tDS-700 RevB / RevB2 Series

Firmware Update via Ethernet

SUPPORT

Models supported include tDS-712, tDS-722, tDS-732, tDS-715, tDS-725, tDS-735, tDS-718, tDS-724 and tDS-734, tDSM-712, tDS-712i, tDS-722i, tDS-732i, tDS-715i, tDS-725i, tDS-735i, tDS-718i, tDS-724i, tDS-734i and tDS-715-T, tDS-718-T, tDS-715i-T, tDS-718i-T

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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If you have any questions, please feel free to contact us.
Email: service@icpdas.com

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

0. How to identify your tDS-700 ^{RevB / RevB2} module

Note: In this document, tDS-700_RevB will represent both the tDS-700 RevB and tDS-700 RevB2 modules.

When your tDS-700_RevB series module needs a firmware update, please check the module name on the front panel that without **"RevB"** or **"RevB2"** are not applicable to this firmware update, as shown in the figure below:

Module Name: **tDS-700** ^{RevB / RevB2}
Firmware file: **tDS700_RevBxxx_xxxxxx.zip**

Module Name: **tDS-700**
Not applicable to this Firmware update manual.
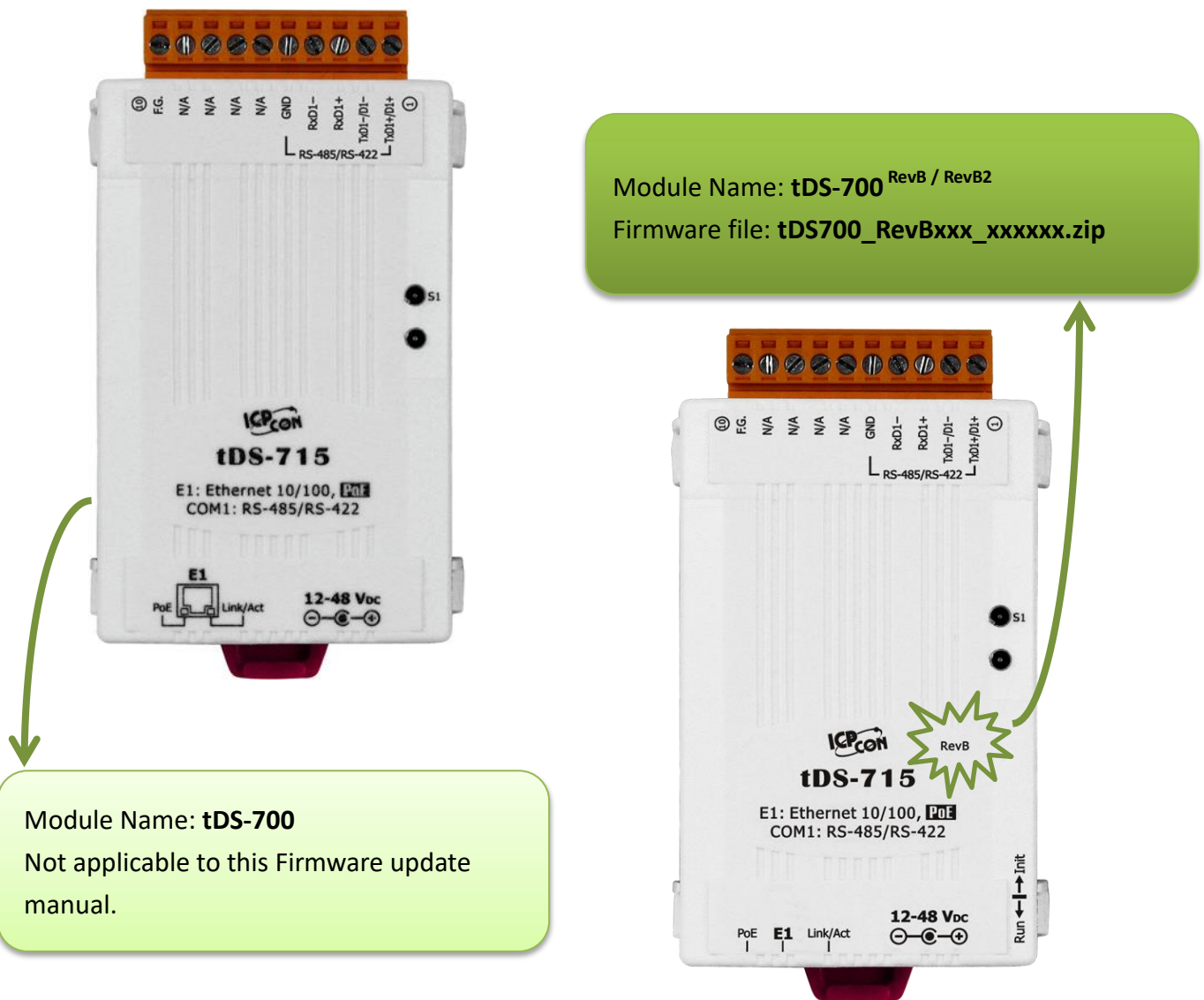
1. Setting up the tDS-700_RevB Module

Before updating the firmware, please ensure that the network settings for both your host computer and tDS-700_RevB modules are correctly configured, or the update procedures via the Ethernet network may not function correctly.

Step 1: Connect the tDS-700 _RevB to the same hub or the same sub-network as your Host PC, and attach a power supply to the tDS-700_RevB. Do not connect the tDS-700_RevB 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 tDS-700_RevB Quick Start Guide for more detailed information.
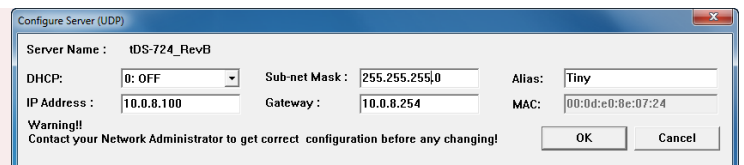
 [Download the Quick Start Guide.](#)

Step 2: Install the eSearch Utility on your Host PC, and then run the Utility to search for any tDS-700_RevB modules connected to the network.
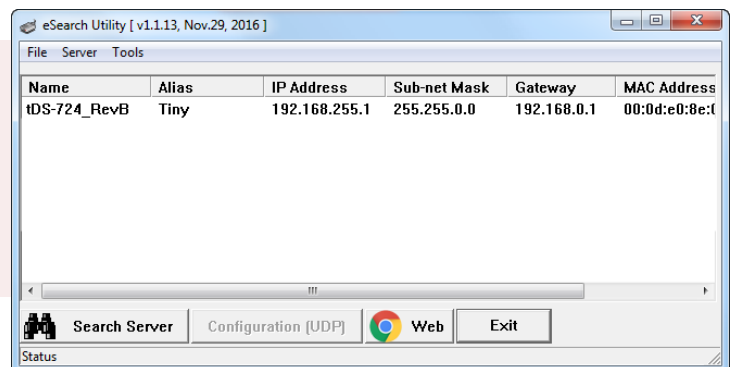
 [Download the eSearch Utility.](#)

Step 3: Configure the correct network settings for the required tDS-700 _RevB module.

Please refer to **"Chapter 4-Configuring Ethernet Settings"** in the tDS-700_RevB Quick Start Guide. If the IP address settings do not work correctly, please refer to **note1 (Page 24)**.

 [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, anti-virus software, VPN, VirtualBox, VMWare first.

