

SUPPORT

Models supported include ET-2242, ET-2242U, ET-2251, ET-2254, ET-2254P, ET-2255, ET-2255U, ET-2260, ET-2261, ET-2261-16 and ET-2268.

WARRANTY

All products manufactured by ICP DAS are warranted against defective materials for a period of one year from the date of delivery to the original purchaser.

WARNING

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Email: service@icpdas.com

ET-2200 Series

Firmware Update via Ethernet

Version: 1.2/ Updated: June 2020

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Ch. 3. Troubleshooting

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ICP DAS CO., LTD.

Website: <http://www.icpdas.com>

1. Setting up the ET-2200 Series

Before updating the firmware, please ensure that the network settings for both your host computer and any ET-2200 series modules are correctly configured, or the update procedures via the Ethernet network may not function correctly.

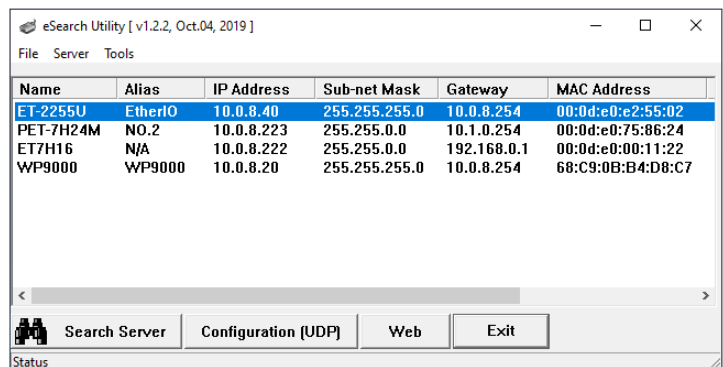
Step 1: Connect the ET-2200 series to the same hub or the same sub-network as your Host PC, and attach a power supply to the ET-2200 series. Do not connect the ET-2200 series to a router or directly to the Internet as this may cause the update process to fail.

Please refer to “**Chapter 3-Connecting the Power and Host PC**” in the ET-2200 Quick Start Guide for more detailed information.



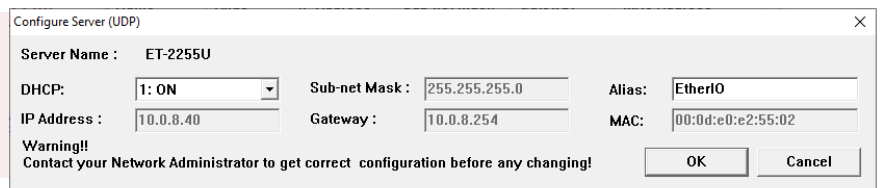
[Download the Quick Start Guide.](#)

Step 2: Install the eSearch Utility on your Host PC, and then run the Utility to search for any ET-2200 series modules connected to the network.



[Download the eSearch Utility.](#)

Step 3: Configure the correct network settings for the required ET-2200 series module.



Please refer to “**Chapter 4-Configuring Ethernet Settings**” in the ET-2200 Quick Start Guide. If the IP address settings do not work correctly, please refer to **note1 (Page 18)**.



[Download the Quick Start Guide.](#)

2. Firmware Update Procedure

The firmware update can fail when the computer has multiple network interfaces (e.g., LAN and Wi-Fi). Therefore, enable only one network interface for updating the firmware, and temporarily turn off other network interfaces, firewalls, and anti-virus software first.

2.1 ET-2200 Firmware Update

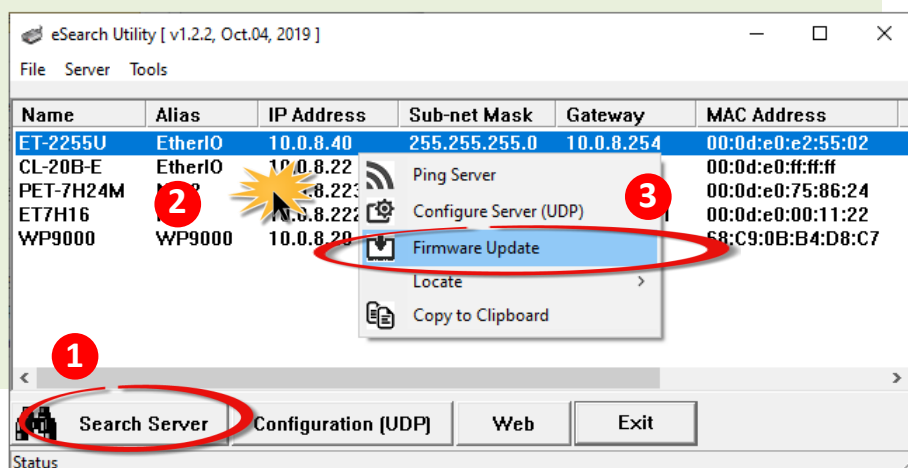
Two methods can be used to update the firmware: **“Local Firmware Update” (traditional)** and **“Remote Firmware Update” (TeamViewer)**. The Local Firmware Update method requires the user to manually adjust the position of the Init/Run Switch and reboot the module in order to initialize the firmware update. Refer to [Section 2.1.1 “Local Firmware Update”](#) for more details. The Remote Firmware Update method allows the user to initialize the module via a web interface without needing to adjust the hardware switch. Initialization via the web interface is useful when the module is installed at a remote site and can be accessed via the TeamViewer application installed on a remote PC. Refer to [Section 2.1.2 “Remote Firmware Update”](#) for more details.

2.1.1 Local Firmware Update

Step 1: In the eSearch Utility, click the **“Search Servers”** button to search for any ET-2200 modules connected to the network. (The network settings of the ET-2200 module as described in Step 3 on Page 1)

Step 2: Right click on the name of the ET-2200 module to be updated.

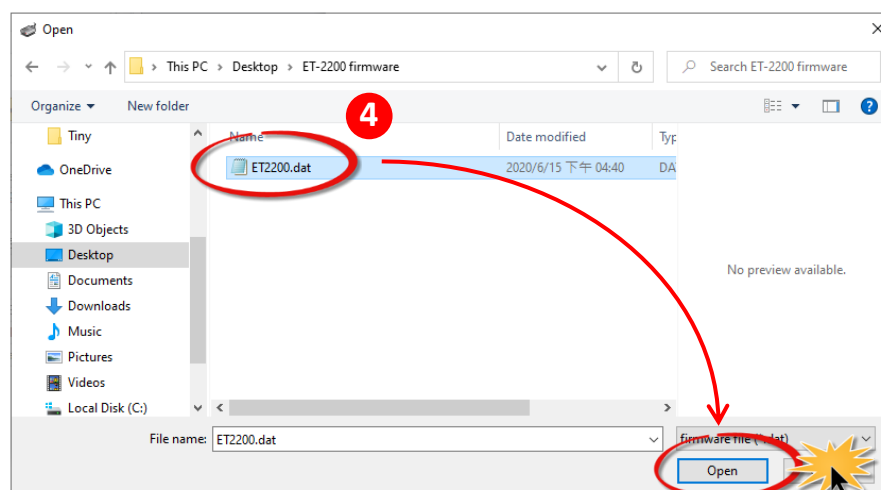
Step 3: Select the **“Firmware Update”** item from the popup menu and the **“Open”** dialog box will be displayed.



Step 4: In the **“Open”** dialog box, select the firmware file (**ET2200.dat**) that will be used to update the module and then click the **“Open”** button.

