

## 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.

## 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

ICP DAS assumes no liability for damages consequent to the use of this product. ICP DAS reserves the right to change this manual at any time without notice. The information furnished by ICP DAS is believed to be accurate and reliable. However, no responsibility is assumed by ICP DAS for its use, nor for any infringements of patents or other rights of third parties resulting from its use.

## COPYRIGHT

Copyright © 2017 by ICP DAS. All rights are reserved.

## TRADEMARKS

Names are used for identification purposes only and may be registered trademarks of their respective companies.

## CONTACT US

If you have any questions, please feel free to contact us.

We will respond within 2 working days.

Email: [service@icpdas.com](mailto:service@icpdas.com) ; [service.icpdas@gmail.com](mailto:service.icpdas@gmail.com)

# tDS-700/ tDS-700 RevB Series

## Firmware Update via Ethernet

Version: 1.4/ Updated: Jun. 2017

Ch. 0. How to identify your tDS-700 type

Ch. 1. Setting up the tDS-700 Series

Ch. 2. Firmware Update Procedure

Ch. 3. Troubleshooting

Ch. 4. Additional Information



ICP DAS CO., LTD.

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

# 0. How to identify your tDS-700 type

Identify your tDS-700 type by module name on the front of tDS-700, when you need to update the firmware. If the module name shows “RevB”, please download “tDS700\_RevBxxx\_xxxxxx.zip” firmware file and refer to [Section 2.1 “tDS-700<sup>RevB</sup> Firmware Update”](#) to update, on the contrary (the module name is **not** “RevB”), please download “tDS700fw\_vxxx\_xxxxxx.zip” firmware file and refer to [Section 2.2 “tDS-700 Firmware Update”](#) to update, as following figures illustrate:



Module Name: **tDS-700<sup>RevB</sup>**  
Firmware file: **tDS700\_RevBxxx\_xxxxxx.zip**  
Firmware updates procedure: **Section 2.1**



# 1. Setting up the tDS-700 Series

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

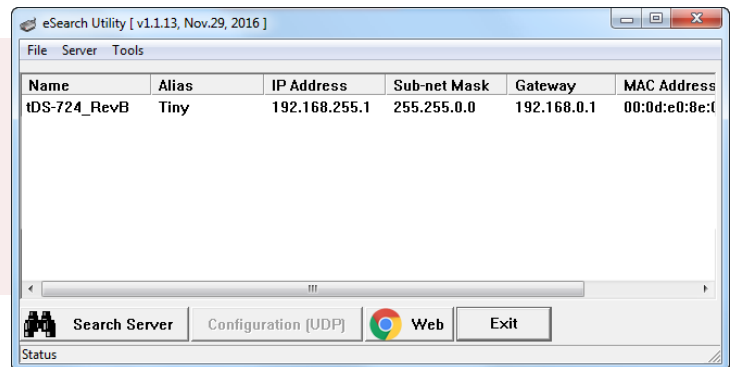
**Step 1: Connect the tDS-700 series to the same hub or the same sub-network as your Host PC, and attach a power supply to the tDS-700 series. Do not connect the tDS-700 series to a router or directly to the Internet as this may cause the update process to fail.**

Please refer to “**Chapter 3-Connecting the Power and Host PC**” in the tDS-700 Quick Start Guide for more detailed information.



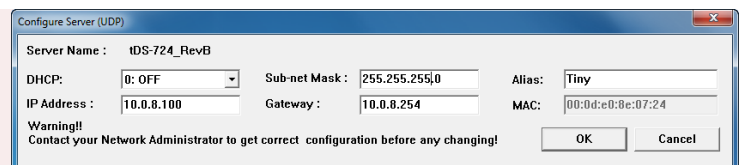
[Download the Quick Start Guide.](#)

**Step 2: Install the eSearch Utility on your Host PC, and then run the Utility to search for any tDS-700 series modules connected to the network.**



[Download the eSearch Utility.](#)

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



Please refer to “**Chapter 4-Configuring Ethernet Settings**” in the tDS-700 Quick Start Guide. If the IP address settings do not work correctly, please refer to **note1 (Page 23)**.