2.1 tDS-700 ᴿᵉᵛᴮ Firmware Update

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.
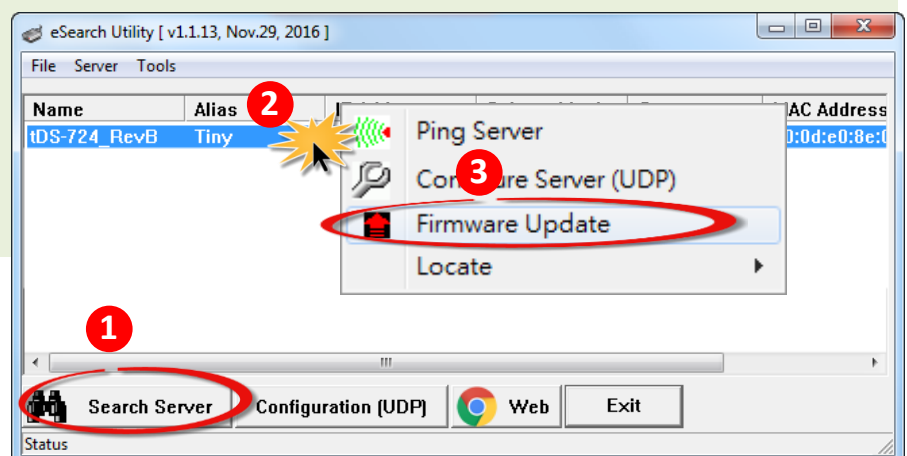
The **"Remote Firmware Update"** method allows the user to initialize the module via a web interface without needing to adjust the hardware switch. Initialization via the web interface is useful when the module is installed at a remote site and can be accessed via the TeamViewer application installed 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 tDS-700_RevB modules connected to the network . (The network settings as described in Step 3 on Page2)

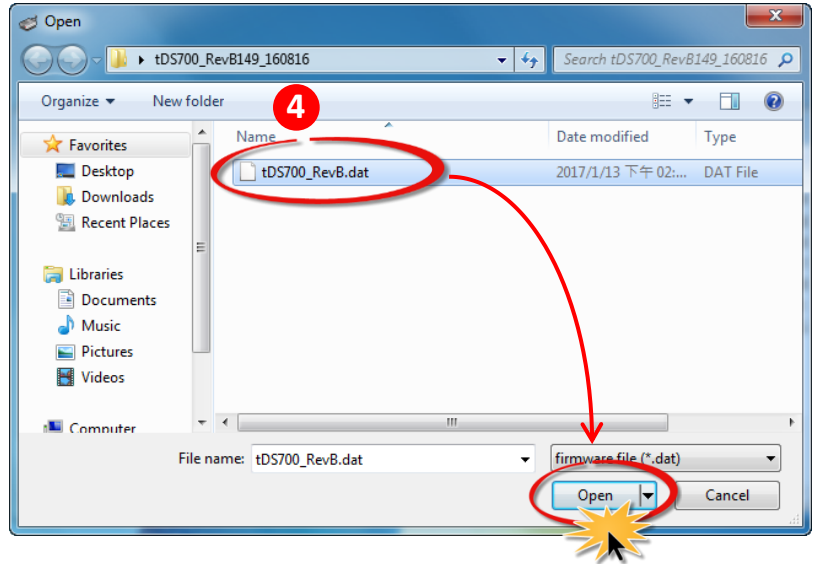*Step 2: Right click on the name of the tDS-700_RevB module to be updated.*

Step 3: Select the "Firmware Update" item.

Step 4: In the "Open" dialog box, select the firmware file (tDS700_RevB.dat) that will be used to update the module and then click the "Open" button.
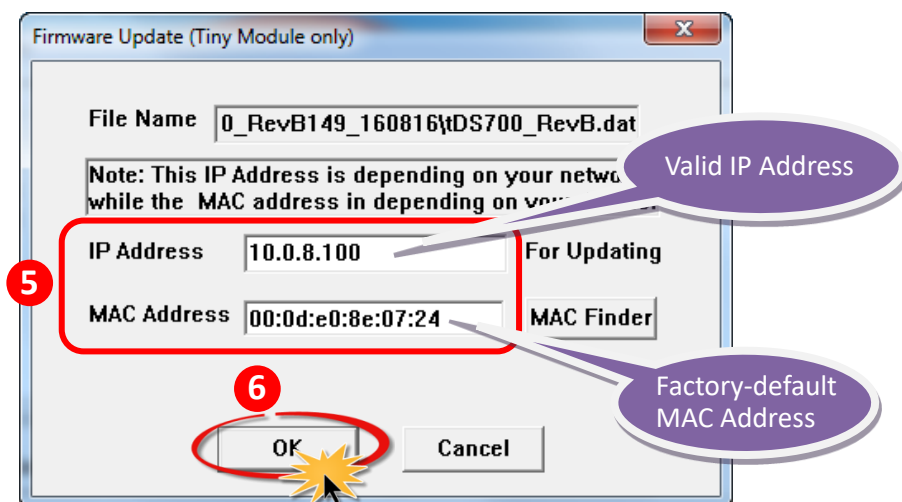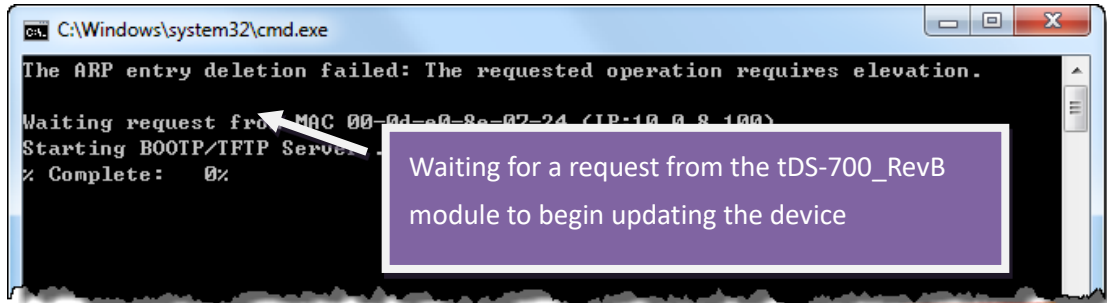
Download the Firmware File.

Step 5: Assign a valid IP Address (can be different with the current IP) and the factory-default MAC Address for the tDS-700_RevB 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 24) and note 3 (Page 25) for more details.

Step 6: Click the "OK" button.

Step 7: You are now ready to update the firmware. A command prompt window will appear to show the progress of the update.
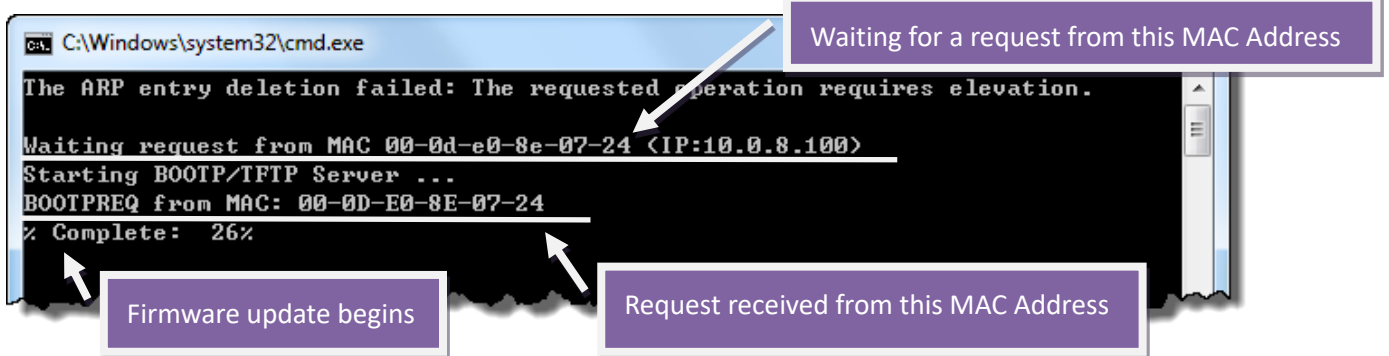

Waiting for a request from the tDS-700_RevB module to begin updating the device

Step 8: Set the tDS-700_RevB module to "Init Mode".

Step 9: Power-on reset the tDS-700_RevB 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 25) below for more details.

Waiting for a request from this MAC Address

Firmware update begins

Request received from this MAC Address

Step 11: Once the update is complete (i.e., when the progress indicator reaches 100%), set to *"Run Mode"*.

Step 12: *Power-on reset* the tDS-700_RevB module.

Step 13: In the eSearch Utility, search for the tDS-700_RevB module again to verify that it is functioning correctly. **Note that the settings of 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 tDS-700_RevB module.