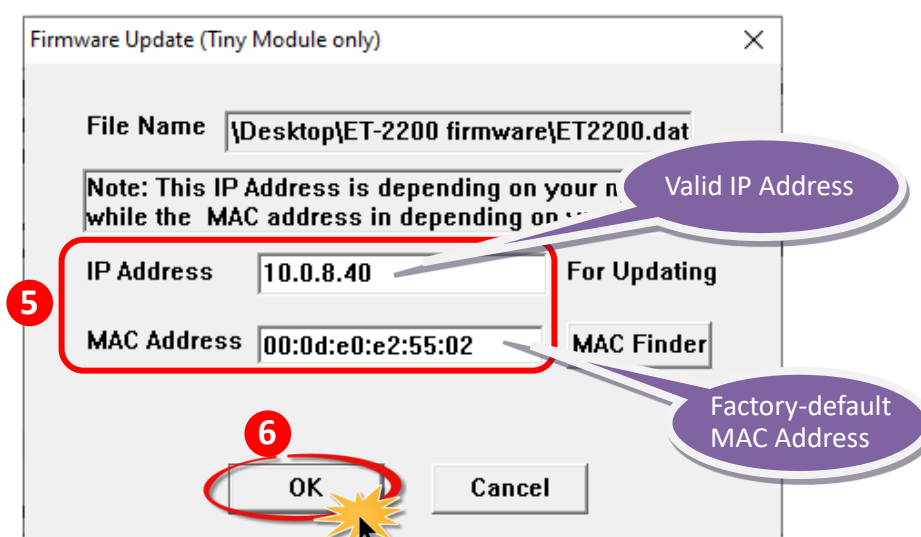


[Download the Firmware File.](#)

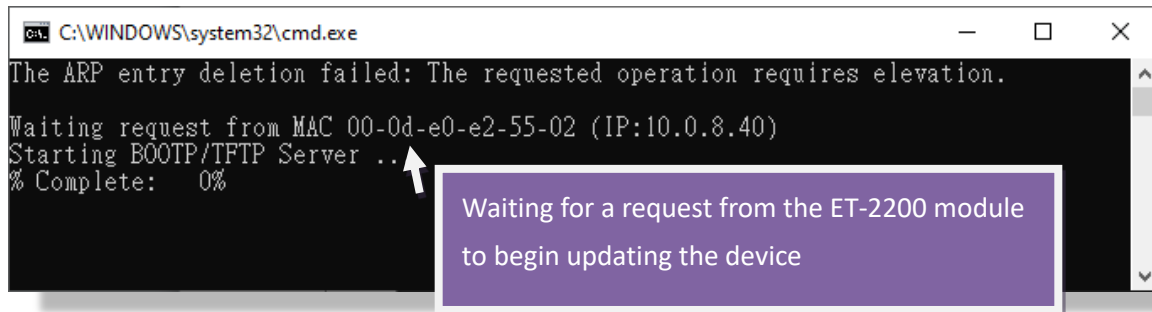


Step 5: Assign a **valid IP Address** (can be different with the current IP) and the **factory-default MAC Address** for the ET-2200 module. If this IP address is invalid (e.g. IP Address: 0.0.0.0) or a user-defined MAC address is assigned. Refer to **note 2 (Page 18)** and **note 3 (Page 19)** for more details.

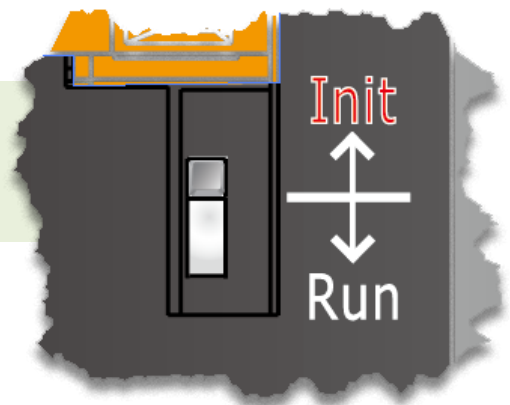
Step 6: Click the **“OK”** button.



Step 7: You are now ready to update the firmware. A Command Prompt windows will be displayed the progress of the update.



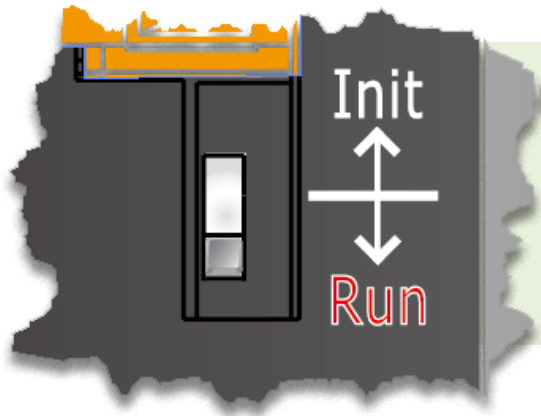
Step 8: Set the “Init Switch” on the ET-2200 module to the “Init” position.



Step 9: Power-on reset the ET-2200 module in “Init Mode” to initiate the update.

Step 10: Confirm that the two MAC addresses (factory-default) listed in the Command Prompt window, “Waiting request from MAC x.x.x.x” and “BOOTPREQ from MAC: x.x.x.x”, are the same, as indicated in the image below. If these addresses do not match, the update cannot proceed. Refer to [note4 \(Page 19\)](#) below for more details.





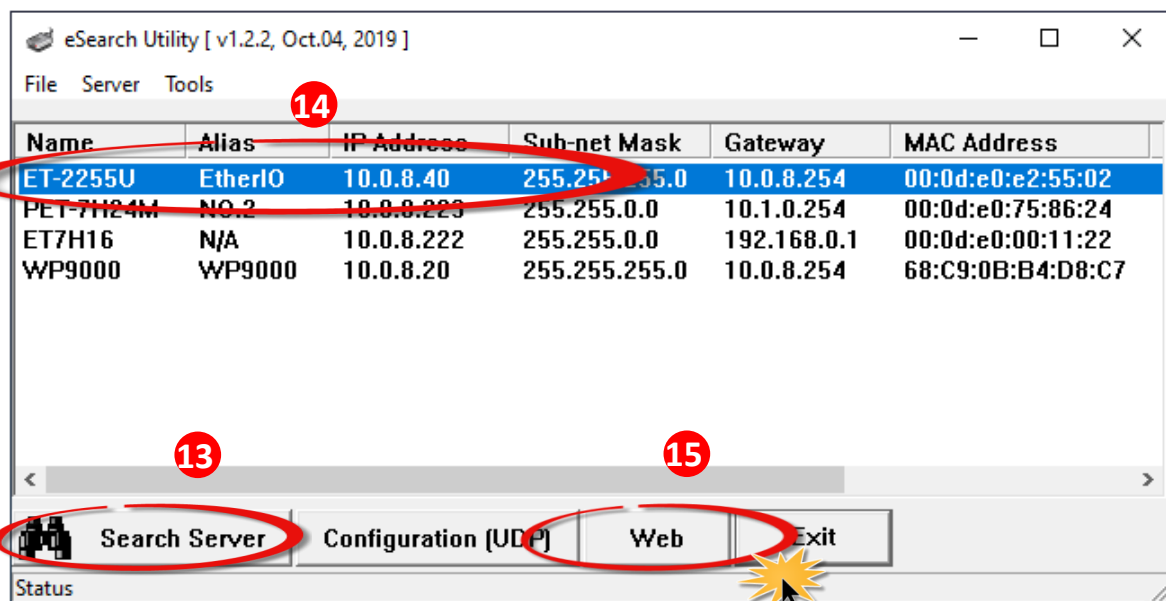
Step 11: Once the update is complete (i.e., when the progress indicator reaches 100%), set the “Init Switch” to the “Run” position.

Step 12: Power-on reset the ET-2200 module to operate the module in “Run Mode”.

