Firmware Update via Ethernet

Version 2.0.0 Aug. 2023

ECAN-240-FD

(Modbus TCP to 2-port CAN FD Gateway)

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Important Information

Warranty

All products manufactured by ICP DAS are under warranty regarding defective materials for a period of one year, beginning from the date of delivery to the original purchaser.

Warning

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Contact us

If you encounter any problems while operating this device, feel free to contact us via mail at: service@icpdas.com.

1. Setting up the ECAN-240-FD

Before updating the firmware, please ensure that the network settings for both your host computer and any ECAN-240-FD modules are correctly configured, or the update procedures via the Ethernet network may not function correctly.

Step 1:

Connect the ECAN-240-FD to the same hub or the same sub-network as your Host PC, and attach a power supply to the ECAN-240-FD. Do not connect the ECAN-240-FD to a router or directly to the Internet as this may cause the update process to fail.

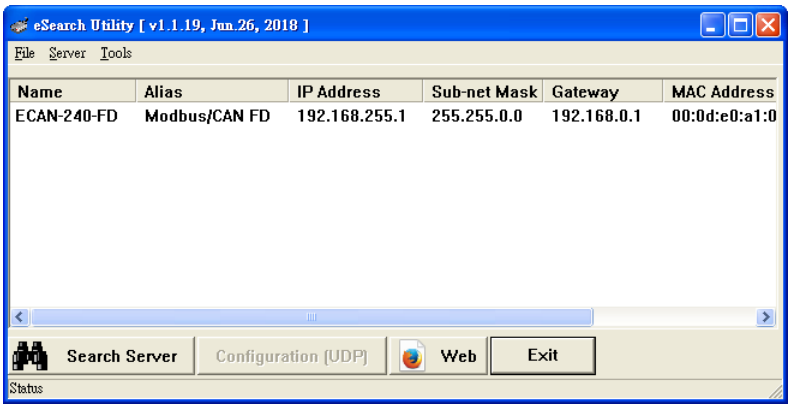
Please refer to "**Chapter3-Connecting the Power and Host PC"** in the ECAN-240-FD Quick Start Guide for more detailed information.

Download the Quick Start Guide.

Step 2:

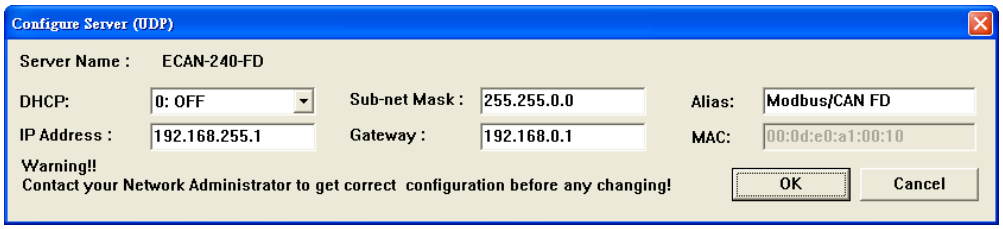
Install the eSearch Utility on your Host PC, and then run the Utility to search for any ECAN-240-FD modules connected to the network.

Download the eSearch Utility.



Step 3:

Configure the correct network settings for the required ECAN-240-FD module.



Please refer to **"Chapter4-Configuring Ethernet Settings"** in the ECAN-240-FD Quick Start Guide. If the IP address settings do not work correctly, please refer to **note1(Page 15)**.

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. Firmware Update

The Firmware Update method requires the user to manually adjust the position of the SW1/SW2 Switch and reboot the module in order to initialize the firmware update.

Step 1:

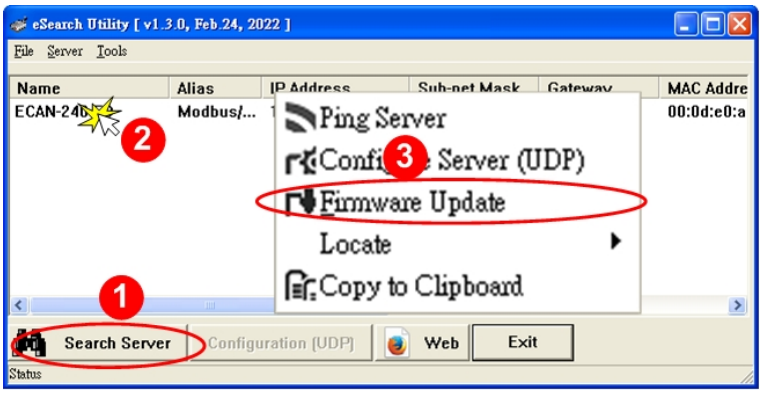
In the eSearch Utility, click the "Search Server" button to search for any ECAN-240-FD modules connected to the network. (The network settings of the ECAN-240-FD module as described in Step 3 on Chapter1)

Step 2:

Right click on the name of the ECAN-240-FD 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 (*.dat) that will be used to update the module and then click the "Open" button.