Step 15: Click the *"Web"* button and the default web browser will be opened.
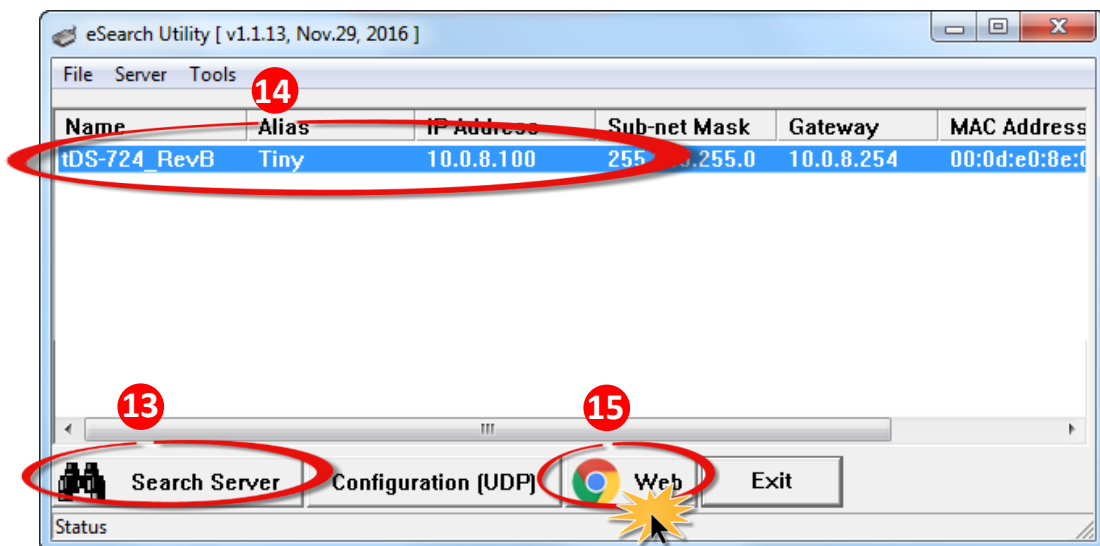
Step 16: A new password is required before the first login. Enter the default password "admin" in the "Current password" field , and enter the new password in both the "New password" and "Confirm new password" fields.

Step 17: Verify that the firmware version and date details are correct.
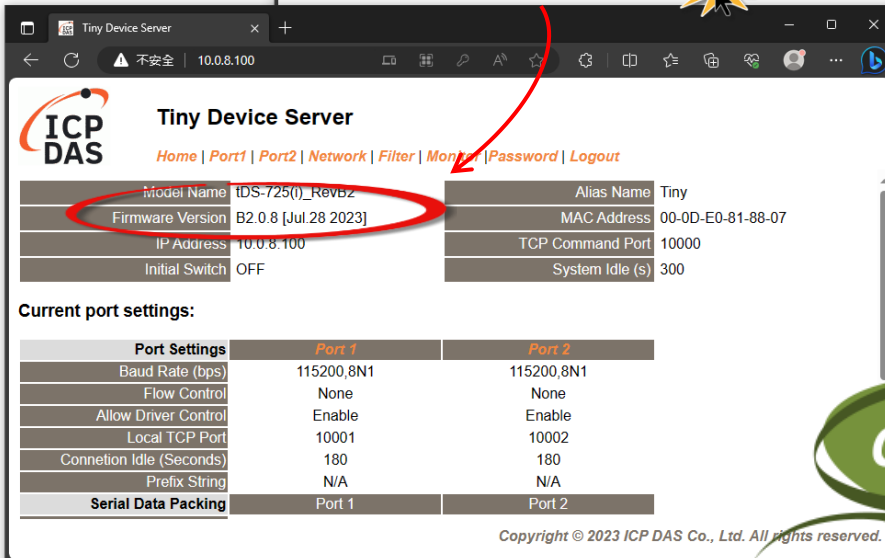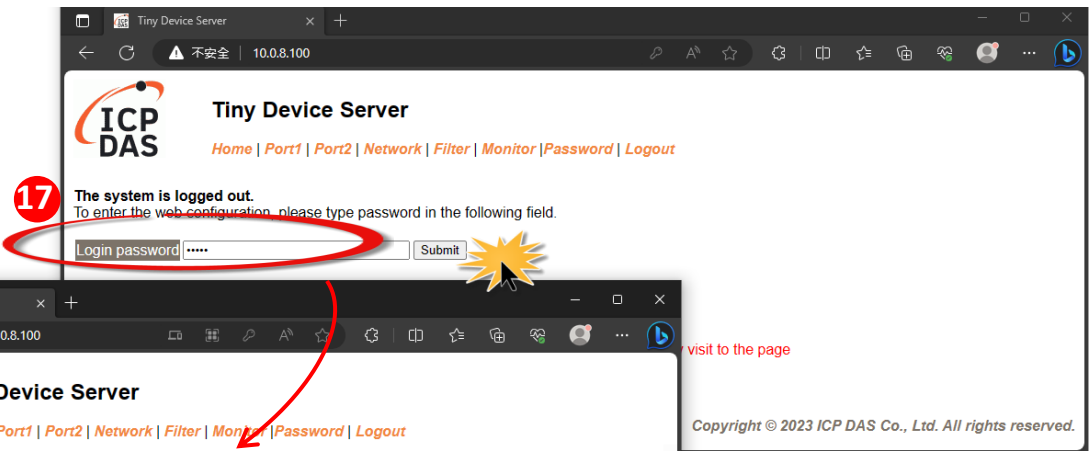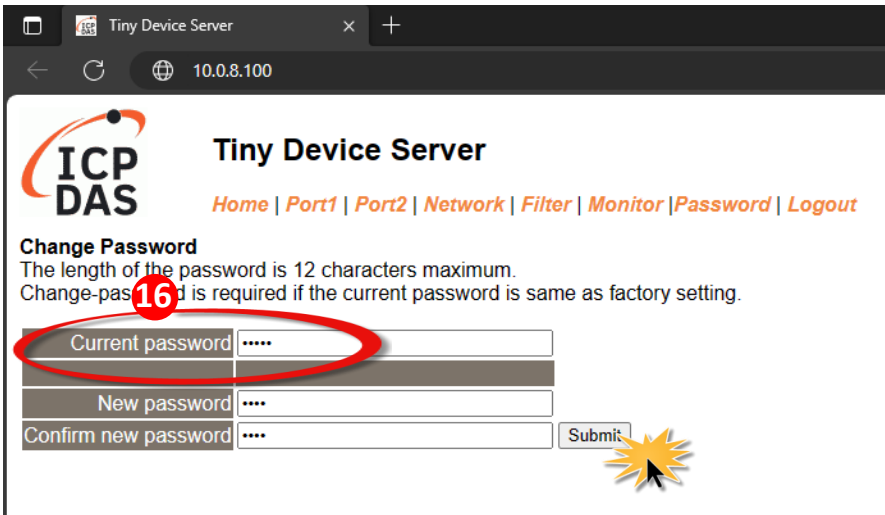
2.1.2 Remote Firmware Update

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.**

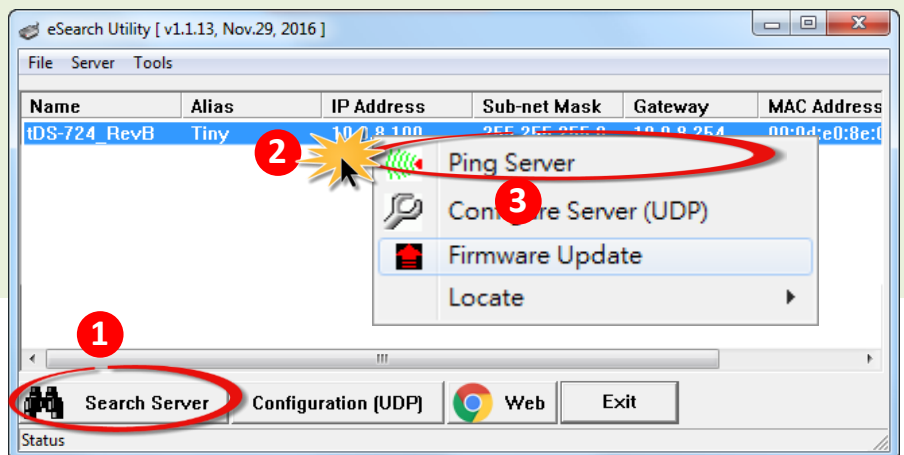User is there remotely controlling the firmware update procedures.
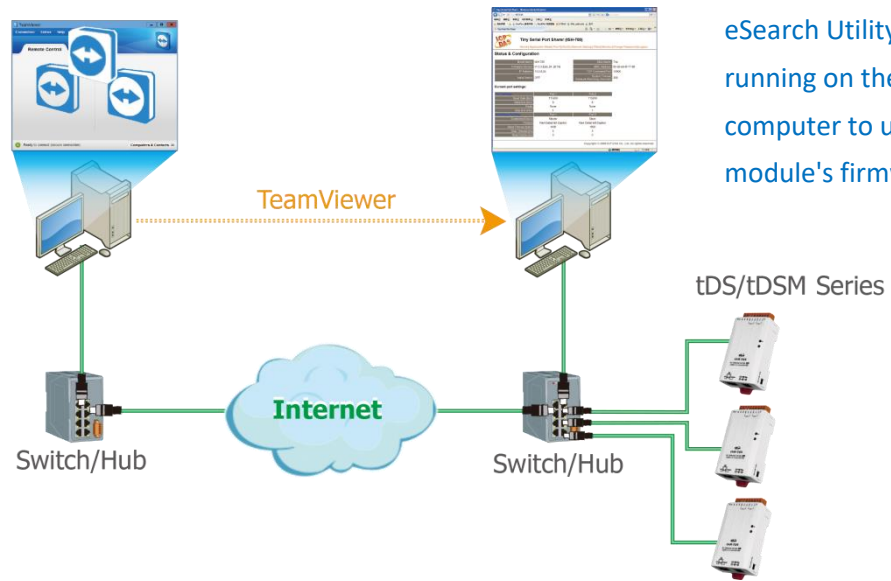
eSearch Utility is running on the computer to update module's firmware.