Step 13: In the eSearch Utility, search for the ET-2200 module again to verify that it is functioning correctly. Note that the network settings for the module may need to be reconfigured after updating the firmware. Refer to Step 3 in Chapter 1 above for more details.

Step 14: Click the name of the ET-2200 module to highlight it.

Step 15: Click the “Web” button and the default web browser will be opened.



Step 16: Log in to the web configuration pages for the ET-2200 (use the default password "Admin").

Step 17: Verify that the firmware version and date details are correct.

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The system is logged out.
To enter the web configuration, please type password in the following field.

Login password: Submit

Google: Menu / Settings / Show advanced settings / Privacy / Content settings / Javascript / Allow all sites to run JavaScript (recommended).
Chrome: Menu / Settings / Show advanced settings / Privacy / Content settings / Javascript / Allow all sites to run JavaScript (recommended).
Microsoft IE: Menu / Tools / Internet Options / Security / Internet / Custom level... / Scripting / Enable.
Firefox: about:config / I'll be careful, I promise! / Preference Name / javascript.enabled / True.

When using IE, please disable its cache as follows.
Menu items: Tools / Internet Options... / General / Temporary Internet Files / Settings... / Every visit to the page

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Ethernet I/O Module
Home | Network | I/O Settings | Sync | PWM | Pair | Filter | Monitor | Password | Logout
MQTT (Topics: DO | DI)

Model Name	ET-2255U	Alias Name	EtherIO
Firmware Version	v2.0.2 [Apr. 27 2020]	MAC Address	00-0D-E0-E2-55-02
IP Address	10.0.8.40	Initial Switch	OFF
TCP Port Timeout (Socket Watchdog, Seconds)	180	System Timeout (Network Watchdog, Seconds)	0

Digital I/O (Modbus Address: DO=00000 to 00015, DI=10000 to 10015)

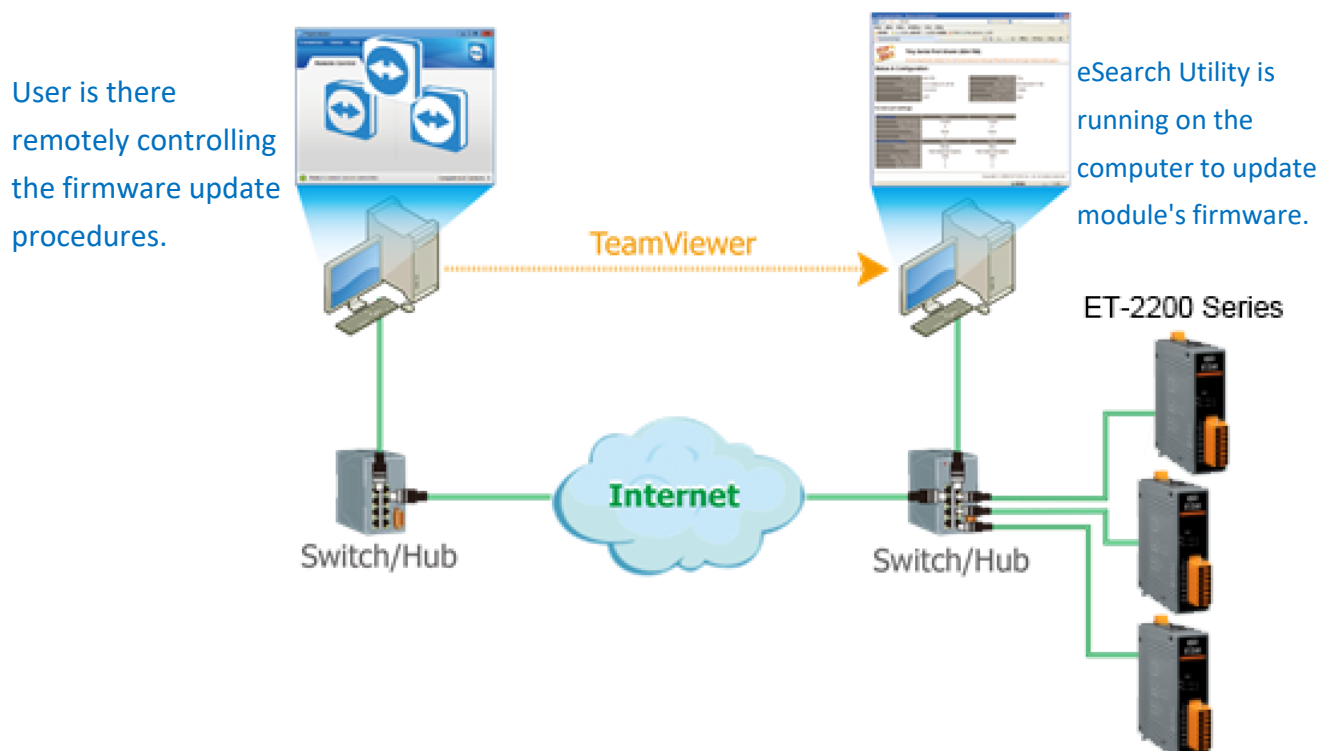
DI Channel	Value (10000)	Counter (30016) / Frequency (30064)	High Latched (10032)	Low Latched (10064)
DI0	<input type="checkbox"/>	0	-	-
DI1	<input type="checkbox"/>	0	-	-

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Complete

2.1.2 Remote Firmware Update

In order to perform a Remote Firmware Update, use an application that allows an external system to be remotely controlled, such as TeamViewer, to create a connection between the local and the remote system. **Note that all firmware update procedures need to be carried out on the remote system.**

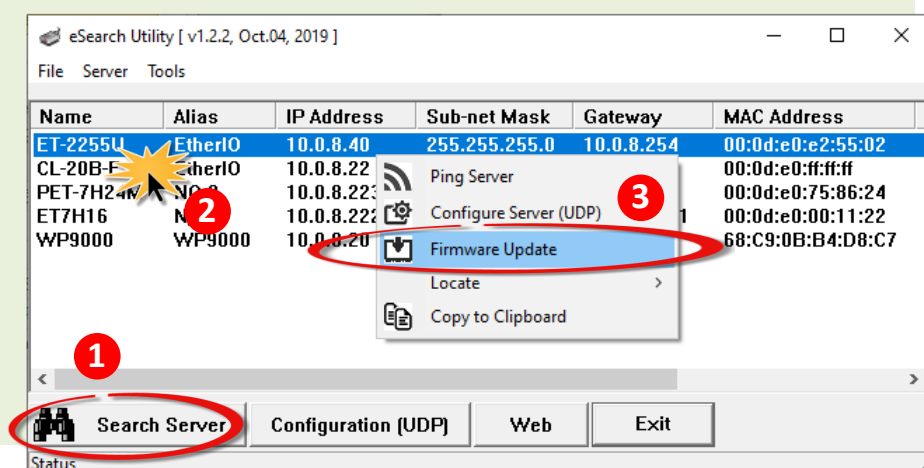


Follow the procedure described below to update firmware of the ET-2200 on the remote PC:

Step 1: In the eSearch Utility, click the **"Search Servers"** button to search for any ET-2200 modules connected to the network . (The network settings the ET-2200 module are described in Step 3 of Chapter1)

Step 2: Right click the name of the ET-2200 module to be updated.

