColdStart	
syslogSeverityWarmStart	
syslogSeverityPower1	
syslogSeverityPower2	
syslogSeverityAuthFailure	
syslogSeverityIpChanged	
syslogSeverityPasswordChanged	
syslogSeverityModuleChanged	
syslogSeverityModuleColdStart	
syslogSeverityModuleWarmStart	
syslogSeverityModuleFiberLink	
syslogSeverityModuleCopperLink	

SNMP Trap	Console Settings
snmpTrapReceiverIp	httpConsole
trapVersion	httpsConsole
	telnetConsole
	sshConsole
	consoleAuthenticationType
	tryNextTypeOnAuthDenied
	webHomePage

Load Factory Default	Modules Monitoring
loadFactoryDefaultSetting	modSetSlotIndex
	modModelName
	modConverterName
	modCopperSpeed
	modFiberSpeed
	modLFPSetting
	modForwardingMode
	modMonSlotIndex
	modDeviceModelName
	modCopperStatus
	modCopperSpeedStatus
	modFiberStatus
	modFiberSpeedStatus

Save Configuration	Restart
saveConfig	restartSystem