Follow the procedure described below to update firmware of the tDS-700_RevB on the remote PC:

Step 1: In the eSearch Utility, click the "Search Servers" button to search for any tDS-700_RevB modules connected to the network . (The network settings are described in Step 3 of Chapter1)

Step 2: Right click the name of the tDS-700_RevB module to be updated.
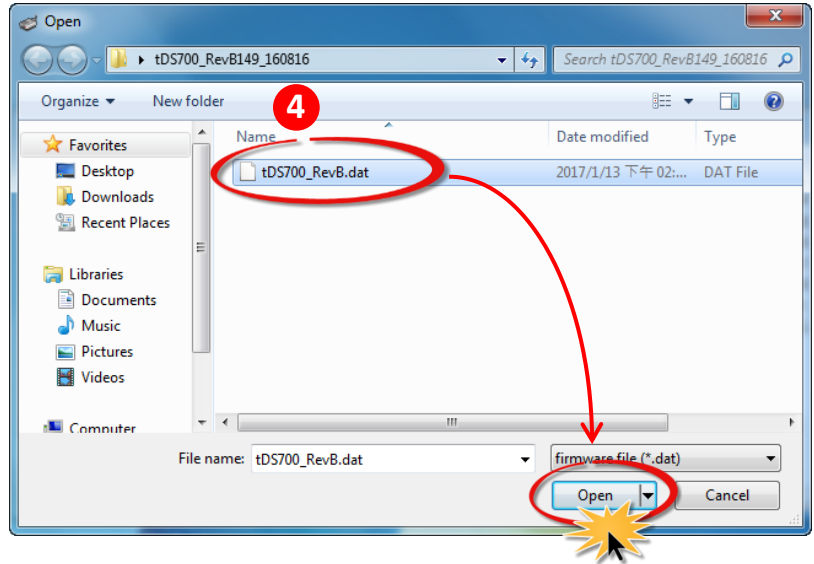
Step 3: Select the "Firmware Update" item.

Step 4: In the "Open" dialog box, select the firmware file (tDS700_RevB.dat) that will be used to update the module and then click the "Open" button.
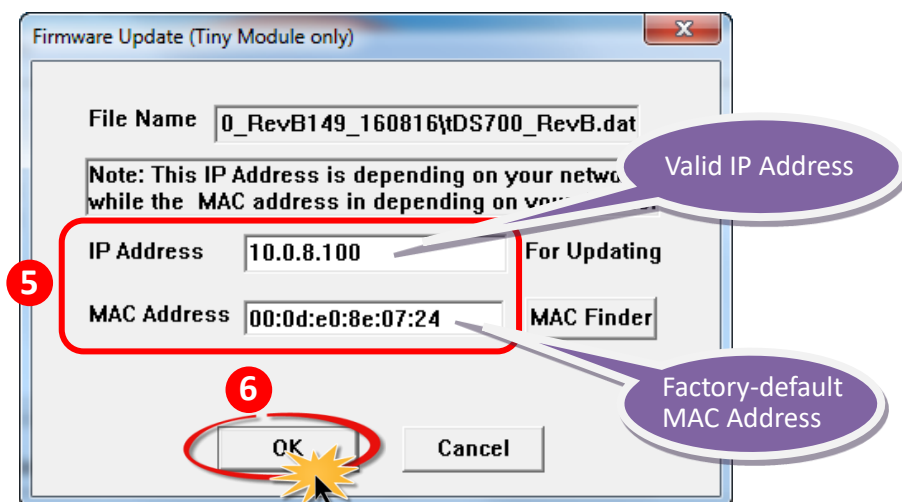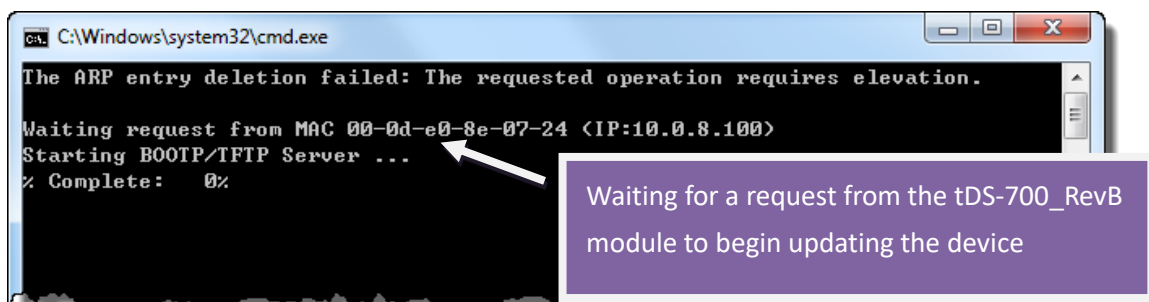
Download the Firmware File.

Step 5: Assign a valid IP Address (can be different with the current IP) and the factory-default MAC Address for the tDS-700_RevB 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 24) and note 3 (Page 25) for more details.
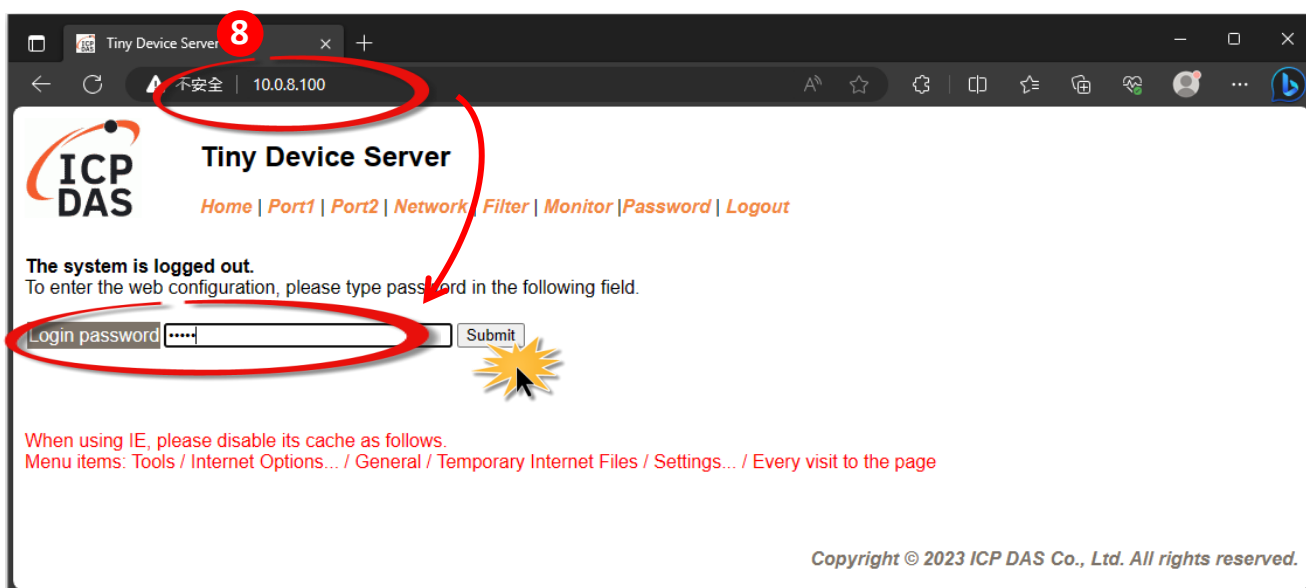
Step 6: Click the "OK" button.

Step 7: You are now ready to update the firmware. A command prompt window will appear to show the progress of the update.

Waiting for a request from the tDS-700_RevB module to begin updating the device

Step 8: Open a web browser and enter the URL for the tDS-700_RevB in the address bar of the browser and log in to the web configuration pages.