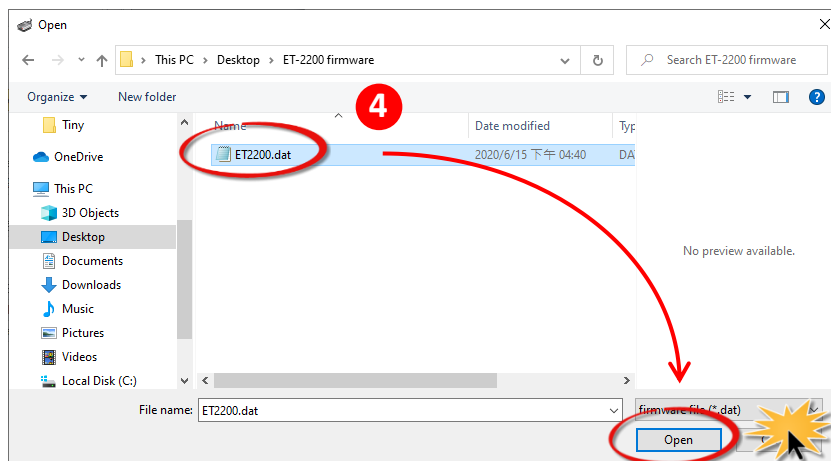
Step 3: Select the **"Firmware Update"** item from the popup menu and the **"Open"** dialog box will be displayed.



Step 4: In the “Open” dialog box, select the firmware file (**ET2200.dat**) that will be used to update the module and then click the “Open” button.

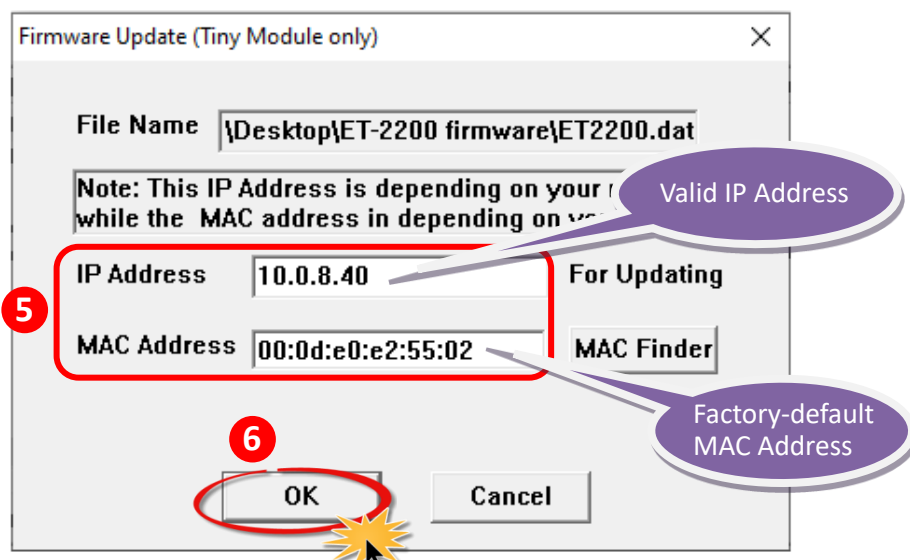


[Download the Firmware File.](#)

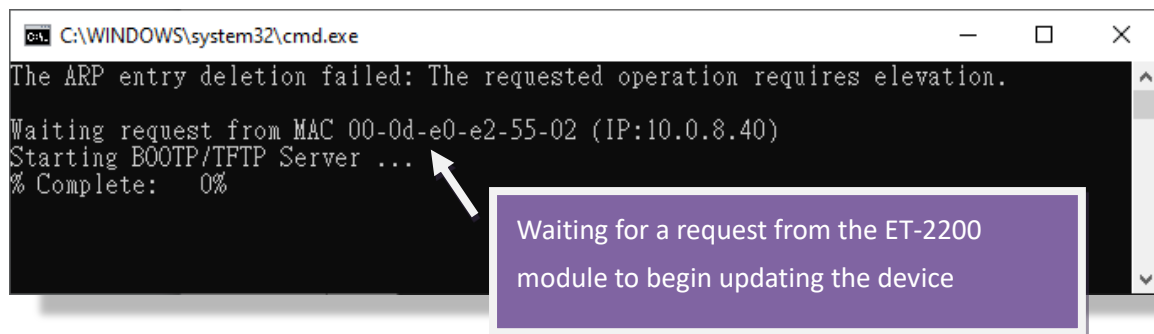


Step 5: Assign a **valid IP Address** (can be different with the current IP) and the **factory-default MAC Address** for the ET-2200 module. If this IP address is invalid (e.g. IP Address: 0.0.0.0) or a user-defined MAC address is assigned. Refer to **note 2 (Page 18)** and **note 3 (Page 19)** for more details.

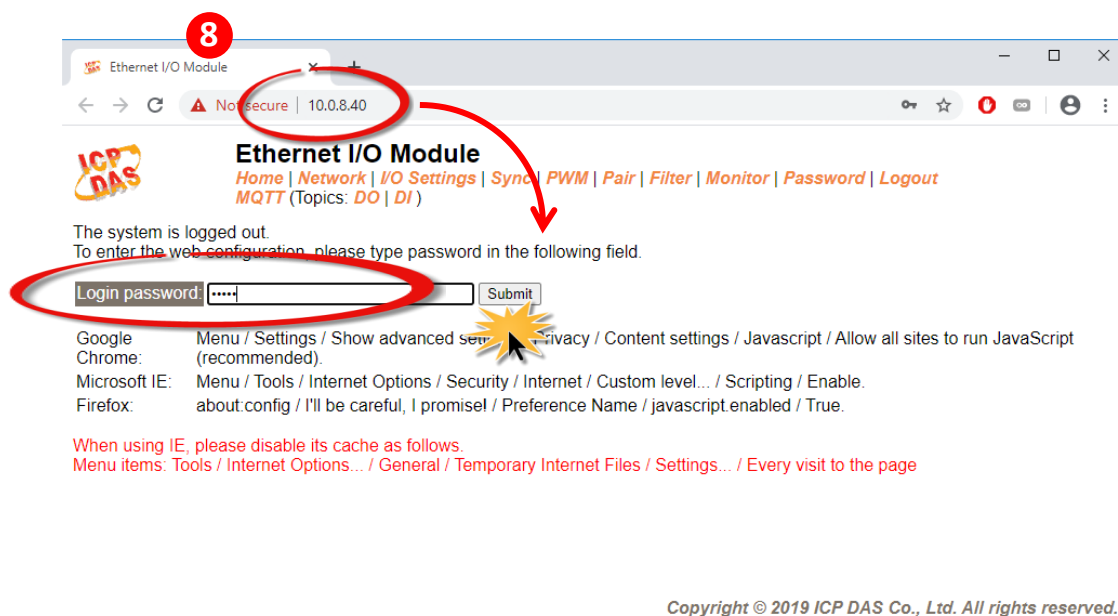
Step 6: Click the “OK” button.



Step 7: You are now ready to update the firmware. A Command Prompt windows will be displayed the progress of the update.

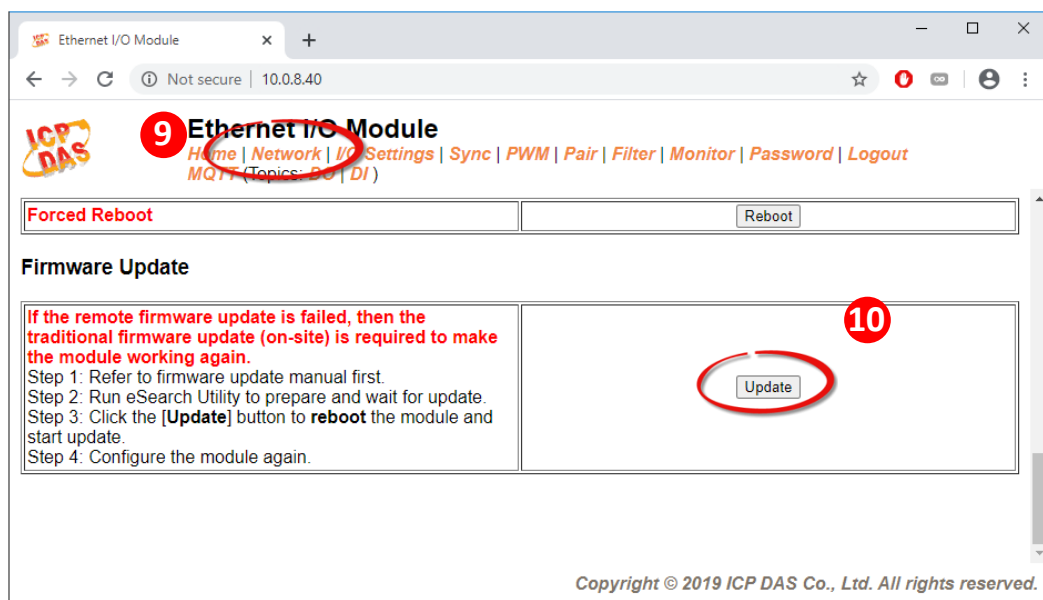


Step 8: Open a web browser such as Internet Explorer or Firefox and enter the URL for the ET-2200 in the address bar of the browser and log in to the web configuration pages (use the default password "Admin").