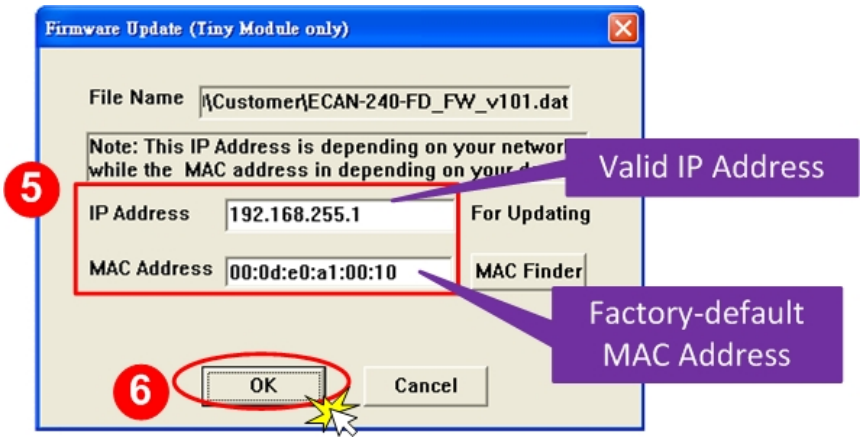
Download the Firmware File.

Step 5:

Assign a valid IP Address (can be different with the current IP) and the factory-default MAC Address for the ECAN-240-FD 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 note2(Page 15) and note 3(Page16) for more details.

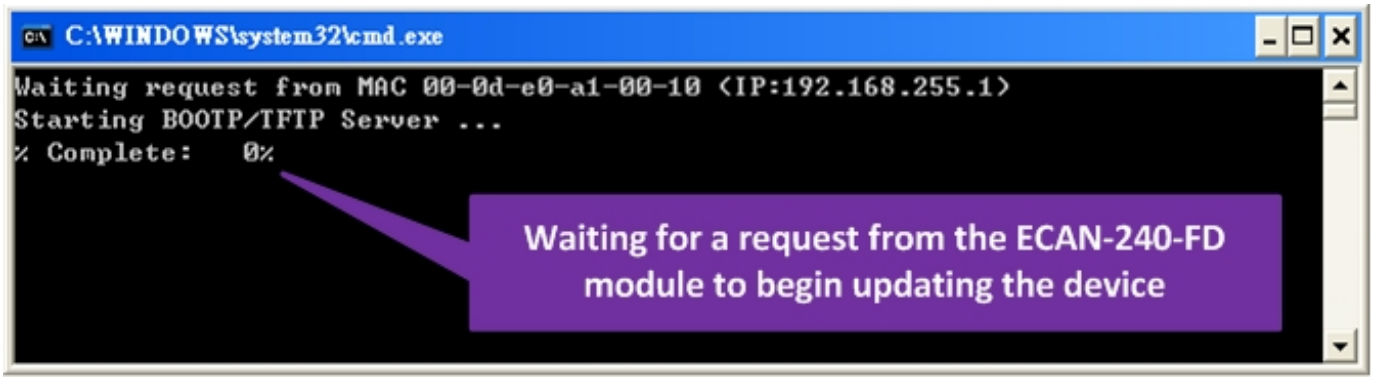
Step 6:

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:

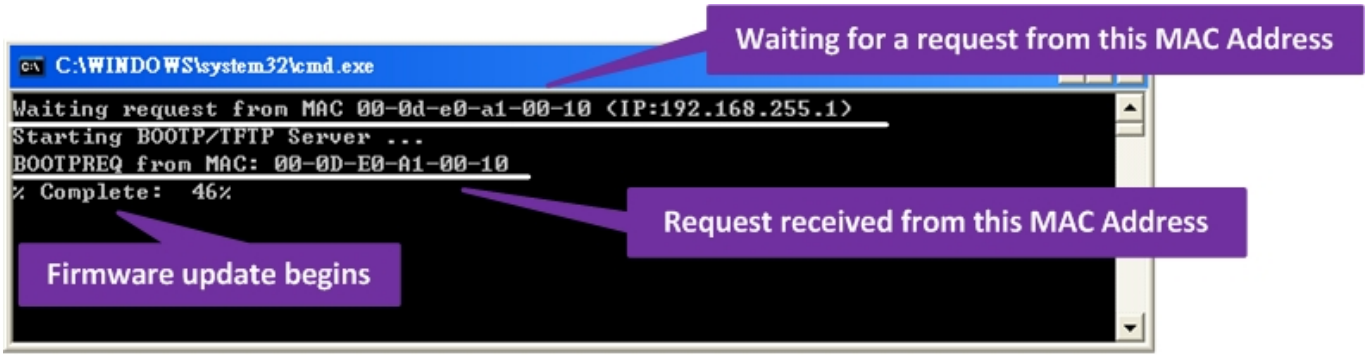
Set the "SW1/SW2 Switch" on the ECAN-240-FD module to the "F/F" position.