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

Step 10: Click the "Update" button in the "Firmware update via Ethernet" 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 25) 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
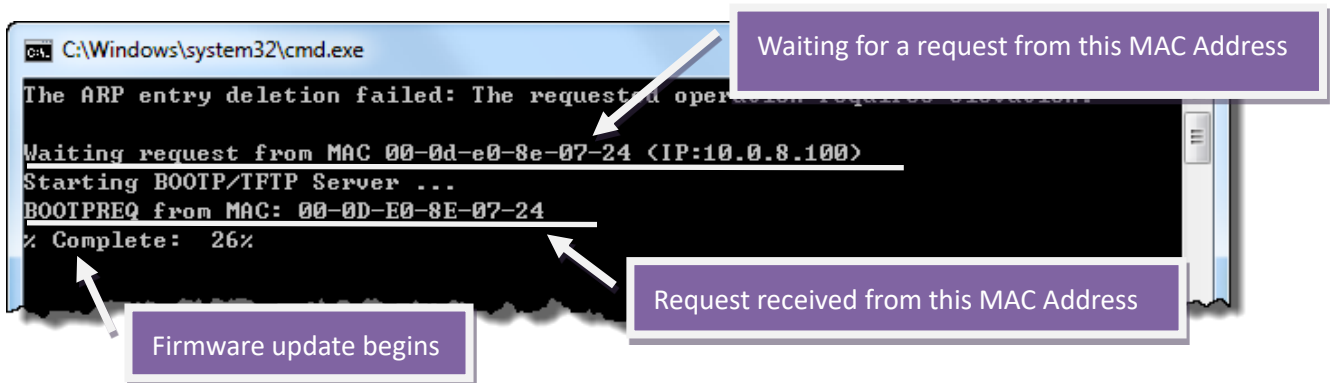
Note: If the Remote Firmware Update method fails, please refer to Section 3.1 Firmware update in BOOT mode **(local operation) to restore the module.**

Step 13: In the eSearch Utility, search for the tDS-700_RevB module again to verify that it is functioning correctly. Note that the settings of 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 tDS-700_RevB module to highlight it.

Step 15: Click the "Web" button and the default web browser will be opened.
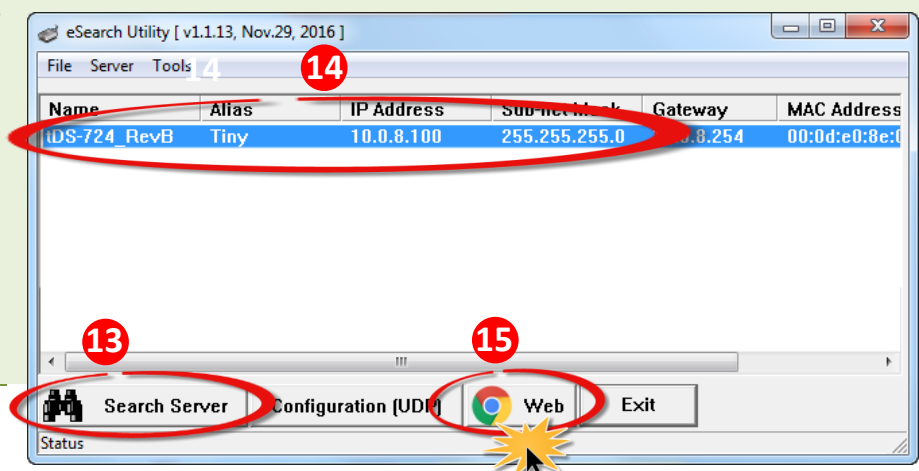
Step 16: A new password is required before the first login. Enter the default password "admin" in the "Current password" field , and enter the new password in both the "New password" and "Confirm new password" fields.

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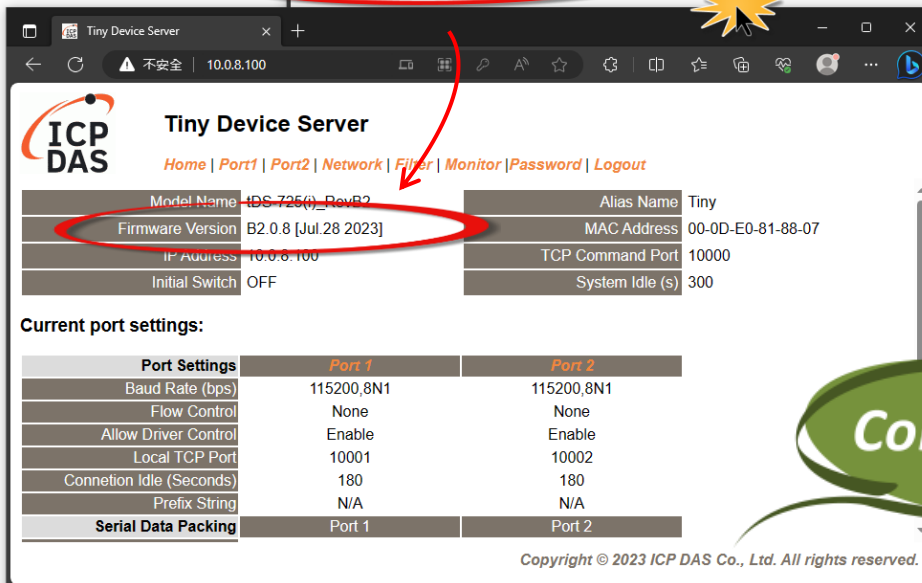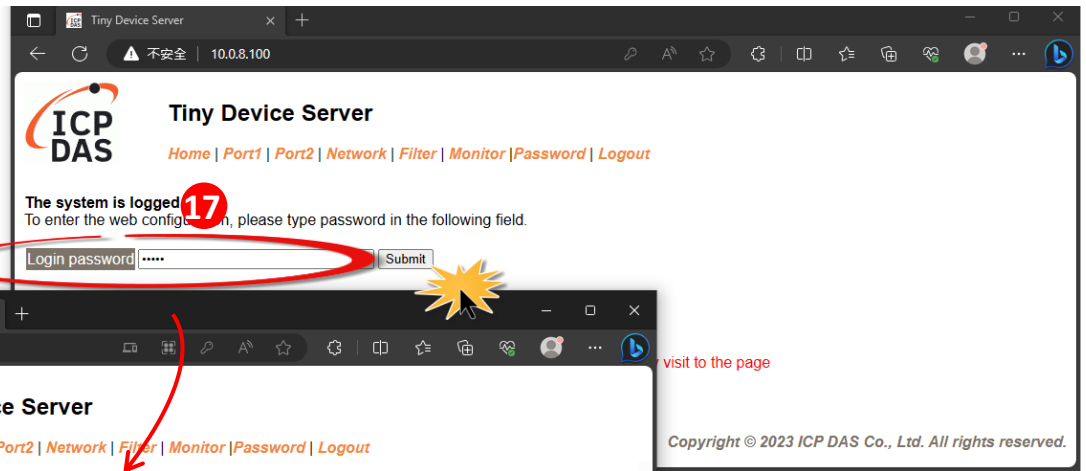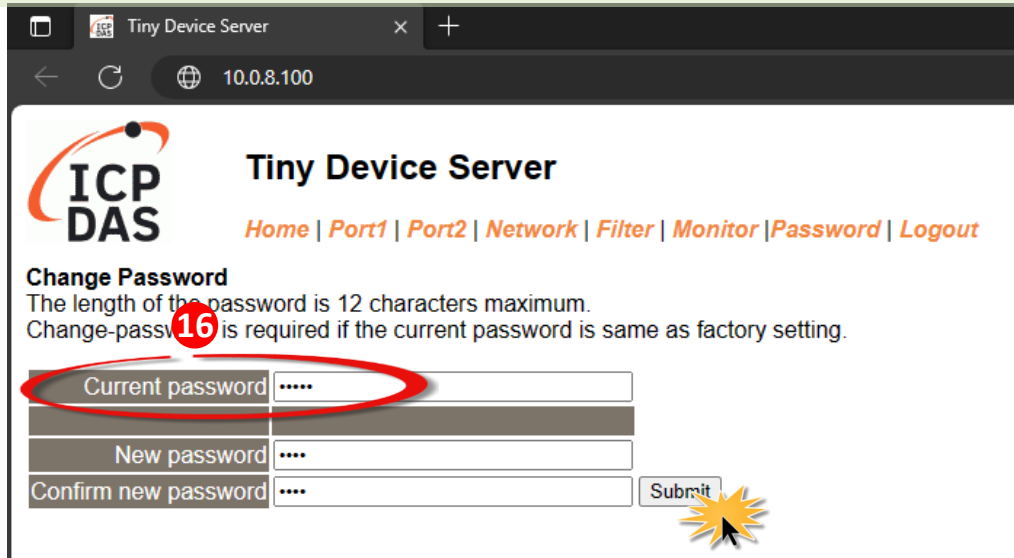
3. Troubleshooting