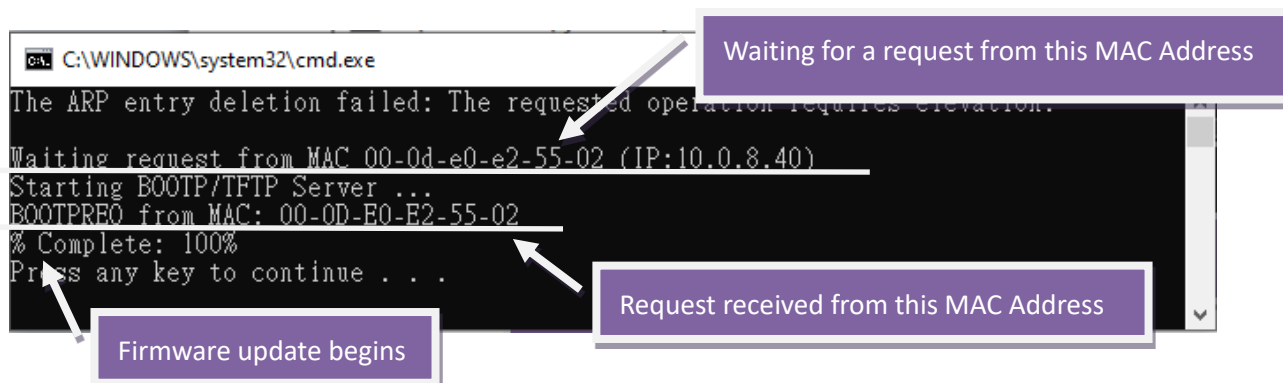
Step 9: Click the **“Network”** tab to display the Network Settings page.

Step 10: Click the **“Update”** button in the **“Remote Firmware Update”** section to start the update.



Step 11: Confirm that the two MAC addresses (factory-default) listed in the Command Prompt window, **“Waiting request from MAC x.x.x.x”** and **“BOOTPREQ from MAC: x.x.x.x”**, are the same, as indicated in the image below. If these addresses do not match, the update cannot proceed. Refer to **note4 (Page 19)** below for more details.

Step 12: Once the update is complete (i.e., when the progress indicator reaches 100%), close the Command Prompt window.

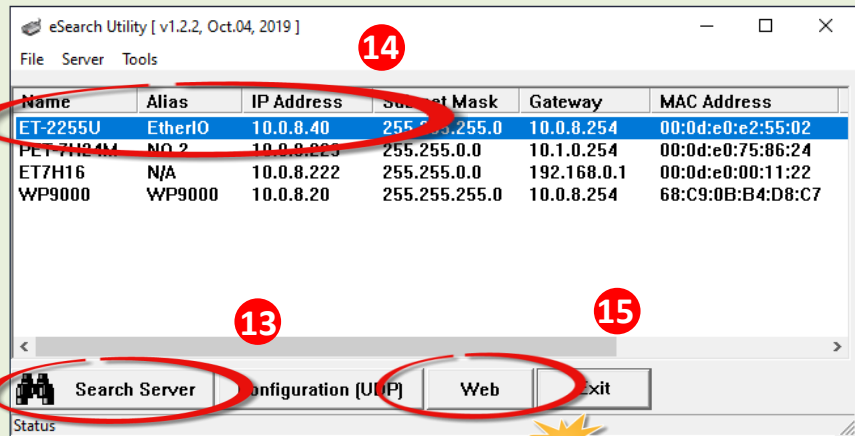


Note: If the Remote Firmware Update method fails, please refer to [Section 3.1 Firmware update in BOOT mode \(local operation\)](#) to restore the module.

Step 13: In the eSearch Utility, search for the ET-2200 module again to verify that it is functioning correctly. *Note that the network settings for the module may need to be reconfigured after updating the firmware. Refer to Step 3 in Chapter 1 above for more details.*

Step 14: Click the name of the ET-2200 module to highlight it.

Step 15: Click the "Web" button and the default web browser will be opened.



Step 16: Log in to the web configuration pages for the ET-2200 (use the default password "Admin").

Step 17: Verify that the version and date details for the firmware are correct.



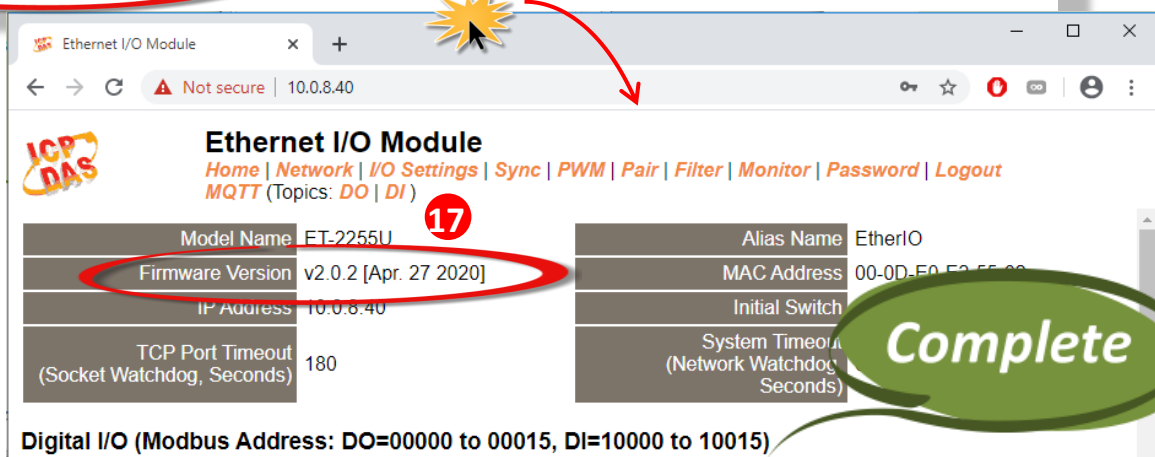
Ethernet I/O Module

[Home](#) | [Network](#) | [I/O Settings](#) | [Sync](#) | [PWM](#) | [Pair](#) | [Filter](#) | [Monitor](#) | [Password](#) | [Logout](#)
MQTT (Topics: [DO](#) | [DI](#))

The system is logged out.

To enter web configuration, please type password in the following field.

