GW-2200 Series

Firmware Update via Ethernet

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ICP DAS CO., LTD.
Website: http://www.icpdas.com

SUPPORT

Models supported include GW-2212i, GW-2222i, GW-2232i, GW-2215i, GW-2225i, GW-2235i

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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CONTACT US

If you have any questions, please feel free to contact us. We will respond within 2 working days.
Email: service@icpdas.com

1. Setting up the GW-2200 Series

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

Step 1: Connect the GW-2200 series to the same hub or the same sub-network as your Host PC, and attach a power supply to the GW-2200 series. Do not connect the GW-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 GW-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 GW-2200 series modules connected to the network.

 Download the eSearch Utility.

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

Please refer to **"Chapter 4-Configuring Ethernet Settings"** in the GW-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.
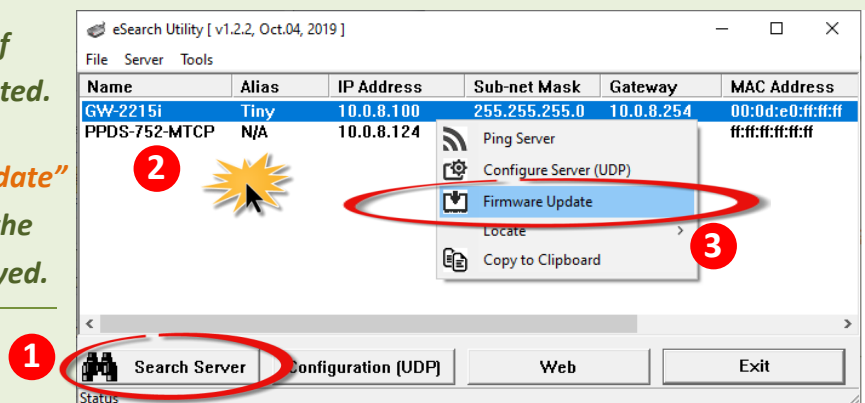
2.1 GW-2200 Firmware Update

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 the for any GW-2200 modules connected to the network . (The network settings of the GW-2200 module as described in Step 3 on Page1)

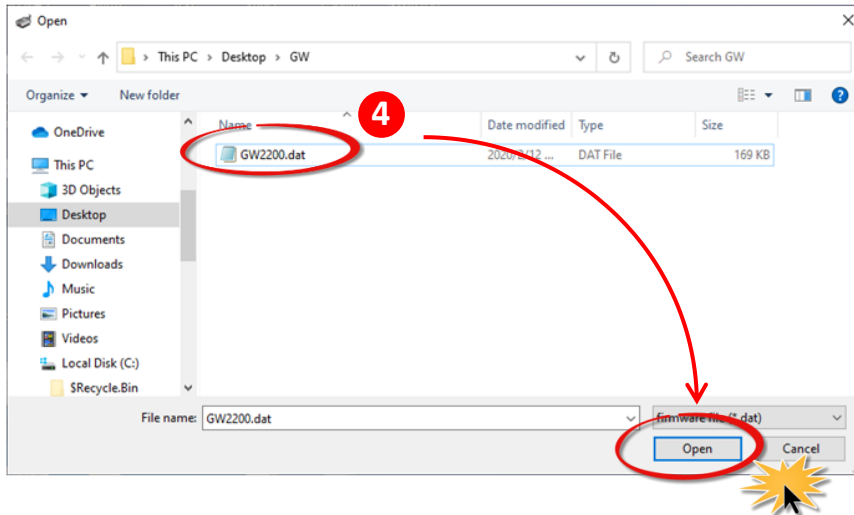*Step 2: Right click on the name of the GW-2200 module to be updated.*

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 (GW2200.dat) that will be used to update the module and then click the "Open" button.
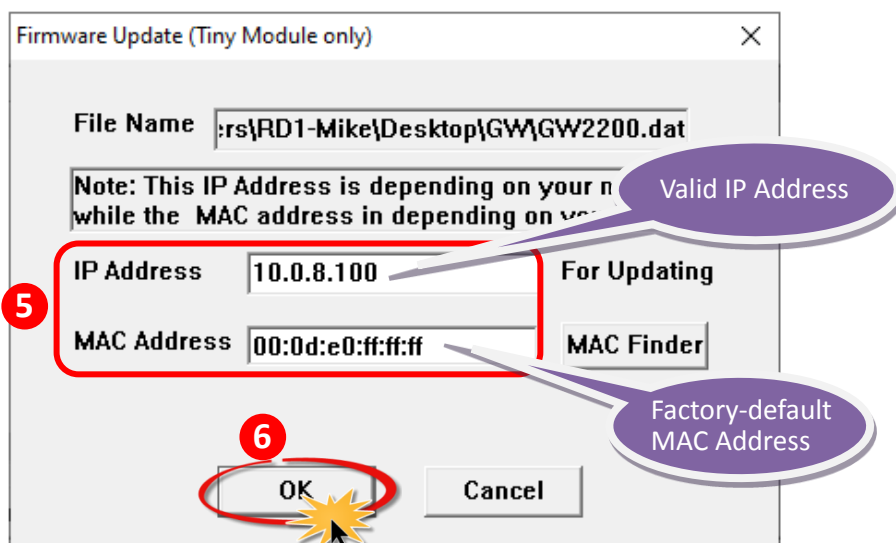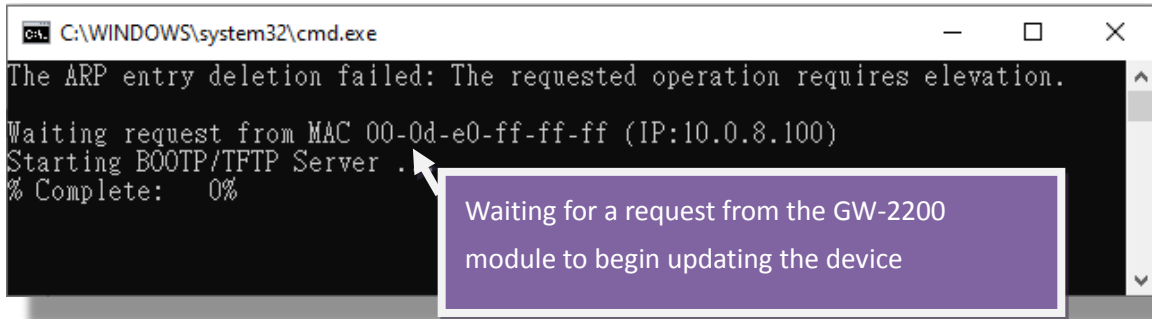
Download the Firmware File.