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 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.
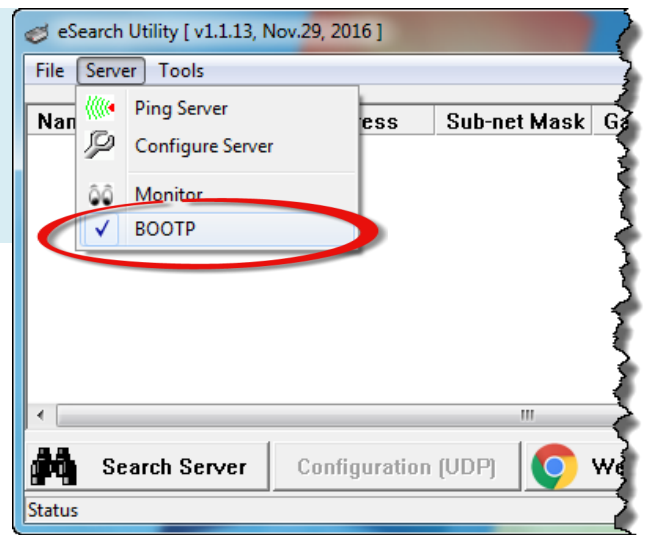
Step 2: Set to "Init Mode".

Step 3: Power-on and reboot the tDS-700 _RevB module and then click the "Search Servers" button to search for the tDS-700_RevB module 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.
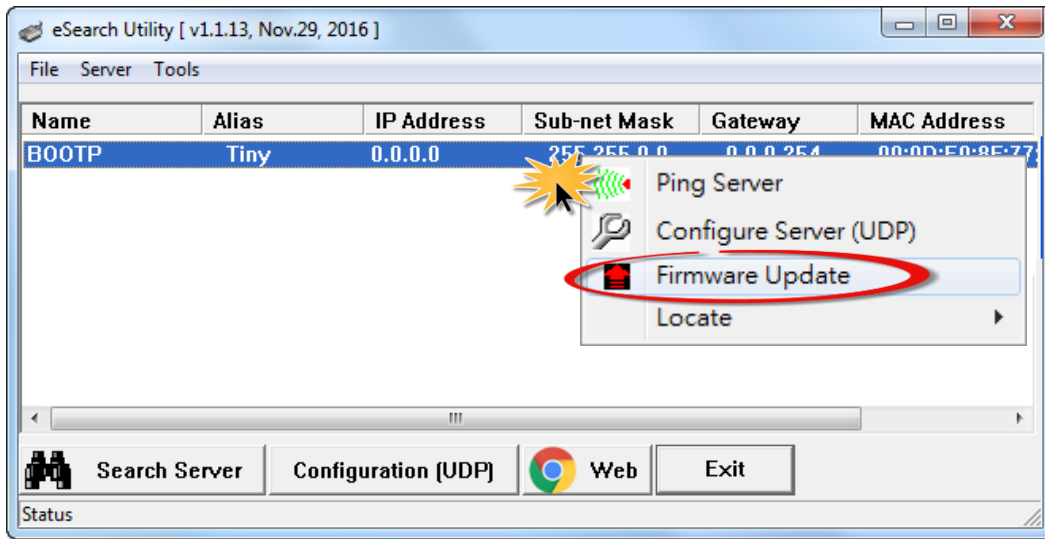
Step 5: Refer to Steps 4 to 17 in "Chapter 2-Firmware Update Procedure" to complete the update process. Note, the module will response with no IP address in the BOOTP mode. User has to assign a valid IP manually in step 5 of page4.
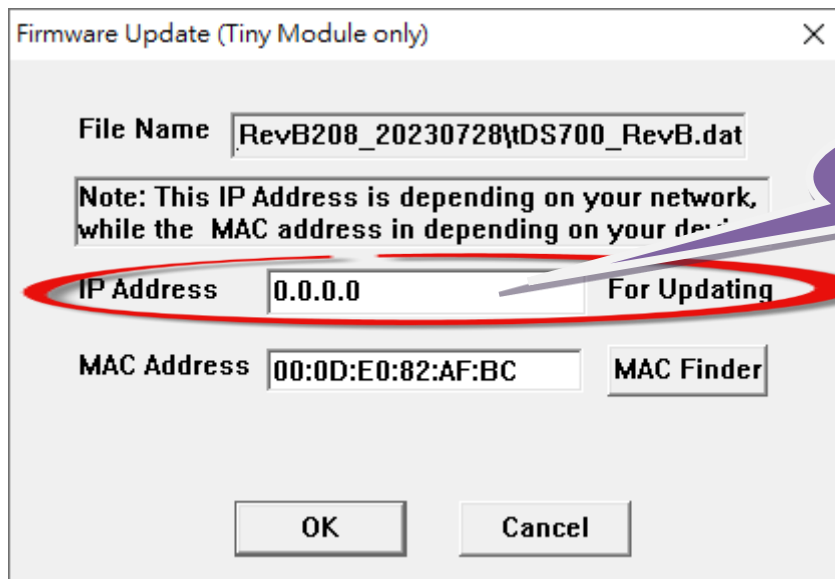
Step 6: After updating the firmware, *disable BOOTP mode* from the eSearch utility.

3.2 How to update Firmware when IP addresses of tDS-700_RevB and host PC are on different network segments?

The IP address of tDS-700_RevB module and Host PC, and the network access point (without passing through a router/gateway) must be in the same subnet for firmware update.

➢ If the network environment supports DHCP, you can refer to Method 1 to set the IP for the module.

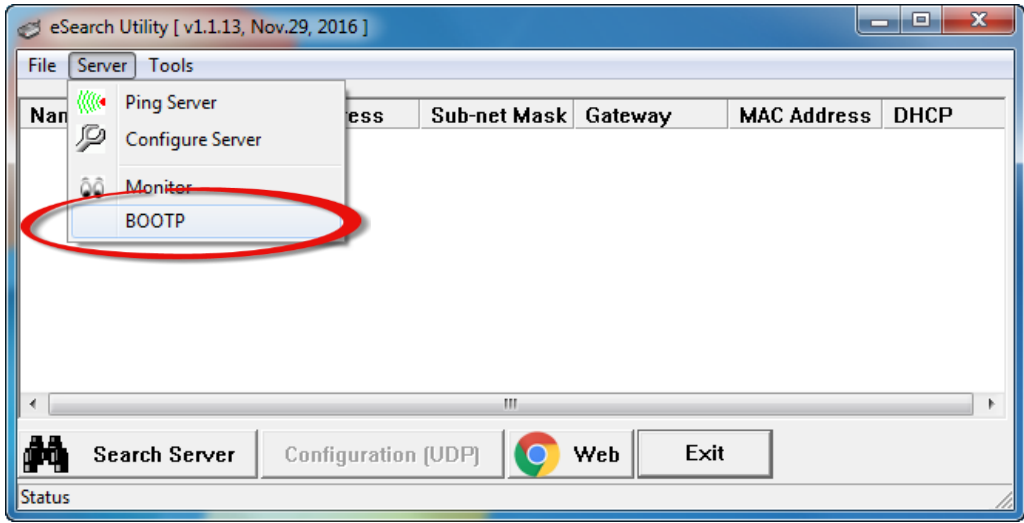➢ Alternatively, you can contact the network administrator to obtain a set of valid static IP addresses, referring to Method 2 to set the IP for the module.

Once the module's IP address is correctly configured, you can proceed with the firmware update.

Method 1: Using **"DHCP"** to automatically assigns an IP address to tDS-700_RevB module. Follow the procedure described below:

Note: Please consult your network administrator as this feature requires the presence of a DHCP server in the network environment.