Login password: Submit



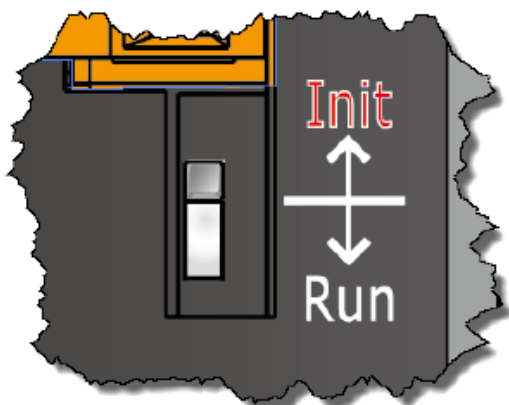
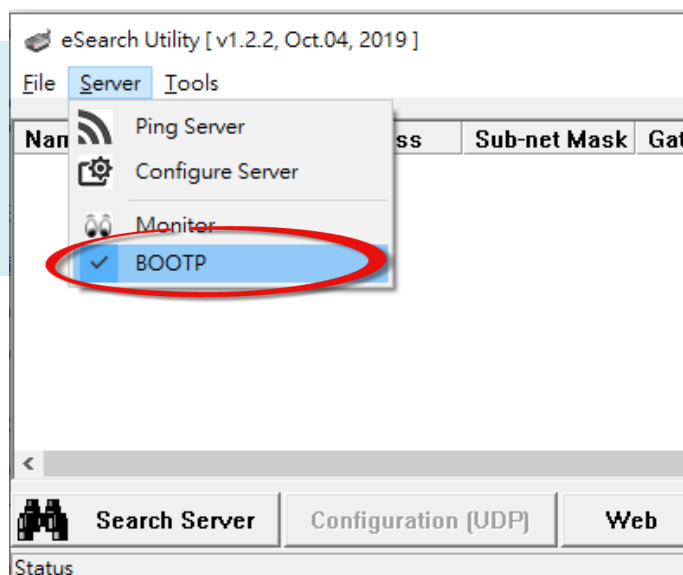
Digital I/O (Modbus Address: DO=00000 to 00015, DI=10000 to 10015)

3. Troubleshooting

3.1 Firmware update in BOOTP mode

If the module is not functioning correctly (e.g. there is no response to the search request, or if the system LED is always displayed as either off or on), please download a new image of the firmware from the ICPDAS web site and then update the firmware for the module using the following procedure.

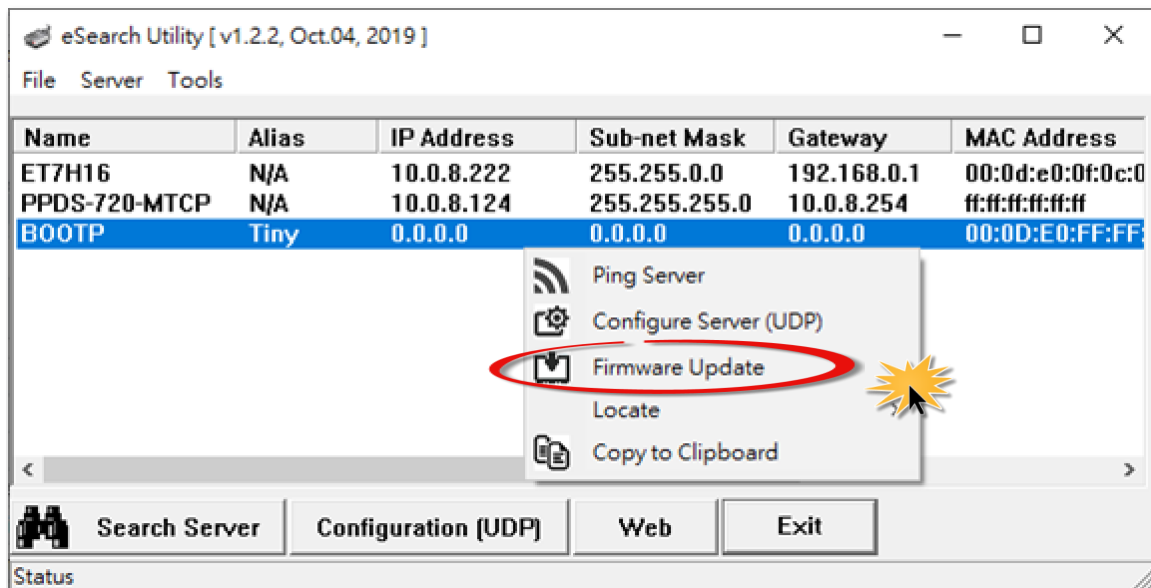
Step 1: In the eSearch Utility, select the “BOOTP” item from the “Server” menu. A check mark should be displayed next to the item after it has been selected.



Step 2: Set the “Init Switch” to the “Init Mode” position.

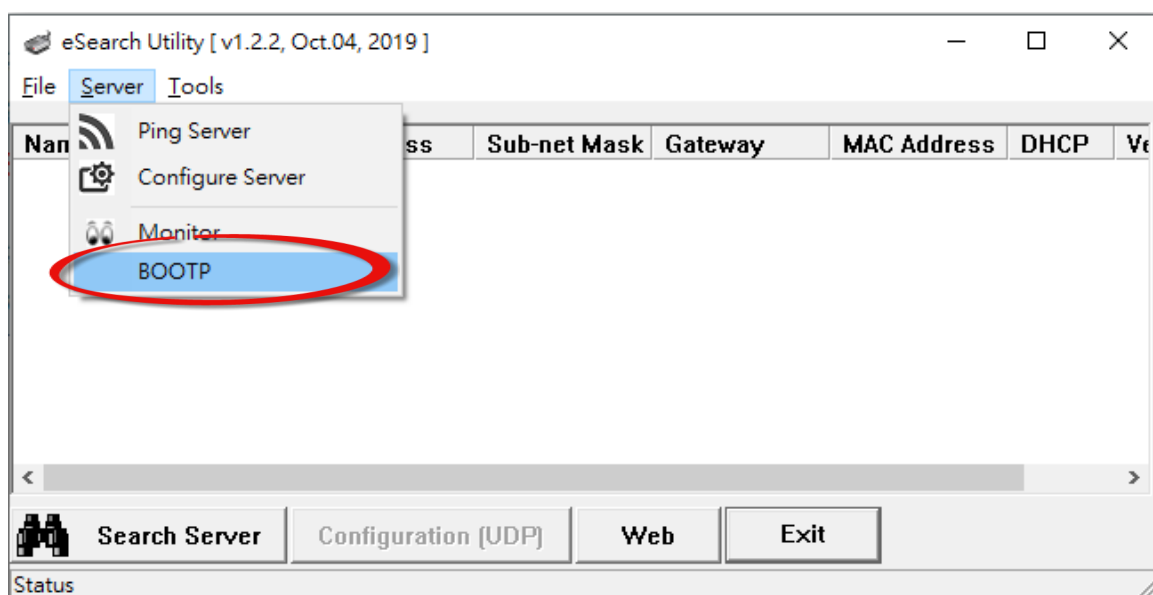
Step 3: Power-on and reboot the ET-2200 series module and then click the “Search Servers” button to search for the ET-2200 series at the same time. Note, the module sends BOOTP messages about 5 seconds when booting in Init Mode. If this step is not successful, reboot the module and execute the search again.

Step 4: Right click on the name “BOOTP” and then select the “Firmware Update” item from the popup menu.



Step 5: Refer to Steps 4 to 17 in “Chapter 2-Firmware Update Procedure” to complete the update process. Note, the module will response with no IP address in the BOOTP mode. User has to assign a valid IP manually in step 5 of page 3.

Step 6: After updating the firmware, disable BOOTP mode from the eSearch utility. By selecting “BOOTP” item from the “Server” menu.