Step 5: Assign a valid IP Address (can be different with the current IP) and the factory-default MAC Address for the GW-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.
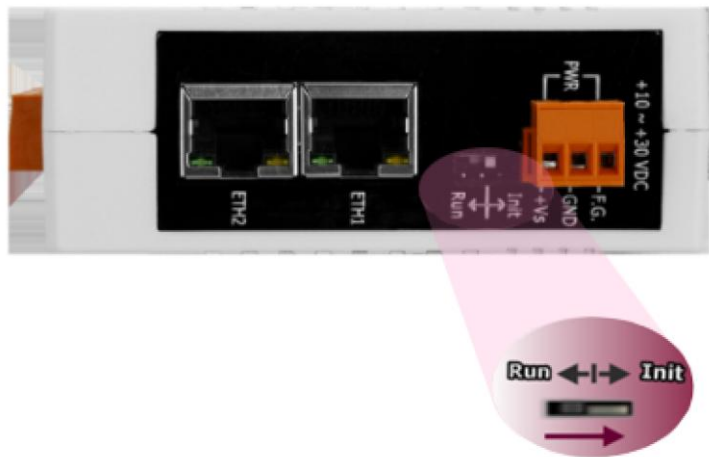
Step 6: Click the "OK" button.

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

Waiting for a request from the GW-2200 module to begin updating the device
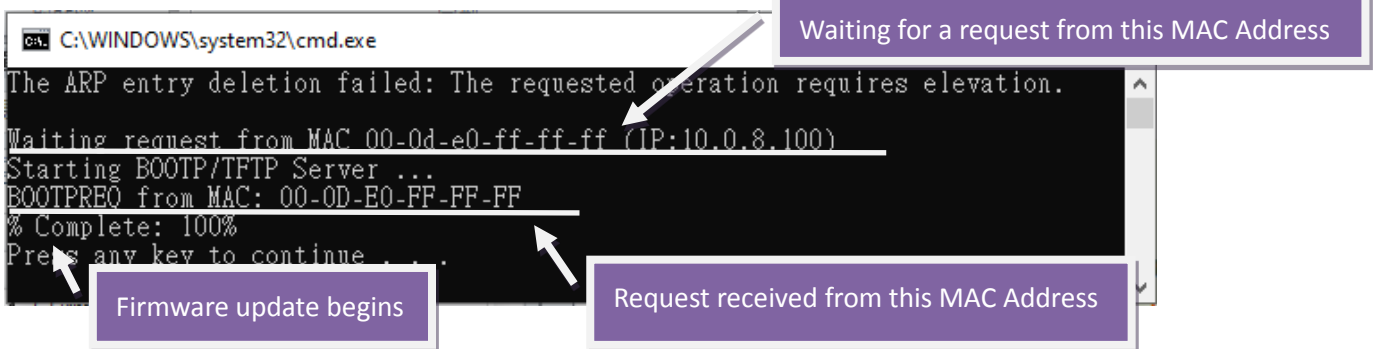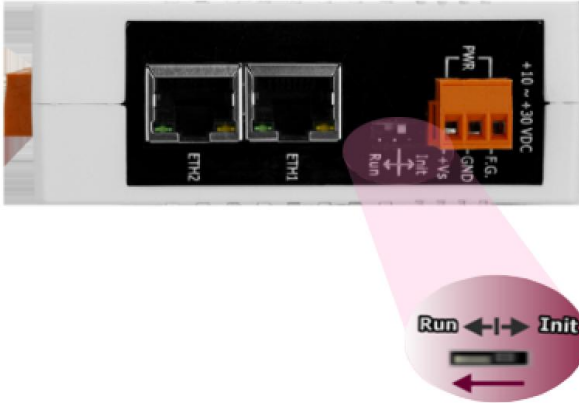
Step 8: Set the "Init Switch" on the GW-2200 module to the "Init" position.

Step 9: Power-on reset the GW-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.
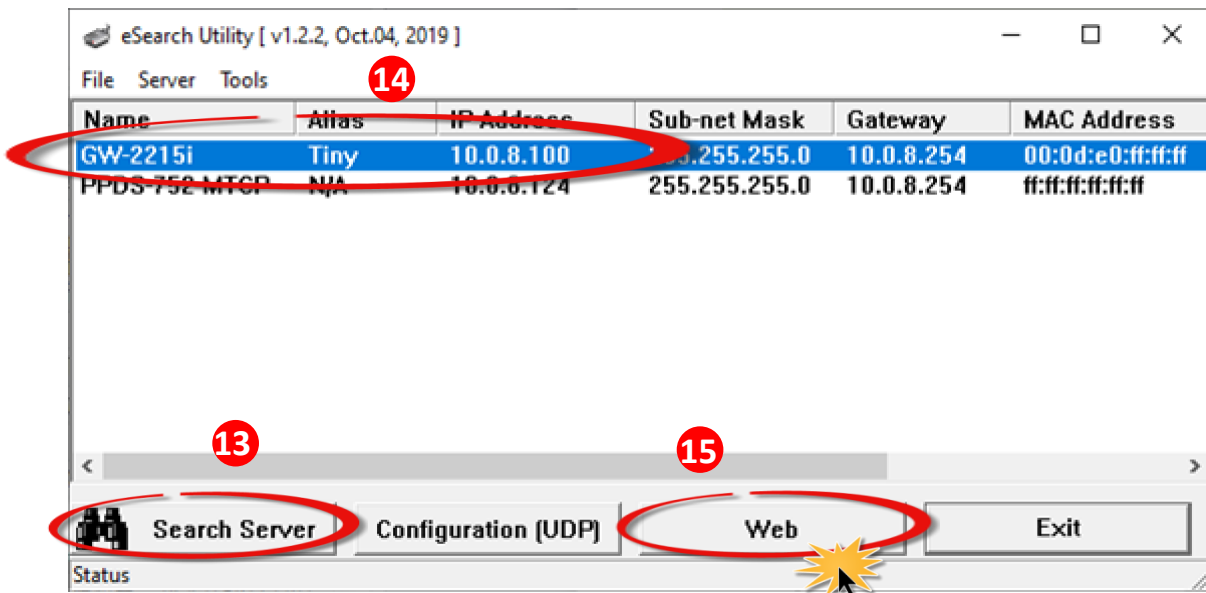

Waiting for a request from this MAC Address

Request received from this MAC Address

Firmware update begins

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

Step 12: Power-on reset the GW-2200 module to operate the module in "Run Mode".