Step 1: Run the eSearch Utility to search for tDS-700_RevB modules

Step 2: Double click the name of tDS-700_RevB to open the "Configure Server (UDP)" dialog box.
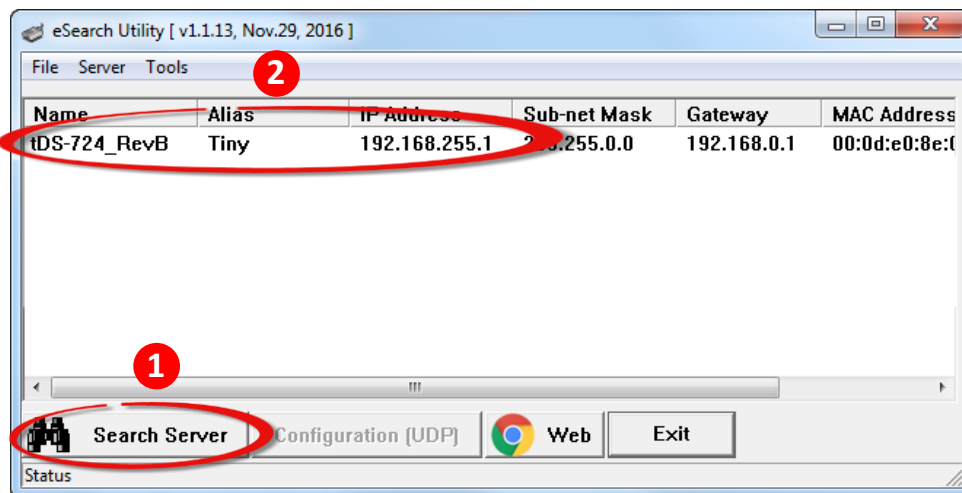
Step 3: Select the "1: ON" option from the "DHCP:" drop-down menu and click the "OK" button.
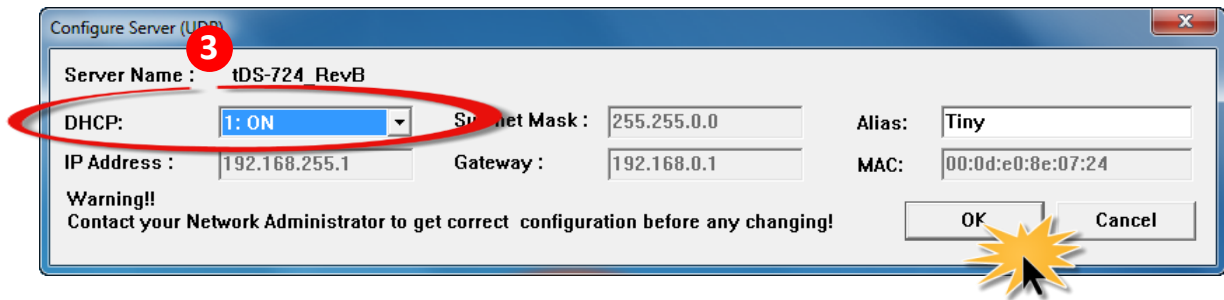
Step 4: Wait 2 seconds and then click the "Search Servers" button again to ensure the tDS-700_RevB is working well with new configuration.
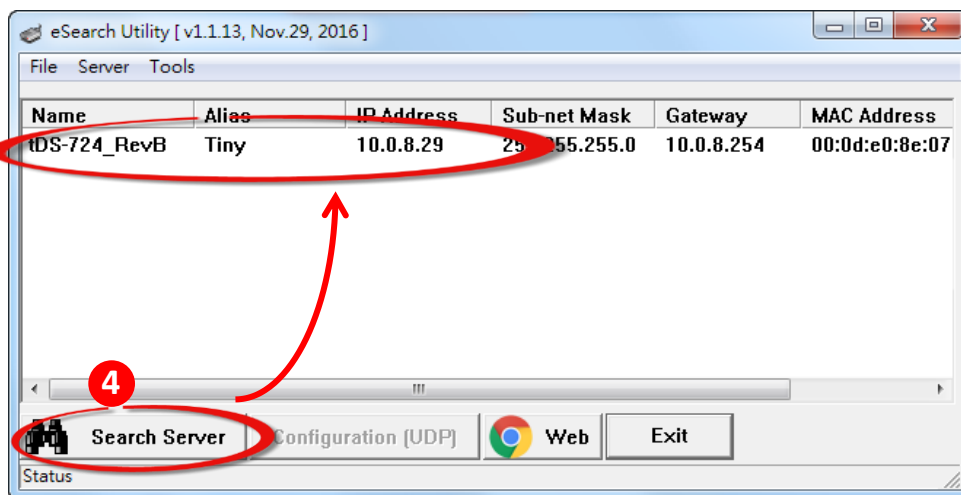
Step 5: Refer to "Chapter 2-Firmware Update Procedure" for details of how to complete the update process.

Method 2: Using **"Manual configuration"** to assigns an IP address to tDS-700_RevB series module. Follow the procedure described below:
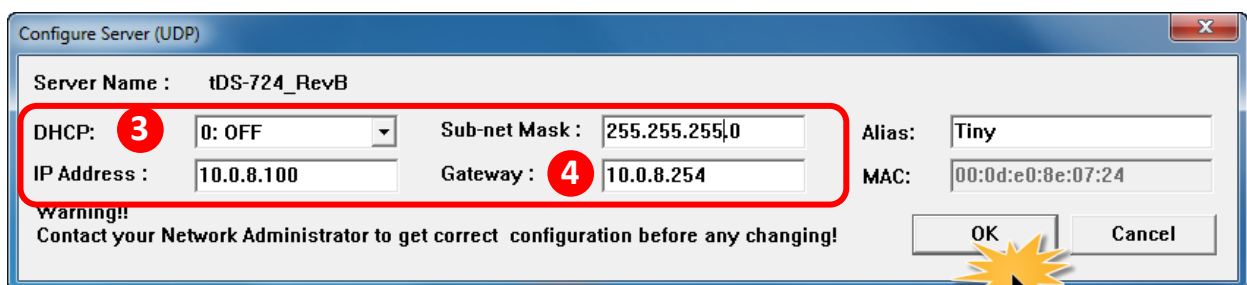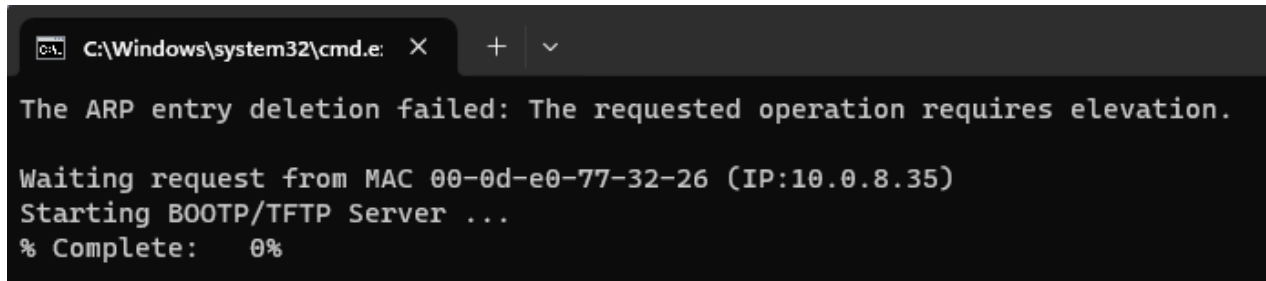
Step 5: Wait 2 seconds and then click the "Search Servers" button again to ensure the tDS-700_RevB is working well with new configuration.
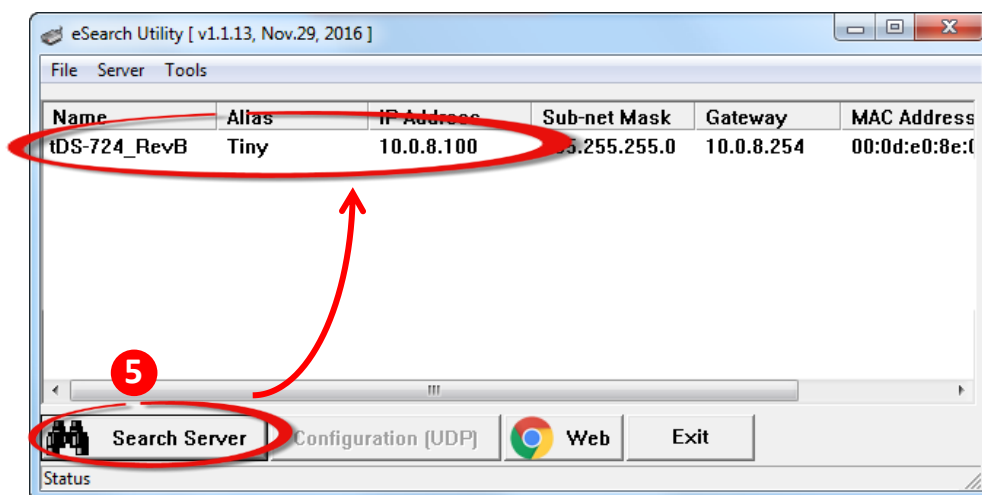
Step 6: Refer to "Chapter 2-Firmware Update Procedure" for details of how to complete the update process.