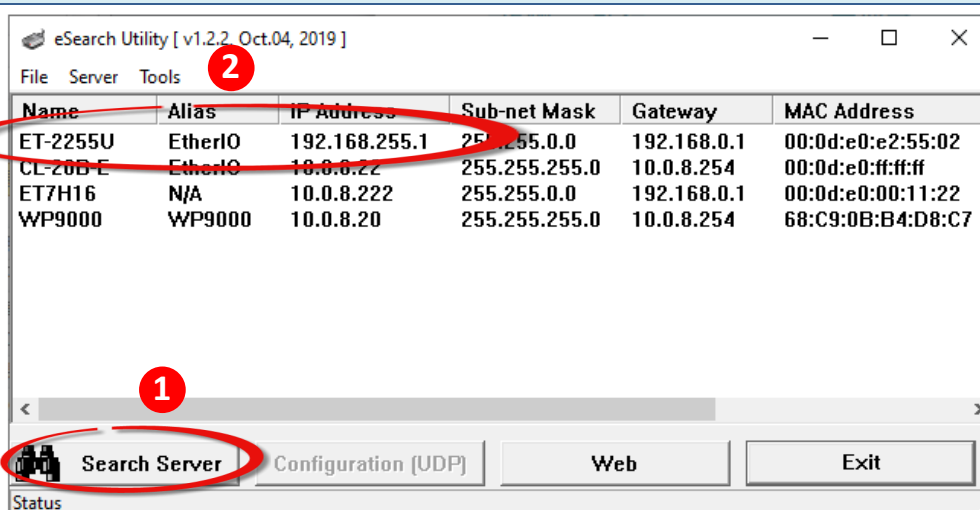
3.2 How to update Firmware when the Different Network Segment for IP Address of the ET-2200 and Host PC.

For example, the first time to get the ET-2200 series module, the factory default IP address is 192.168.255.1, but the host PC IP address is 10.0.8.31, refer to the following two methods to update firmware.

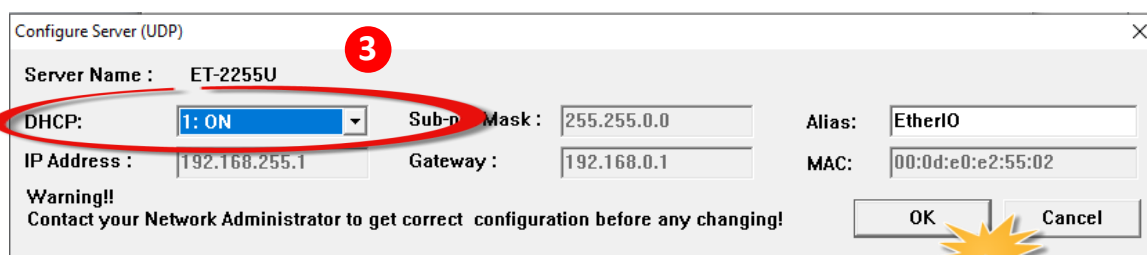
Method 1: Using **“Dynamic Host Configuration Protocol (DHCP)”** to automatically assigns an IP address to ET-2200 series module. Follow the procedure described below:

Step 1: Run the eSearch Utility to search for any ET-2200 series modules to the network

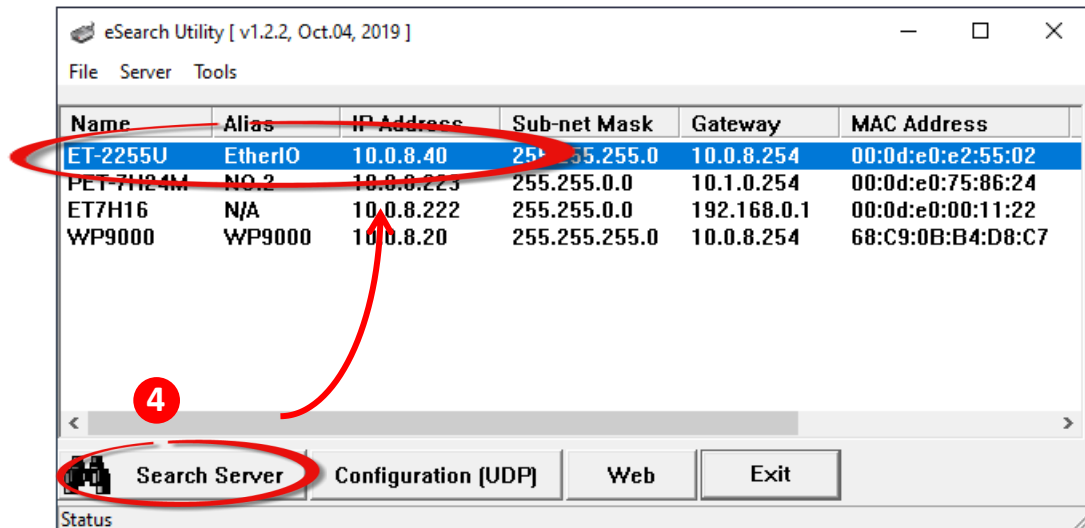
Step 2: Double click the name of ET-2200 series to open the **“Configure Server (UDP)”** dialog box.



Step 3: Select the **“1: ON”** option from the **“DHCP:”** drop-down menu and click the **“OK”** button.



Step 4: Wait 2 seconds and then click the **“Search Servers”** button again to ensure the ET-2200 series is working well with new configuration.

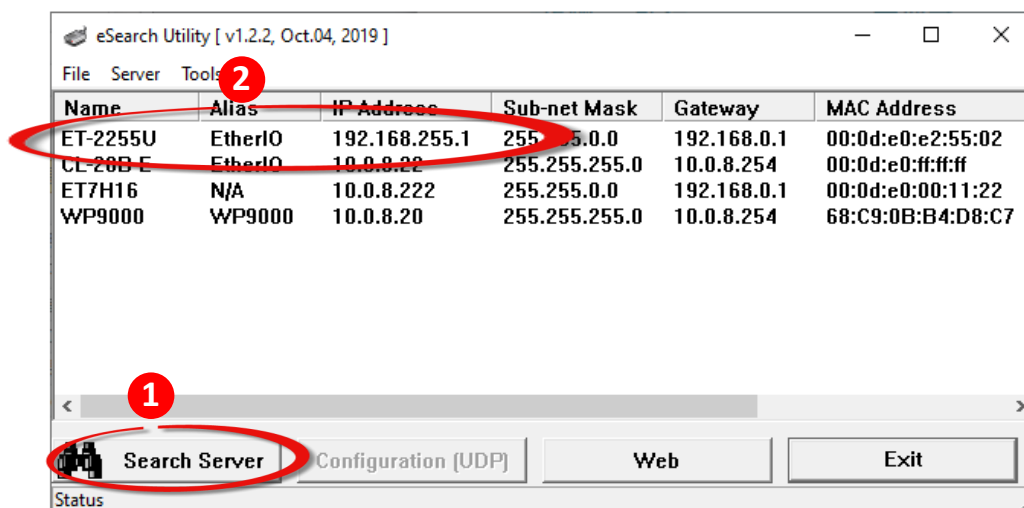


Step 5: Refer to **“Chapter 2-Firmware Update Procedure”** for details of how to complete the update process.

Method 2: Using **“Manual configuration”** to assigns an IP address to ET-2200 series module. Follow the procedure described below:

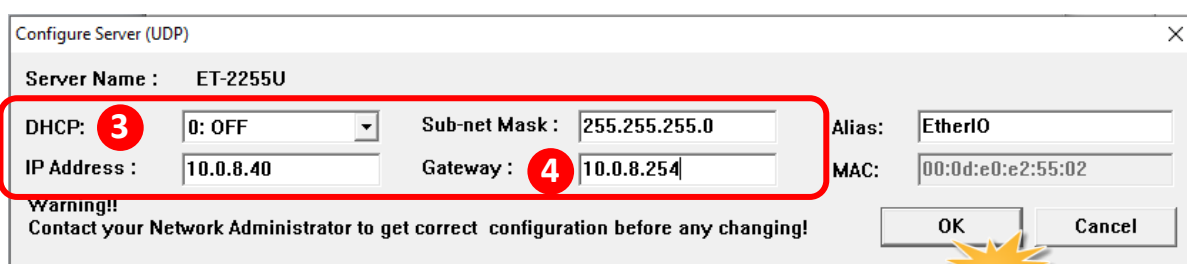
Step 1: Run the eSearch Utility to search for any ET-2200 series modules to the network

Step 2: Double click the name of ET-2200 series to open the **“Configure Server (UDP)”** dialog box.