Step 13: In the eSearch Utility, search for the GW-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 GW-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 GW-2200 (use the default password "admin").

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

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.**

User is there remotely controlling the firmware update procedures.
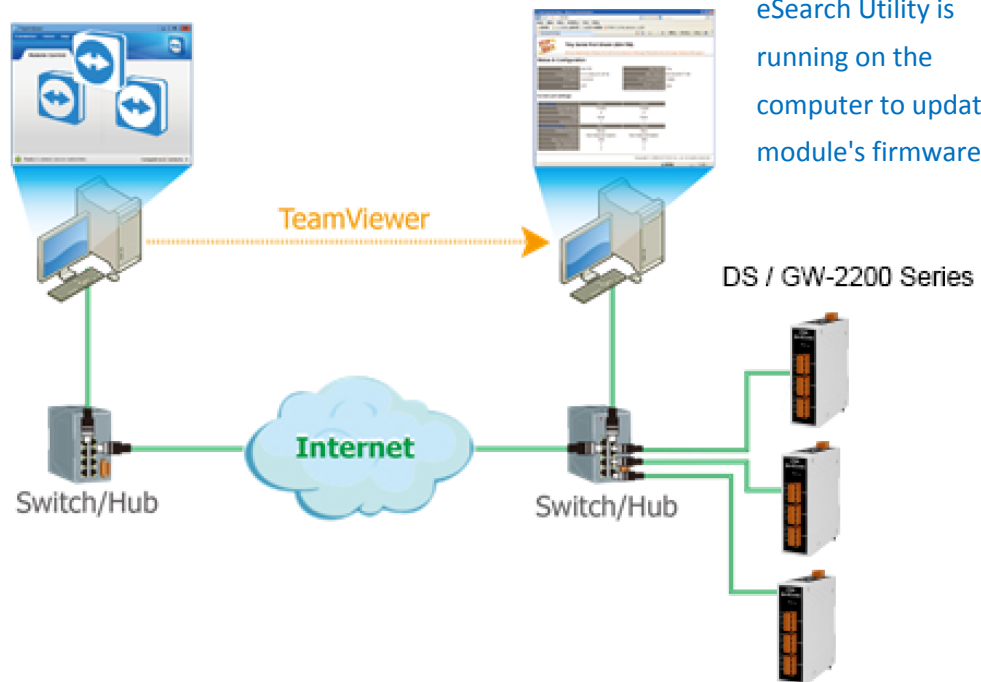
eSearch Utility is running on the computer to update module's firmware.

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

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

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

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

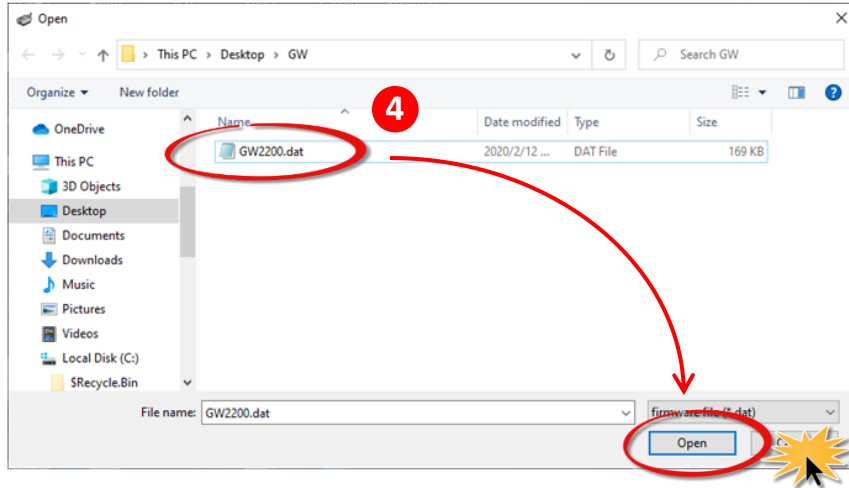*Step 4: In the "Open" dialog box, select the firmware file (GW2200.dat) that will be used to update the module and then click the "Open" button.*
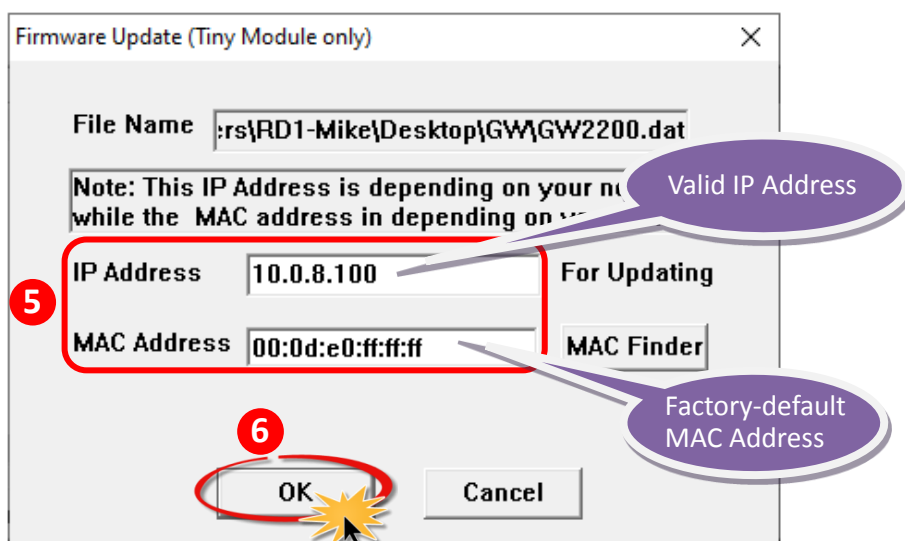
Download the Firmware File.