Step 9:

Power-on reset the ECAN-240-FD module in "Firmware Upgrade 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 will not work. Refer to note4 (Page 16) below for more details.



Step 11:

Once the update is complete (i.e., when the progress indicator reaches 100%), power-on reset the ECAN-240-FD module.

Step 12:

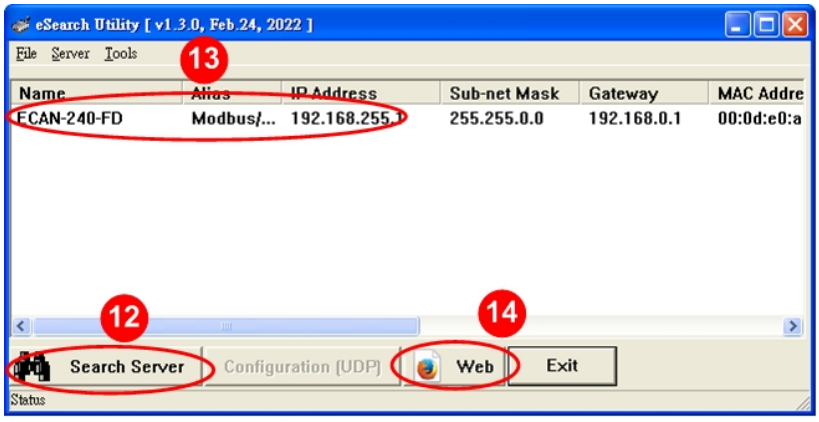
In the eSearch Utility, search for the ECAN-240-FD module again to verify that it is functioning correctly.

Step 13:

Click the name of the ECAN-240-FD module to highlight it.

Step 14:

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

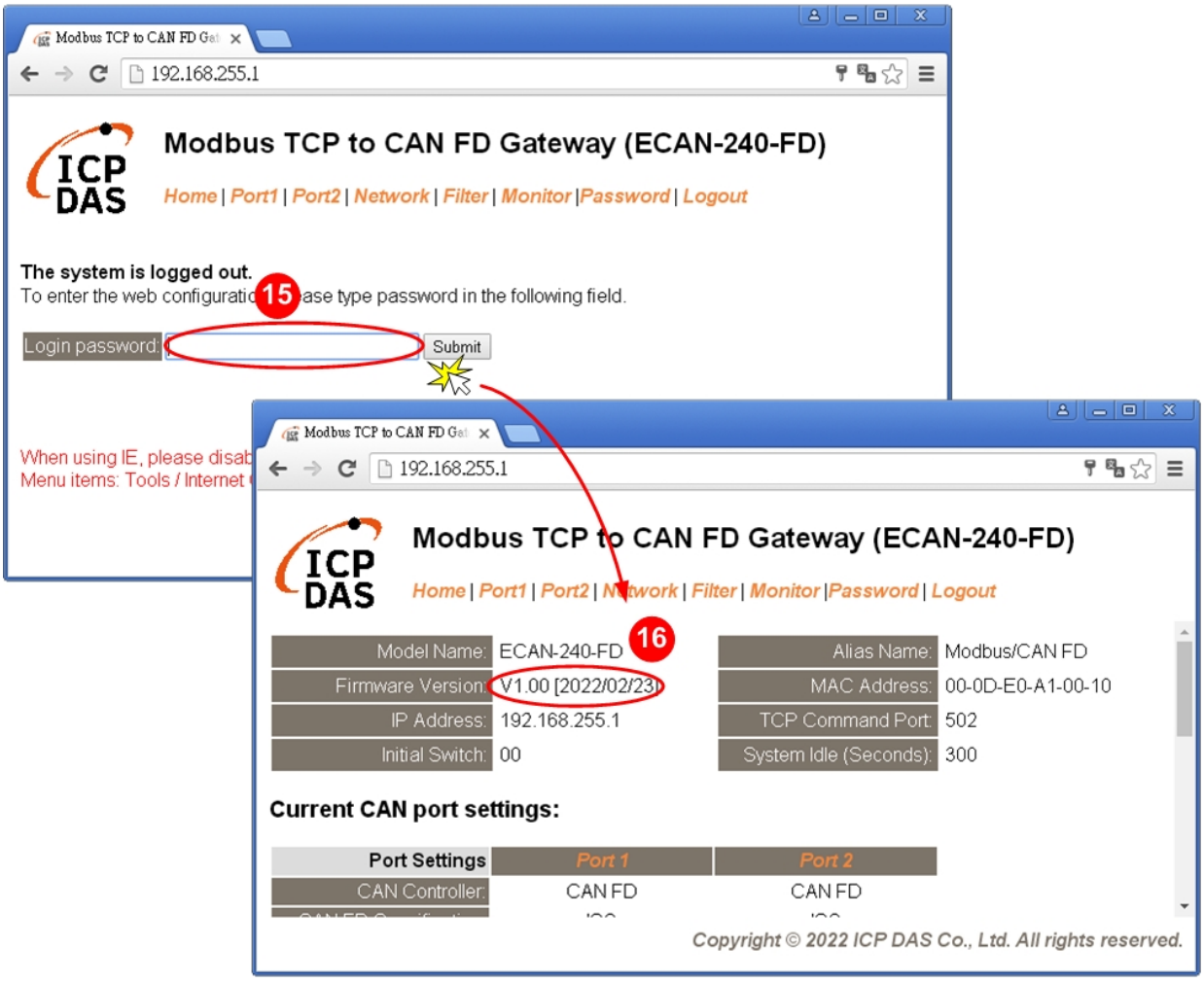


Step 15:

Login to the web configuration pages for the ECAN-240-FD (use the default password "admin").

Step 16:

Verify that the firmware version and date details are correct.



Step 17:

Finally, set the "SW1/SW2 Switch" to the"0/0" position and power-on reset the ECAN-240-FD module to operate the module in "Normal Mode".

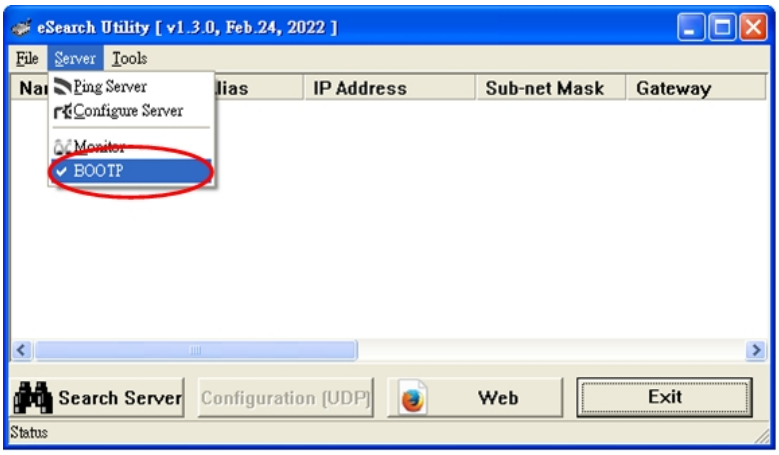
Note that the network settings for the module may need to be reconfigured after updating the firmware. Refer to Step 3 in Chapter1 above for more details.

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 ST1/ST2/TX1/TX2/RX1/RX2 are always displayed as either all off or all 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.



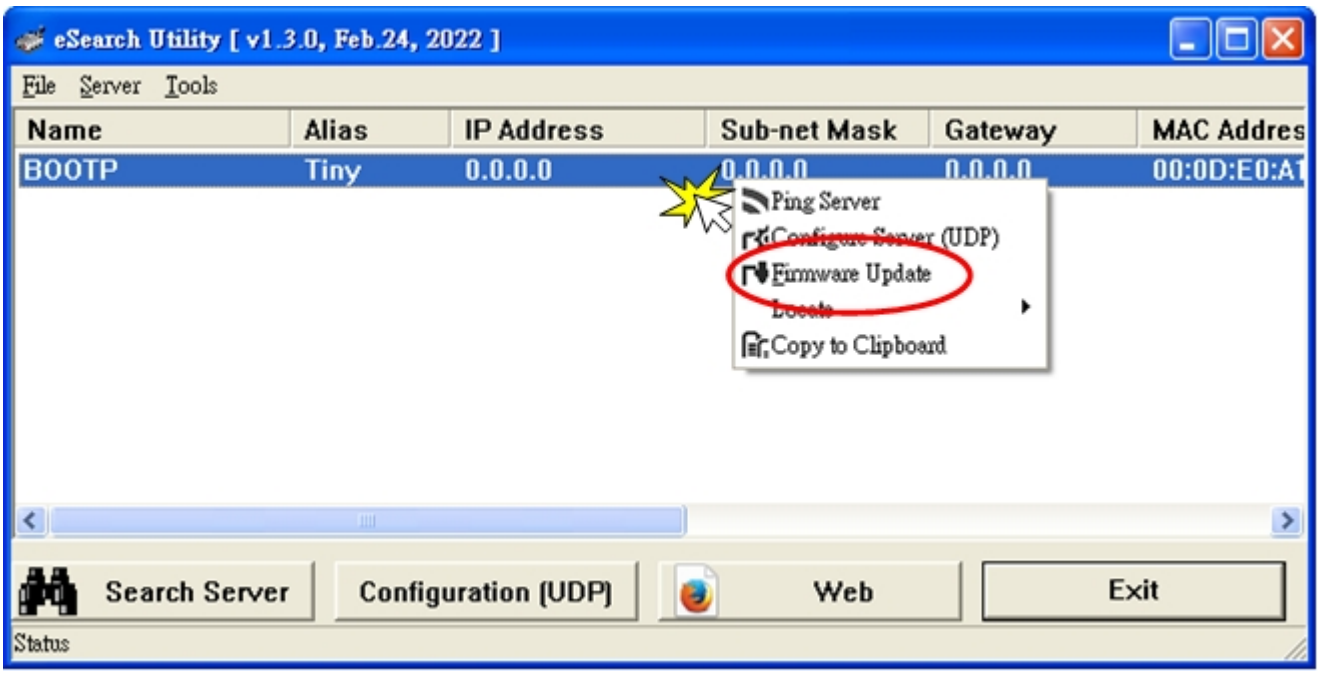
Step 2:

Set the "SW1/SW2 Switch" to the "F/F" position.