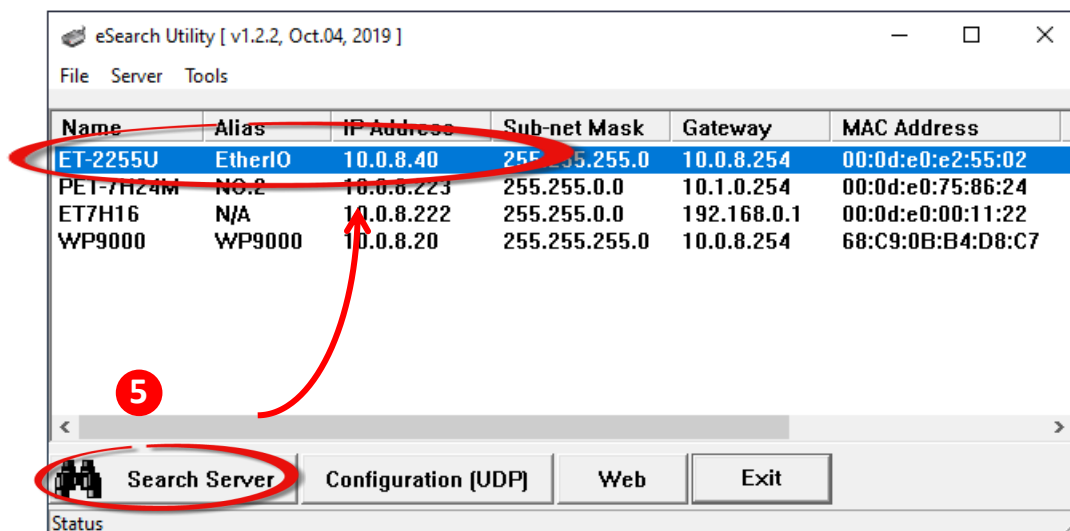


Step 3: Select the **“0: OFF”** option from the **“DHCP:”** drop-down menu.

Step 4: Contact your Network Administrator to obtain a correct network configuration (such as IP Address/Sub-net Mask/Gateway). Enter the network settings and click the **“OK”** button.



Step 5: Wait 2 seconds and then click the **“Search Servers”** button again to ensure the ET-2200 series is working well with new configuration.



Step 6: Refer to **“Chapter 2-Firmware Update Procedure”** for details of how to complete the update process.

4. Additional Information

The code contained in the boot loader, which is used to update the firmware image, is not part of the firmware it-self. This means that, the firmware can still be updated even if the built-in firmware has been corrupted or does not exist. If the firmware update fails, simply execute the update procedures again in BOOTP mode, as described in Chapter 3, and the update should be successful.

The ET-2200 series obtains the IP address assigned by the user and retrieves the firmware image through the utility program. *Note that when updating the firmware, the ET-2200 series uses the factory-default MAC address rather than any user-defined MAC addresses.* The ET-2200 series has a built-in flash protection feature that prevents any modification to the firmware stored in the flash memory, before attempting to update the firmware, the “Init Switch” should be set to the “Init” position and then the ET-2200 series can be **powered-on and rebooted** to disable the flash protection. Since the flash memory then becomes writable, the firmware can be updated via the Ethernet network.

Mode	Flash Protection	Firmware Update	Configuration
Init	No	Yes	Factory-default
Run	Yes	No	User-defined

Notes:



Note 1: If the IP address settings do not work correctly (e.g. there is no response to a ping command), please contact your network administrator to obtain a valid IP address for the ET-2200 series module. [back](#)



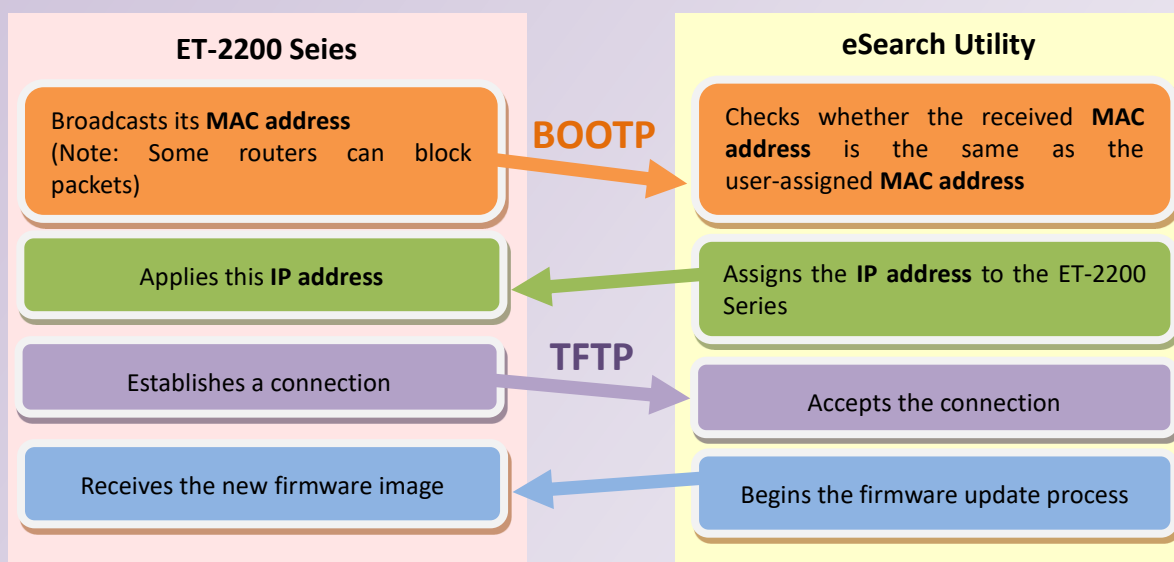
Note 2: If the settings displayed in the IP address field of the firmware update window is incorrect or invalid (e.g. IP address: 0.0.0.0), then a valid IP address must be manually specified for the ET-2200 series in order to process the update operation. Please contact your network administrator to obtain a valid IP address before proceeding.

..... [back](#)

Note 3: When updating the firmware, the factory-default MAC address is used rather than the user-defined MAC address. Thus, the MAC address (user-defined) displayed in the firmware update window may not be the one required. If this is the case, the factory-default MAC address should be manually entered into the MAC Address field, or restore the MAC address to the factory-default settings via the web configuration pages.

..... [back](#)

Note 4: The “**BOOTPREQ from MAC: xx-xx-xx-xx-xx-xx**” message indicates there is a module with the factory-default MAC address “xx-xx...” that is asking for the firmware to be updated. The update process will not begin if you assign a user-defined MAC address in the firmware update window, since the addresses do not match. If this situation occurs, repeat the update procedure and manually enter the factory-default MAC address in the firmware update window, as described in [Step 5 on Page 4](#). The firmware update procedure is illustrated in the figure below.



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Note 5: BOOTP (Bootstrap Protocol) is defined in RFC-951 and uses UDP ports 67 and 68.

Note6: TFTP (Trivial File Transfer Protocol) is defined in RFC-1350 and uses UDP port 69.