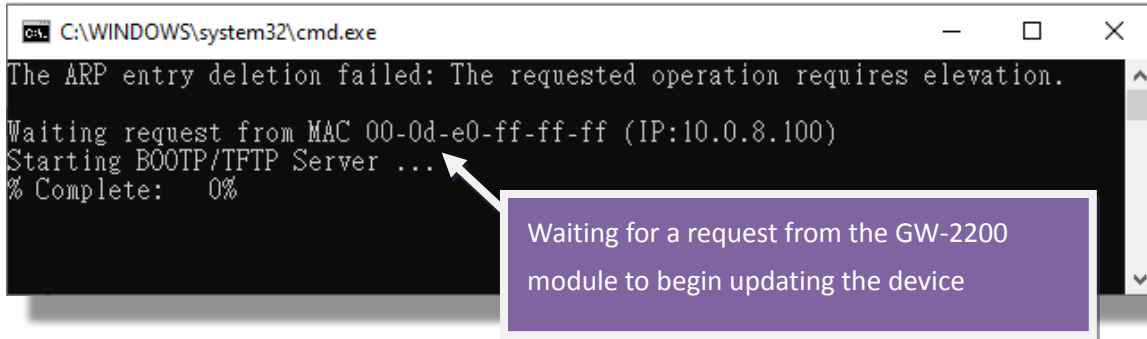*Step 5: Assign a valid IP Address (can be different with the current IP) and the factory-default MAC Address for the GW-2200 module. If this IP address is invalid (e.g. IP Address: 0.0.0.0) or a user-defined MAC address is assigned. Refer to note 2 (Page 18) and note 3 (Page 19) for more details.*
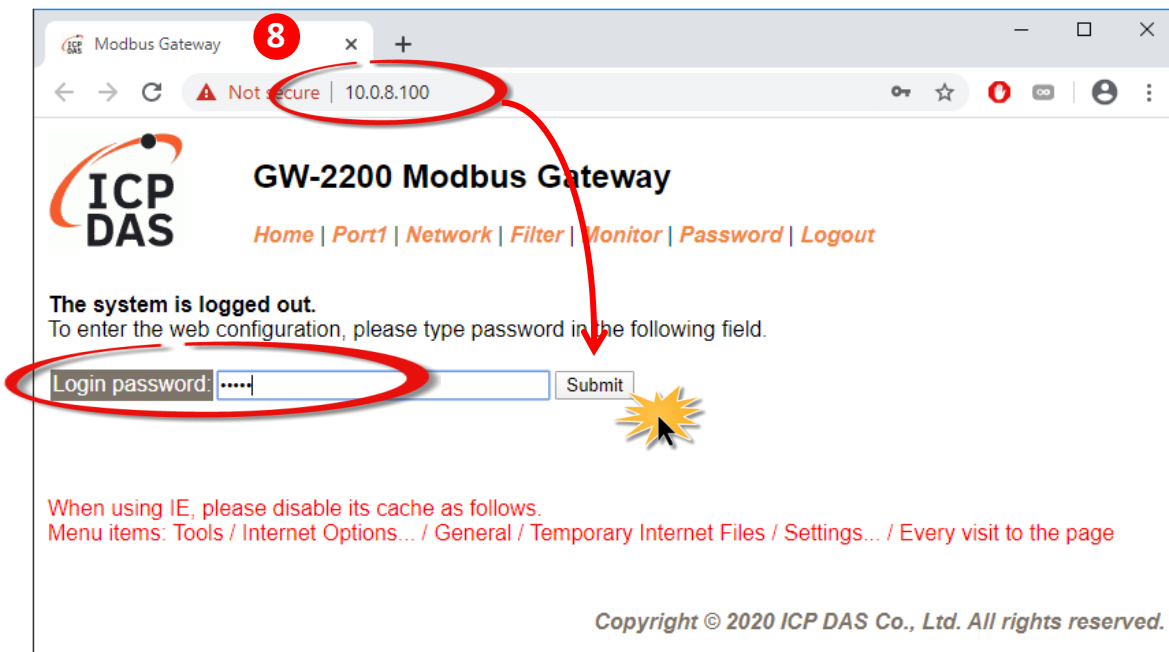
Step 6: Click the "OK" button.

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

The ARP entry deletion failed: The requested operation requires elevation.

Waiting request from MAC 00-0d-e0-ff-ff-ff (IP:10.0.8.100)
Starting BOOTP/TFTP Server ...
% Complete: 0%

Waiting for a request from the GW-2200 module to begin updating the device

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

Modbus Gateway

❽

Not secure | 10.0.8.100

GW-2200 Modbus Gateway

Home | Port1 | Network | Filter | Monitor | Password | Logout

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

Login password: •••••   Submit

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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Step 9: Click the "Network Setting" tab to display the Network Settings page.

Step 10: Click the "Update" button in the "Remote Firmware Update" section to start the update.
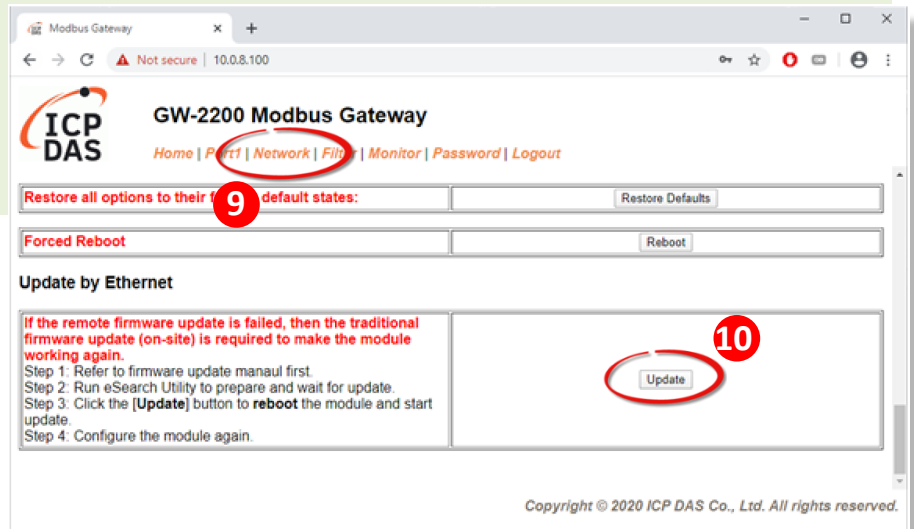
Step 11: Confirm that the two MAC addresses (factory-default) listed in the Command Prompt window, "Waiting request from MAC x.x.x.x" and "BOOTPREQ from MAC: x.x.x.x", are the same, as indicated in the image below. If these addresses do not match, the update cannot proceed. Refer to note4 (Page 19) below for more details.