3.3 How to solve issues encountered during Firmware update

Issue 1: If the update progress is stuck at 0% with no response.

Solution: After completing the following steps, please Power-on reset the module.
  Step 1: Please make sure that the Init/Run Switch of the module is in the "Init" position.
  Step 2: Turn off the firewall and antivirus software.
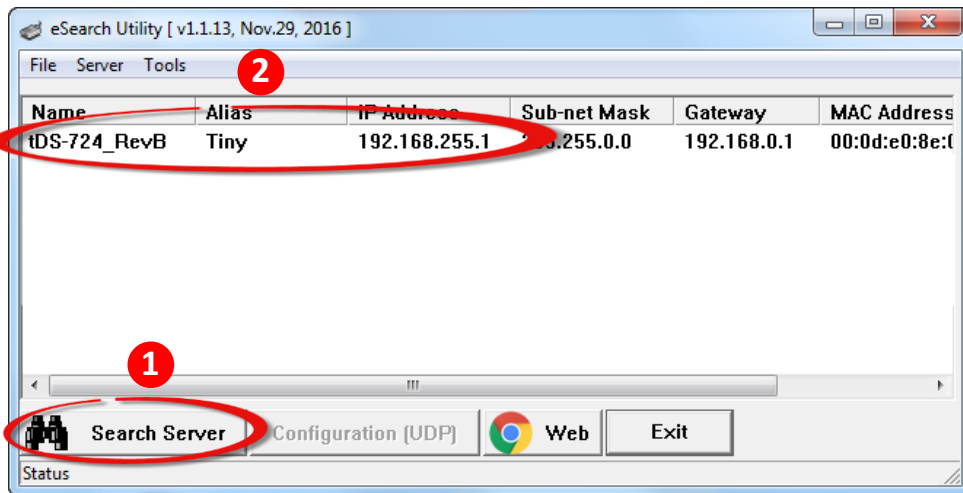 **Step 3: Make sure there is no multiple IPV4 configuration. (Refer to section 3.3, Question 2)**

Issue 2: If there are multiple network adapters connected on the computer (LAN, Wi-Fi, VPN, VirtualBox, VMWare etc.), the following warning will appear during the subsequent eSearch firmware update.
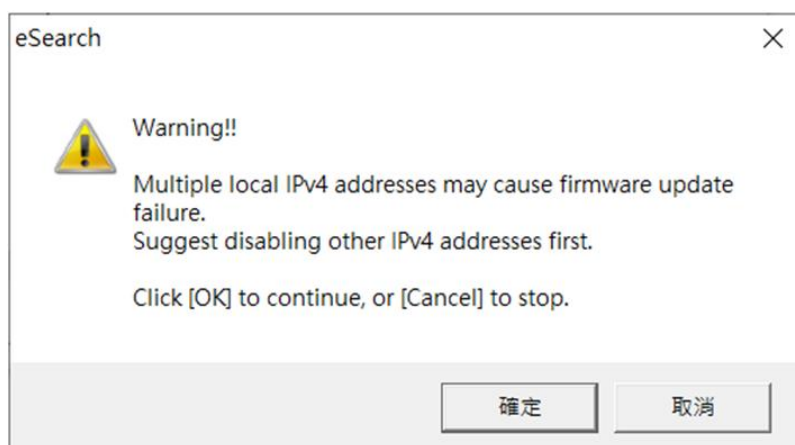
Solution: Pleaes disable the other network interfaces, leave only the single one connected to the module. RUN the update process again.

Issue 3: When users fail to properly close the Command Prompt window during the Firmware update, it may result in the occupation of the Socket. Subsequently, when using eSearch to update Firmware, the following warning may appear.
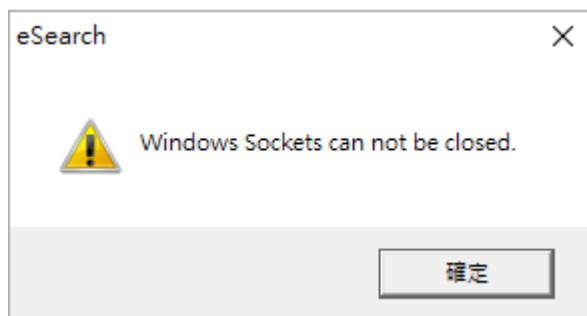
Solution: Please close the eSearch Utility and the Command Prompt window. Afterward, reopen the eSearch Utility and perform the update process again. If the warning message persists, please restart your computer.

If you encounter the aforementioned issues and all solutions fail, please refer to the following steps: Connect the module directly to the PC and perform the Firmware update without an external network connection.

Before starting the operation, please switch to a relatively clean computer environment. Users need to manually set an IP address to communicate with the tDS-700_RevB module connected to the same subnet.
Please refer to the instructions on how to set up the computer's IP: How to Set a Static IP Address (trendnet.com)

Steps 1: Disable all network connections except for the one used to connect to the tDS-700_RevB module. In the example below, it is evident that Wi-Fi is not connected at this time.
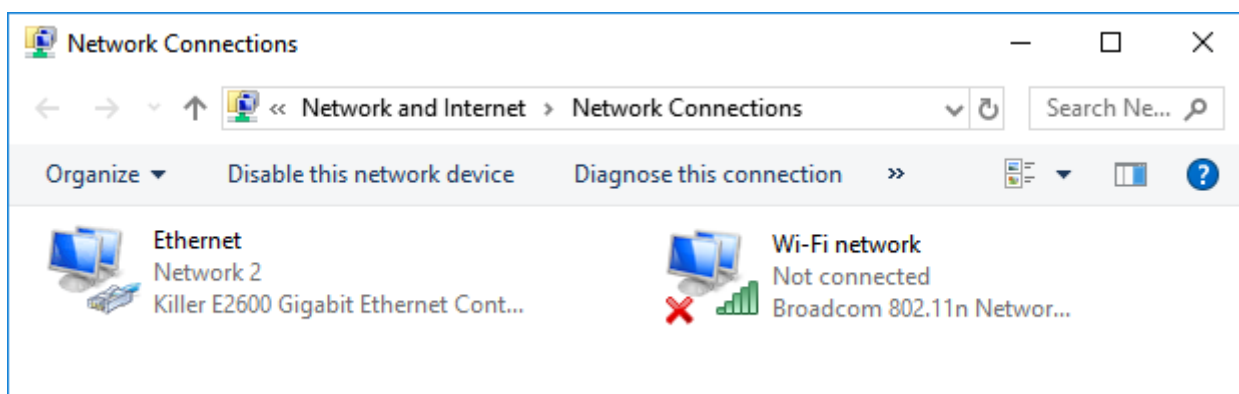
Steps 2: The module's default IP address is 192.168.255.1. Set your computer's IP address to something other than the module's setting, for example, 192.168.255.10.

Internet Protocol Version 4 (TCP/IPv4) Properties ✕

General

You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.

○ Obtain an IP address automatically

⦿ Use the following IP address:

IP address: 192 . 168 . 255 . 10

Subnet mask: 255 . 255 . 0 . 0

Default gateway: . . .

○ Obtain DNS server address automatically

⦿ Use the following DNS server addresses:

Preferred DNS server: . . .

Alternate DNS server: . . .

☐ Validate settings upon exit

Advanced...

OK   Cancel

Steps 3: Please disable the firewall and antivirus software, and unplug all other network cables, leaving only the network cable connection between the tDS-700_RevB module and the computer.
Note: If the tDS-700_RevB module is powered via PoE, the PoE switch should not be connected to the external network. If the tDS-700_RevB module is powered via DC, simply connect one network cable to both the computer and the module

Subsequent steps, please refer to "Chapter 2 - Firmware Update Procedure" Steps 1 to 17 to complete the firmware update (subsequent update procedure steps are the same).
Note: In Step 5 on page 4, users can directly use the default IP 192.168.255.1 without making any changes.

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 tDS-700_RevB 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 tDS-700_RevB series uses the factory-default MAC address rather than any user-defined MAC addresses.* The tDS-700 _RevB 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/Run Switch should be set to the "**Init**" position and then the tDS-700_RevB 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 tDS-700_RevB 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 which in the same subnet must be manually specified for the tDS-700_RevB 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.

tDS-700_RevB Series		eSearch Utility
Broadcasts its **MAC address** (Note: Some routers can block packets)	**BOOTP** →	Checks whether the received **MAC address** is the same as the user-assigned **MAC address**
Applies this **IP address**	←	Assigns the **IP address** to the tDS-700_RevB Series
Establishes a connection	**TFTP** →	Accepts the connection
Receives the new firmware image	←	Begins the firmware update process

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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.