Step 3:

Power-on and reboot the ECAN-240-FD module and then click the "Search Server" button to search for the ECAN-240-FD at the same time. Note, the module sends BOOTP messages about 5 seconds when booting. If this step is not successful, reboot the module and execute the search again.

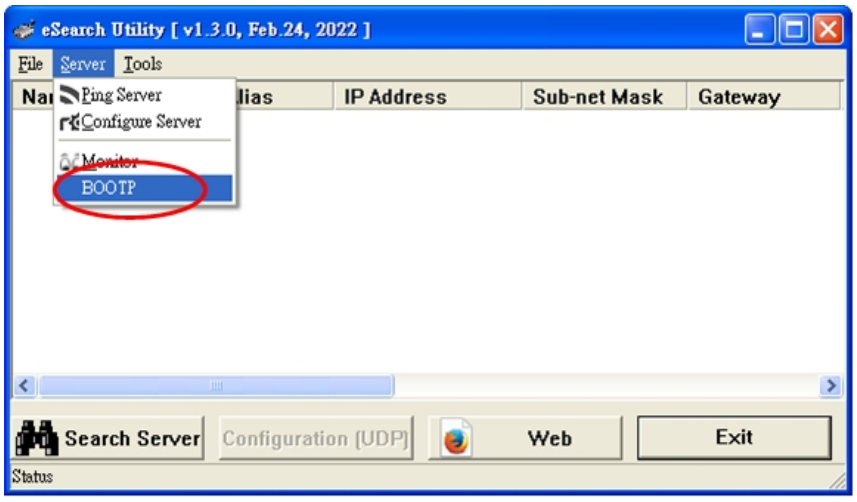
Step 4: Right click on the name "BOOTP" and then select the "Firmware Update" item from the popup menu.



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 page6.

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 ECAN-240-FD and Host PC.

For example, the first time to get the ECAN-240-FD module, the factory default IP address is 192.168.255.1, but the host PC IP address is 172.17.3.8, refer to the following two methods to update firmware.

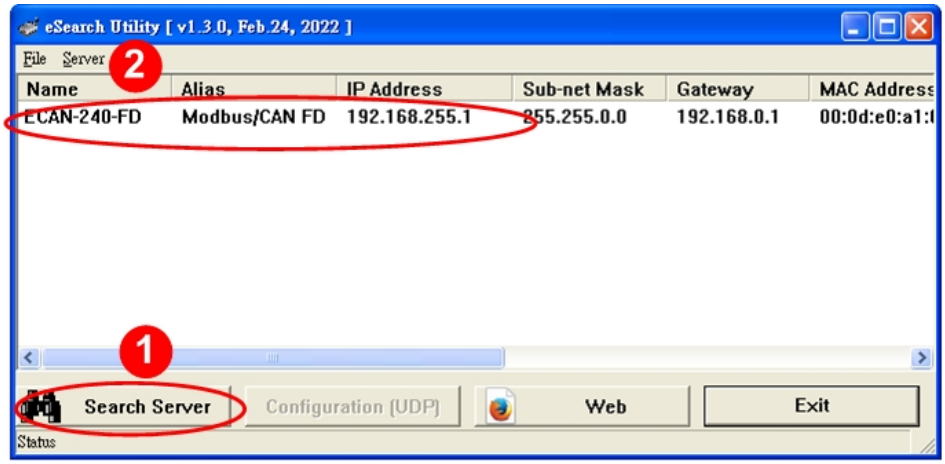
Method 1: Using **"Dynamic Host Configuration Protocol (DHCP)"** to automatically assigns an IP address to ECAN-240-FD module. Follow the procedure described below:

Step 1:

Run the eSearch Utility to search for any ECAN-240-FD modules in the network

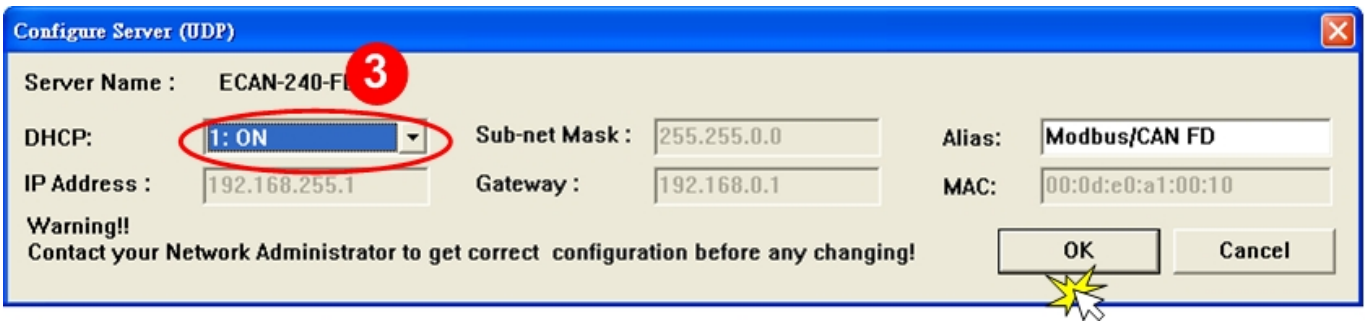
Step2:

Double click the name of ECAN-240-FD to open the "Configure Server (UDP)" dialog box.



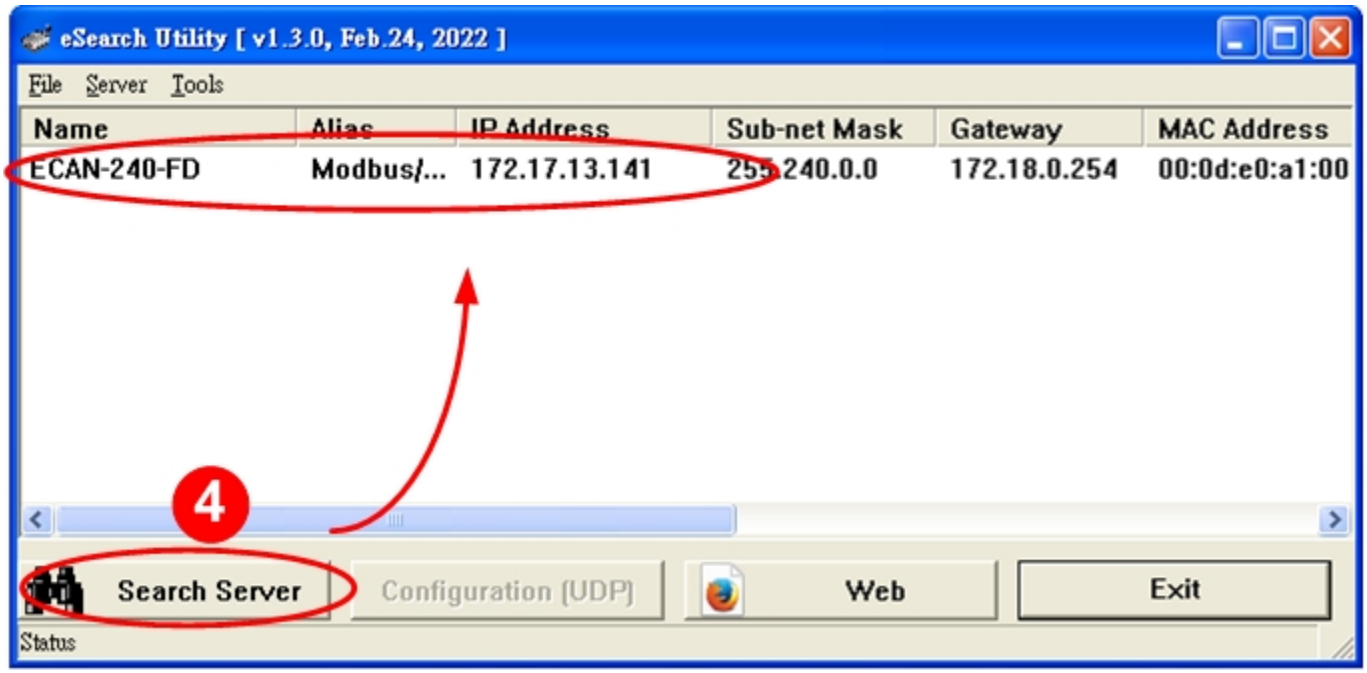
Step 3:

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 Server" button again to ensure the ECAN-240-FD is working well with new configuration.



Step 5:

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

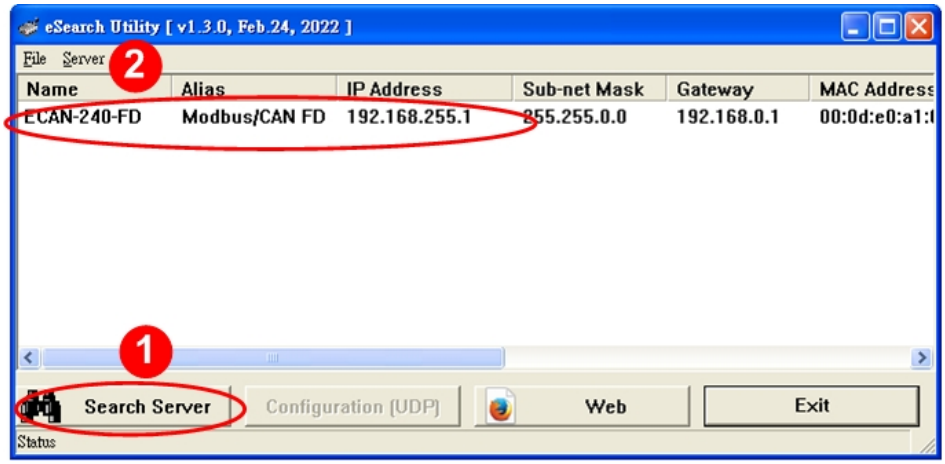
Method 2: Using **"Manual configuration"** to assigns an IP address to ECAN-240-FD module. Follow the procedure described below:

Step 1:

Run the eSearch Utility to search for any ECAN-240-FD modules in the network

Step2:

Double click the name of ECAN-240-FD to open the "Configure Server (UDP)" dialog box.

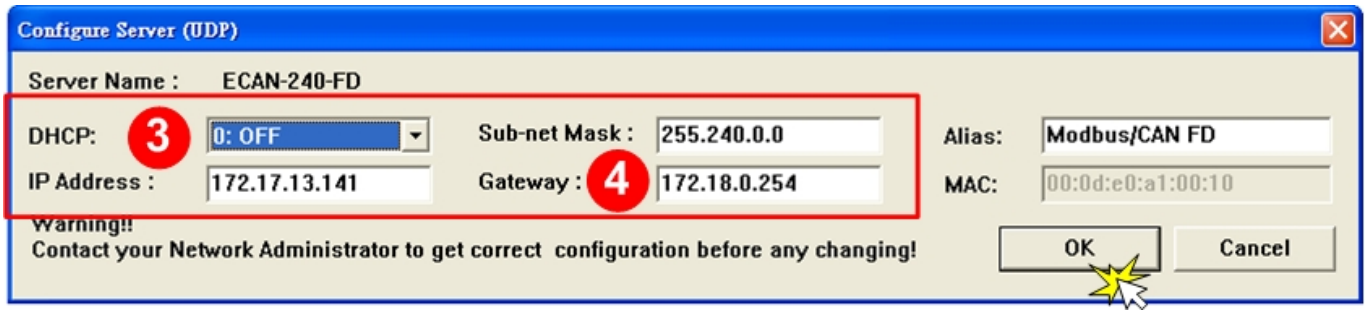


Step 3:

Select the "0: OFF" option from the "DHCP:" drop-down menu.

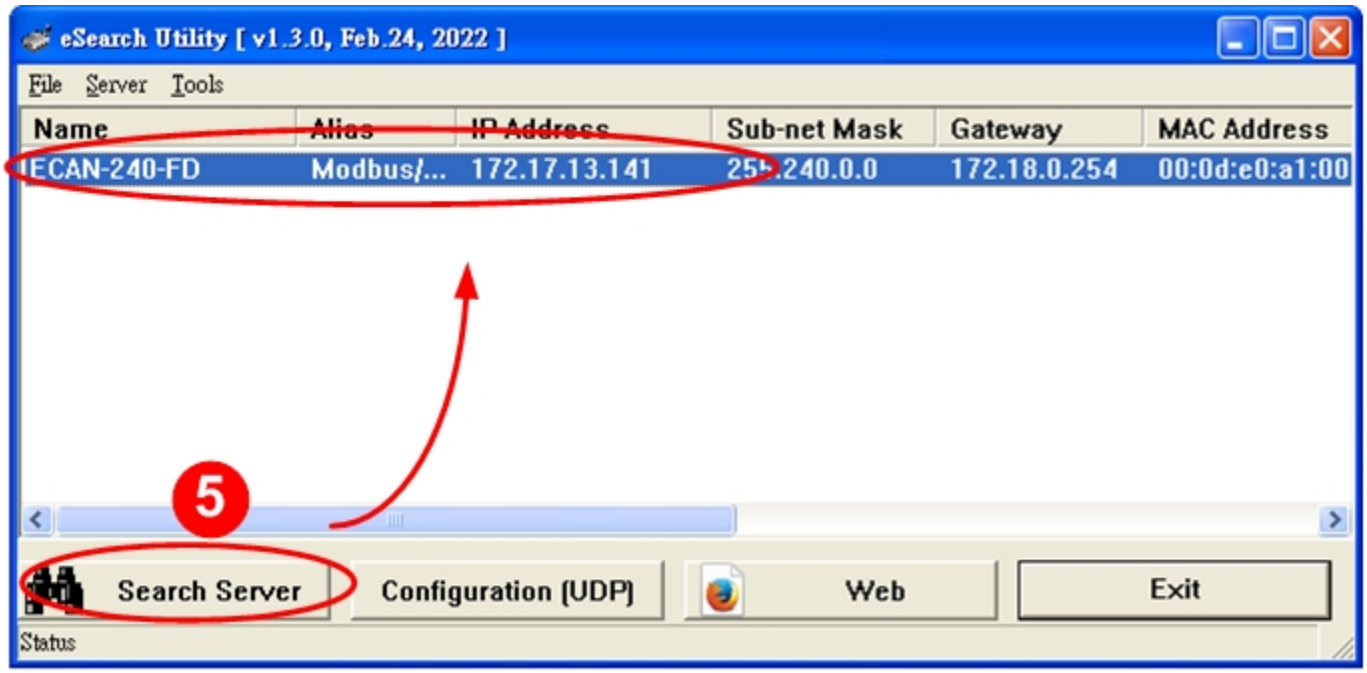
Step 4:

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 Server" button again to ensure the ECAN-240-FD 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 ECAN-240-FD obtains the IP address assigned by the user and retrieves the firmware image through the utility program. ***Note that when updating the firmware, the ECAN-240-FD uses the factory-default MAC address rather than any user-defined MAC addresses.*** The Before attempting to update the firmware, the "**SW1/SW2 Switch**" should be set to the "**F/F**" position. Since the flash memory then becomes writable, the firmware can be updated via the Ethernet network.

SW2	SW1	Firmware Update	Configuration
F	F	**Yes**	Factory-default
F	E	**No**	Restore to Factory-default
Others		No	User-defined

Notes:

Note1:

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 ECAN-240-FD module.

Note 2:

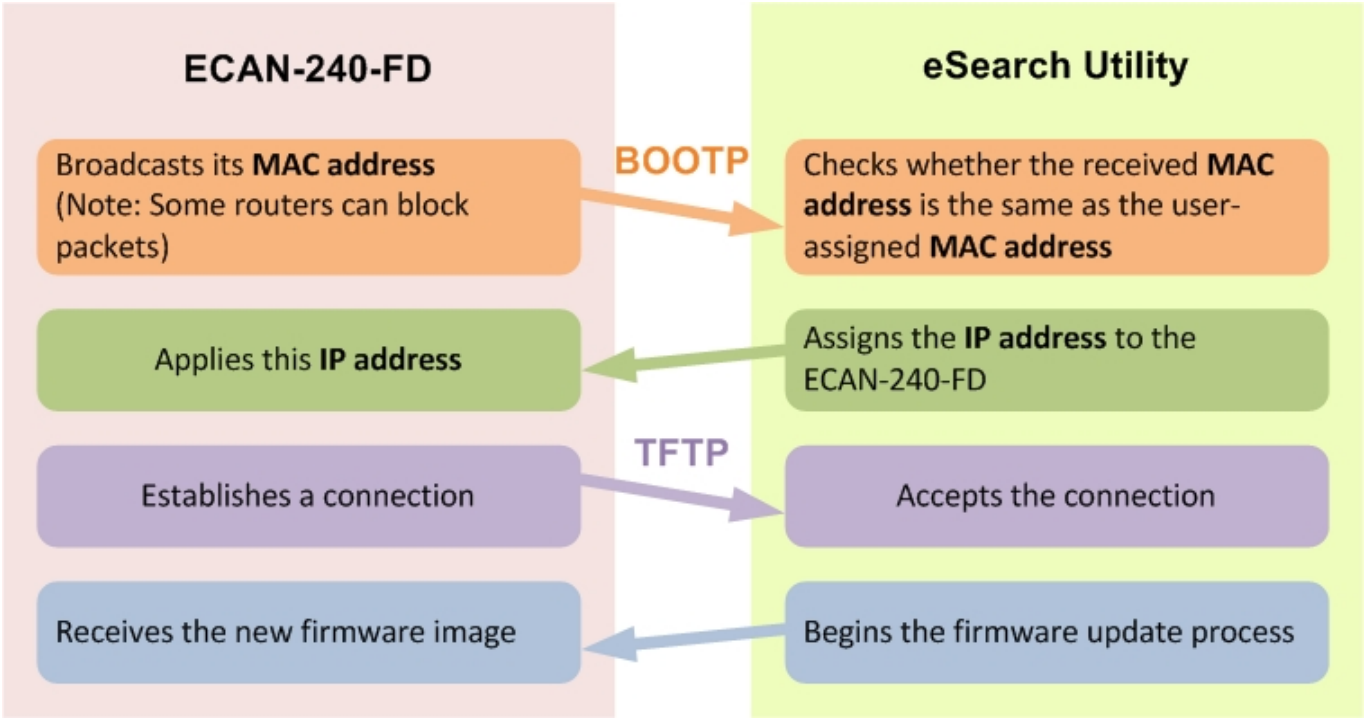
If the settings displayed in the IP address field of the firmware update window is incorrect or invalid (e.g. IP address: 0.0.0.0), then a valid IP address must be manually specified for the ECAN-240-FD in order to process the update operation. Please contact your network administrator to obtain a valid IP address before proceeding.

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.

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 6**.The firmware update procedure is illustrated in the figure below.



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.