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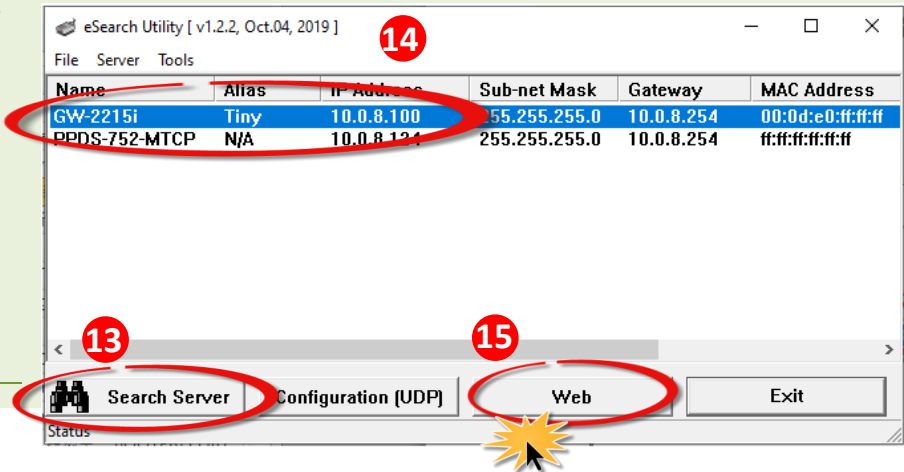

Waiting for a request from this MAC Address

Request received from this MAC Address

Firmware update begins

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 GW-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 Chpater1 above for more details.*
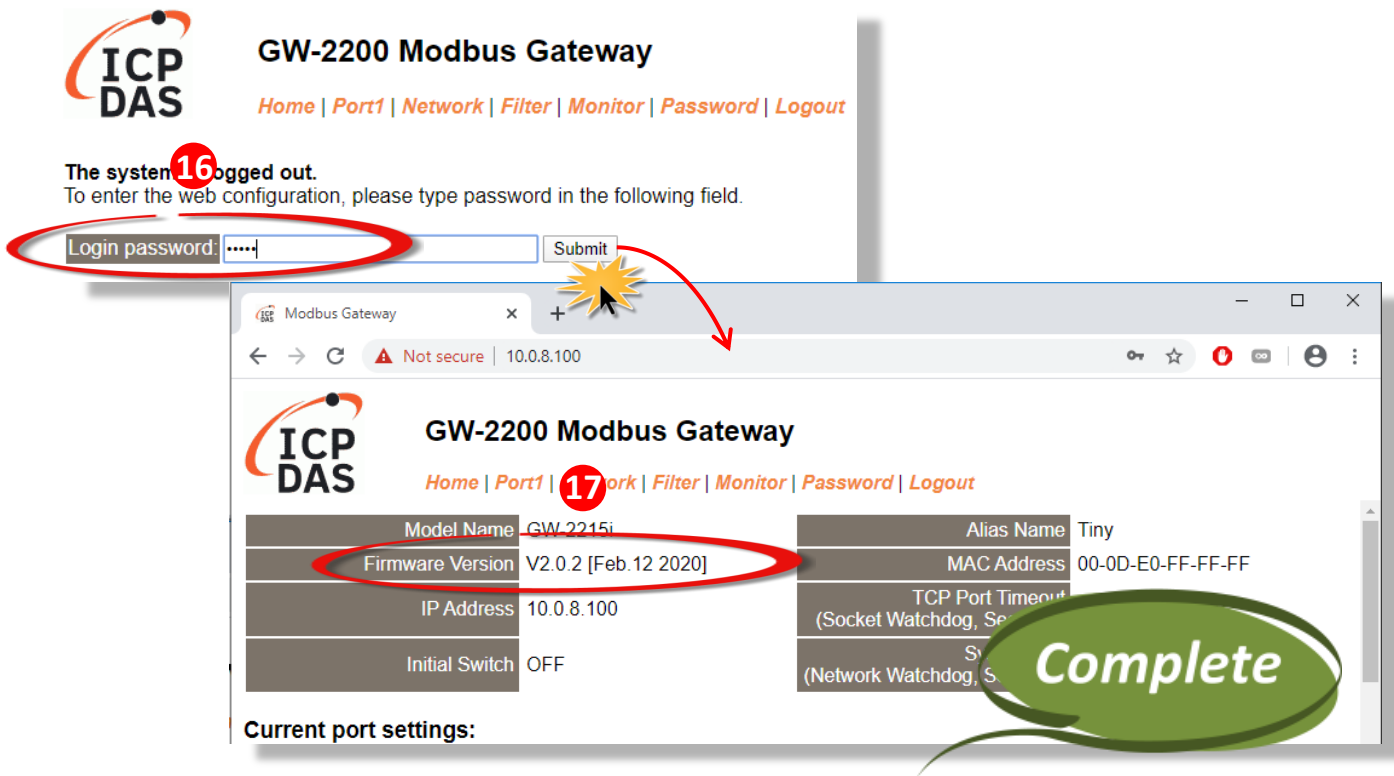
Step 14: Click the name of the GW-2200 module to highlight it.

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 GW-2200 *(use the default password "admin").*

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

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.
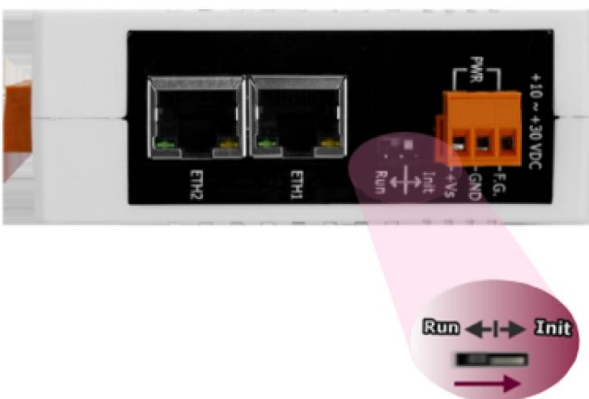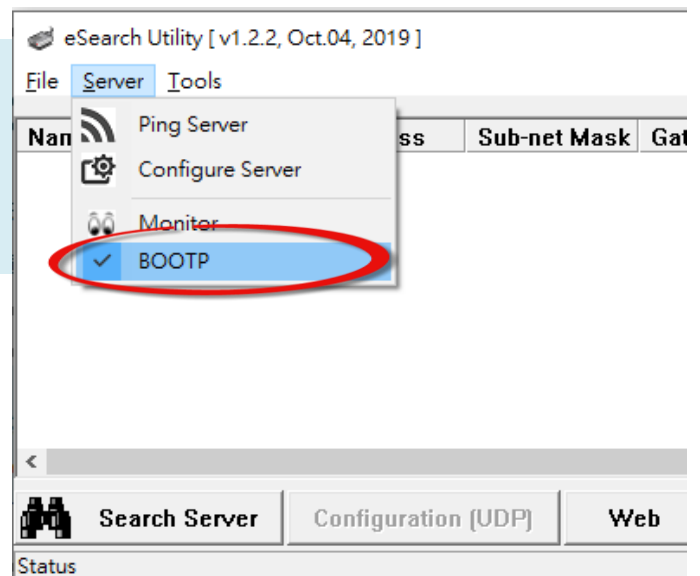
*Step 2: Set the "Init Switch" to the "Init Mode" position.*

Step 3: Power-on and reboot the GW-2200 series module and then click the "Search Servers" button to search for the GW-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.
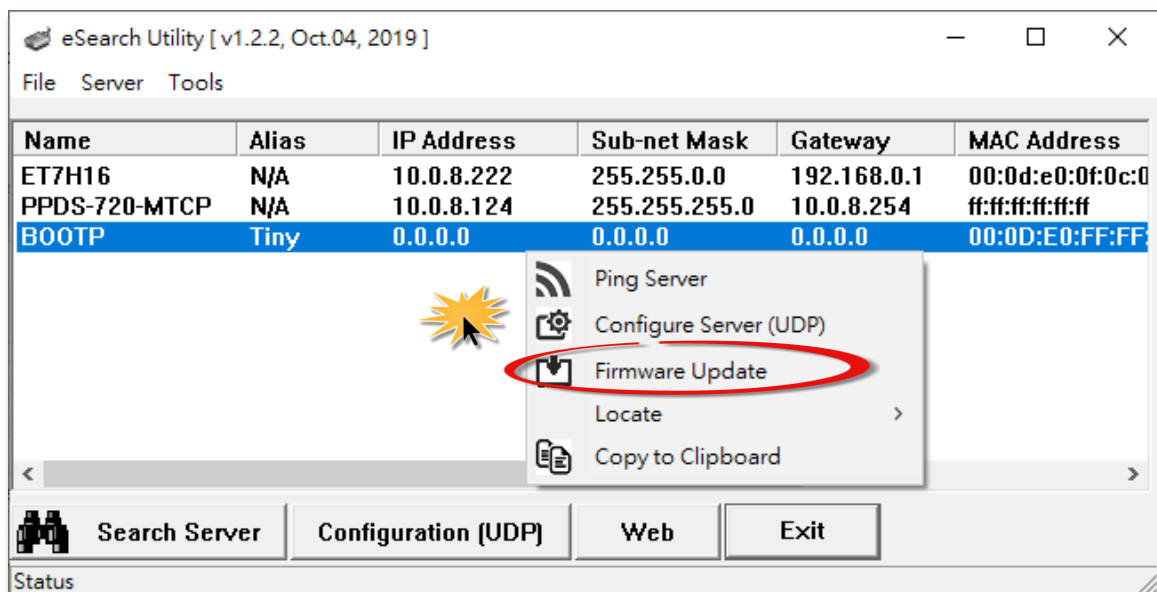
Step 5: Refer to Steps 4 to 17 in "Chapter 2-Firmware Update Procedure" to complete the update process. Note, the module will response with no IP address in the BOOTP mode. User has to assign a valid IP manually in step 5 of page 3.

Step 6: After updating the firmware, disable BOOTP mode from the eSearch utility. By selecting "BOOTP" item from the "Server" menu.
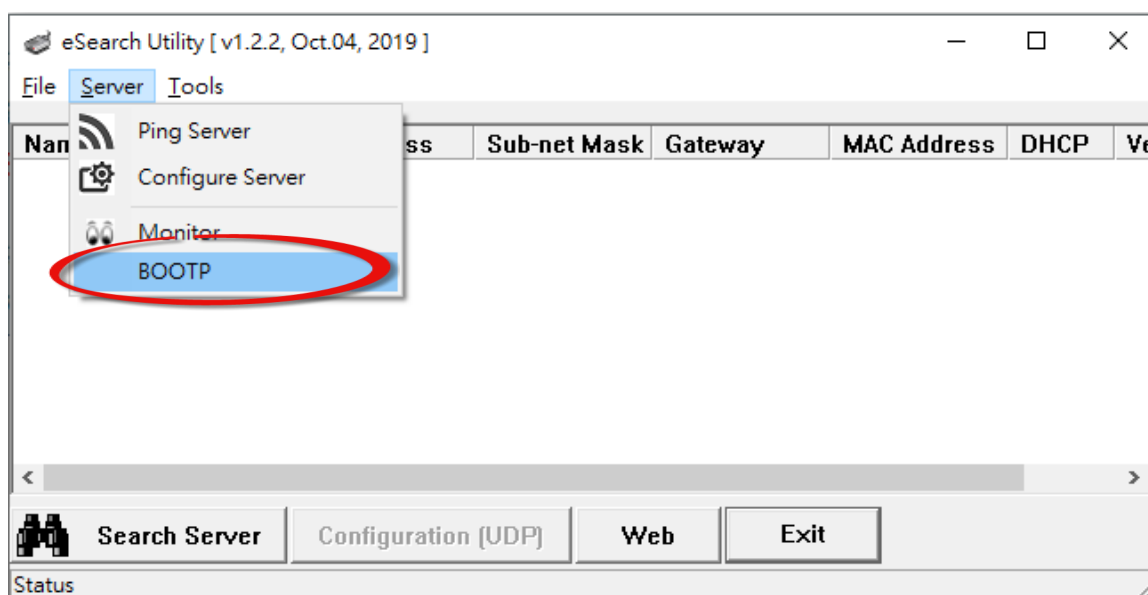
3.2 How to update Firmware when the Different Network Segment for IP Address of the GW-2200 and Host PC.

For example, the first time to get the GW-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.
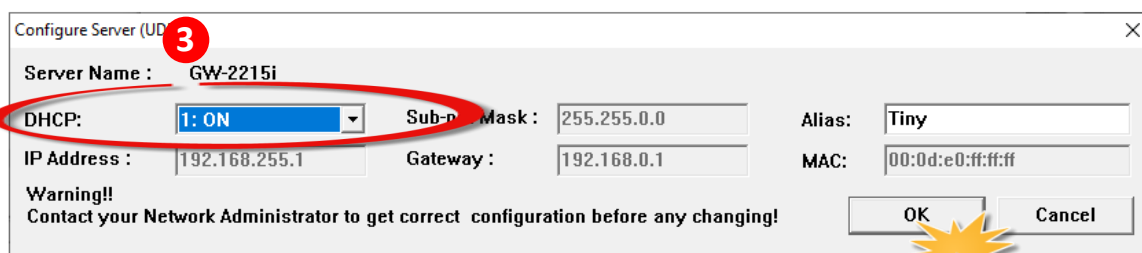
Method 1: Using **"Dynamic Host Configuration Protocol (DHCP)"** to automatically assigns an IP address to GW-2200 series module. Follow the procedure described below:

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

Step 2: Double click the name of GW-2200 series to open the "Configure Server (UDP)" dialog box.
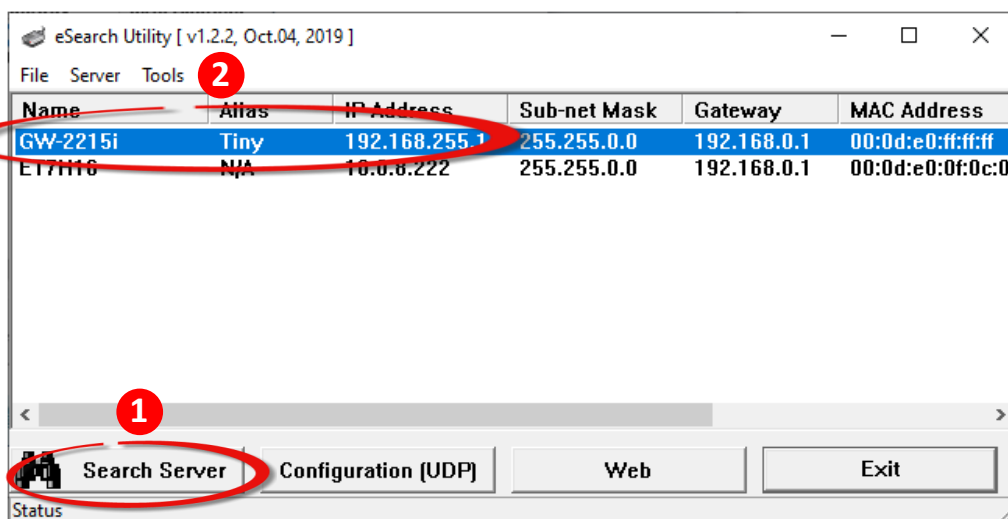
Step 3: Select the "1: ON" option from the "DHCP:" drop-down menu and click the "OK" button.

Step 4: Wait 2 seconds and then click the *"Search Servers"* button again to ensure the GW-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 GW-2200 series module. Follow the procedure described below:

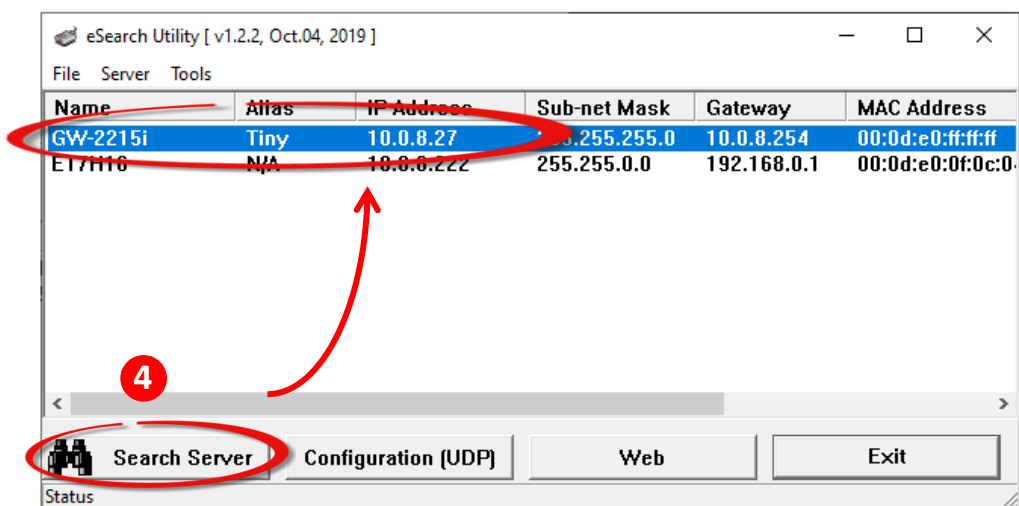*Step 1: Run the eSearch Utility to search for any GW-2200 series modules to the network*

Step 2: Double click the name of GW-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.
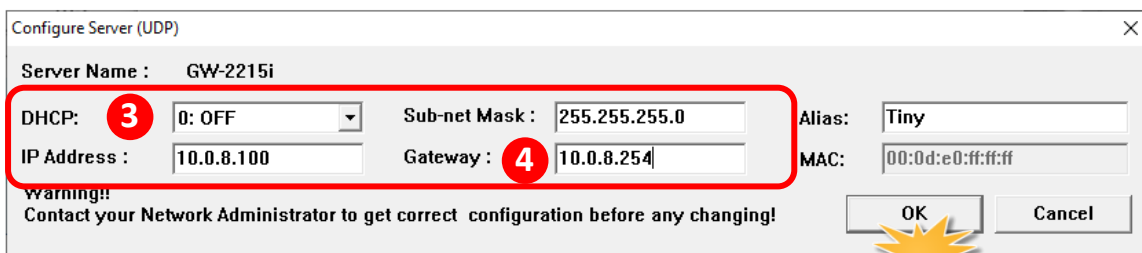
Step 5: Wait 2 seconds and then click the "Search Servers" button again to ensure the GW-2200 series is working well with new configuration.
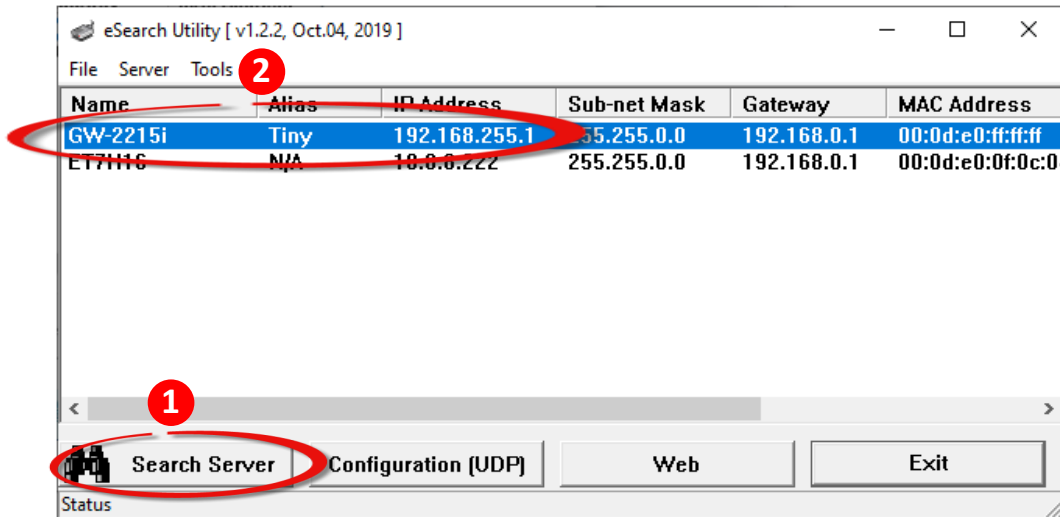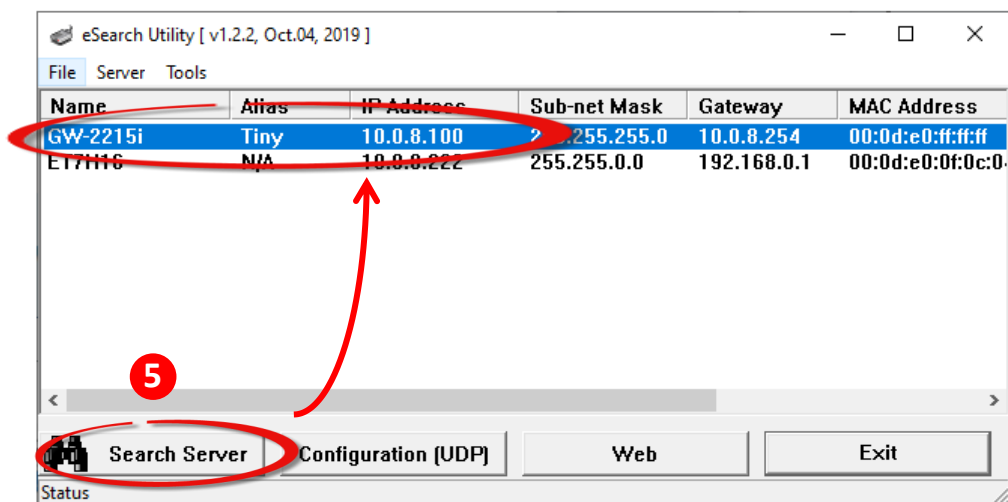

Step 6: Refer to "Chapter 2-Firmware Update Procedure" for details of how to complete the update process.

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 GW-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 GW-2200 series uses the factory-default MAC address rather than any user-defined MAC addresses._ The GW-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 GW-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 GW-2200 series module. ………………………………………………………………………………………. <u>back</u>

⚠️**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 GW-2200 series in order to process the update operation. Please contact your network administrator to obtain a valid IP address before proceeding.
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⚠️ **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.

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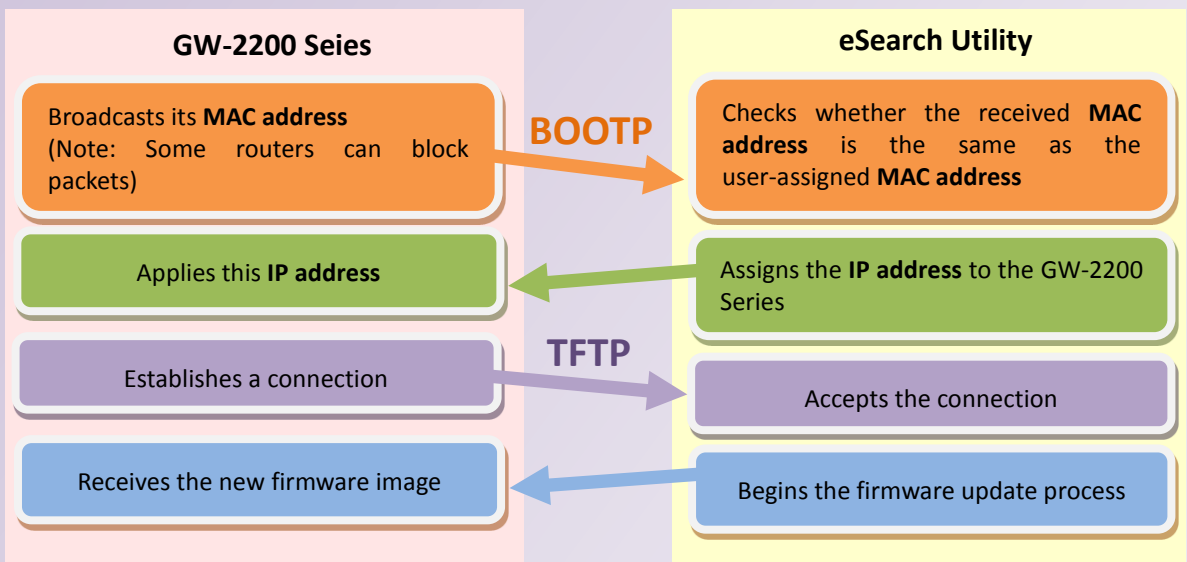
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⚠️ **Note 5:** BOOTP (Bootstrap Protocol) is defined in RFC-951 and uses UDP ports 67 and 68.

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