[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 tDS-700<sup>RevB</sup> Firmware Update

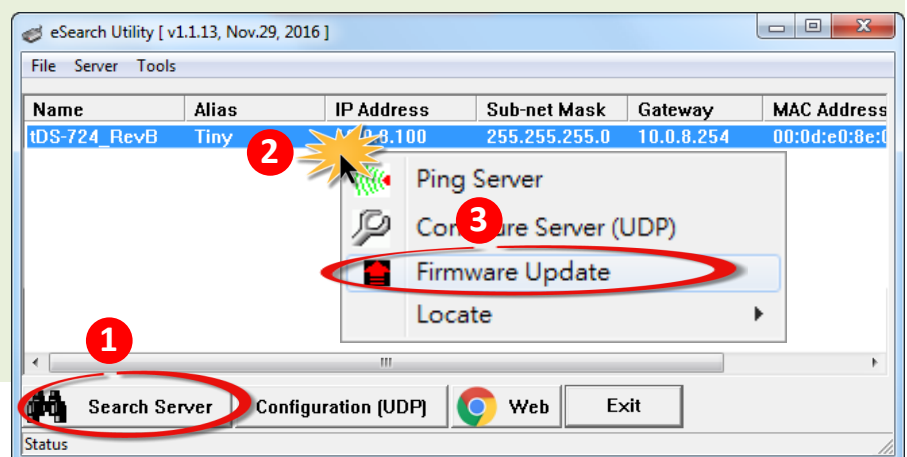
Two methods can be used to update the firmware: **“Local Firmware Update” (traditional)** and **“Remote Firmware Update” (TeamViewer)**. The Local Firmware Update method requires the user to manually adjust the position of the Init/Run Switch and reboot the module in order to initialize the firmware 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 tDS-700\_RevB modules connected to the network . (The network settings of the tDS-700\_RevB module 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 from the popup menu and the **“Open”** dialog box will be displayed.



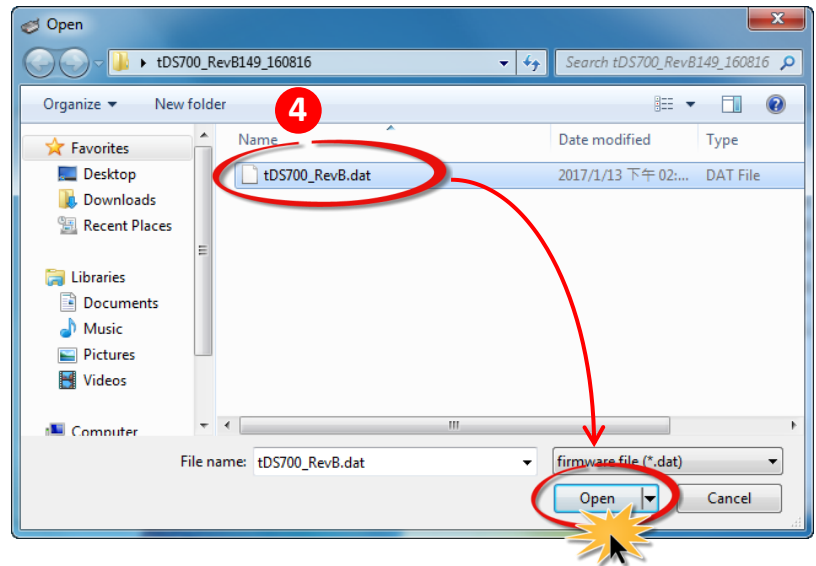
**Step 4:** In the **“Open”** dialog box, select the firmware file (**tDS700\_RevB.dat**) that will be used to update the module and then click the **“Open”** button.



[Download the Firmware File.](#)

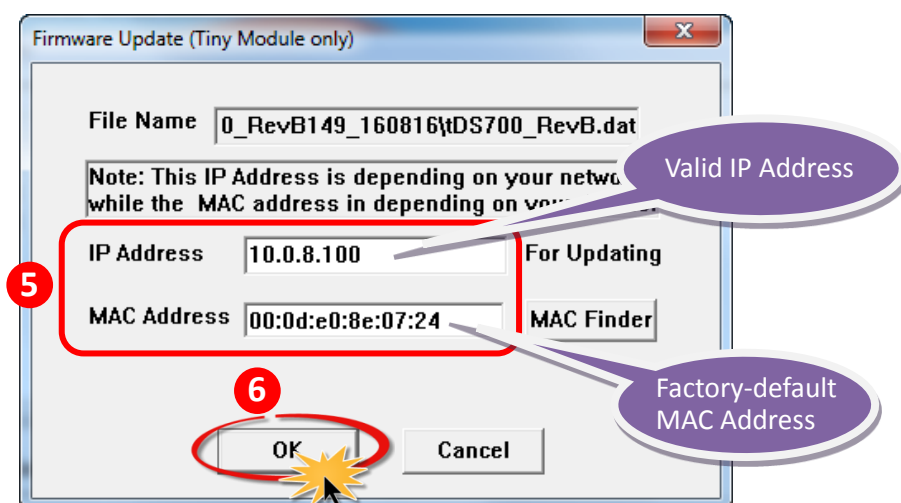


[Download the beta version of the firmware file.](#)

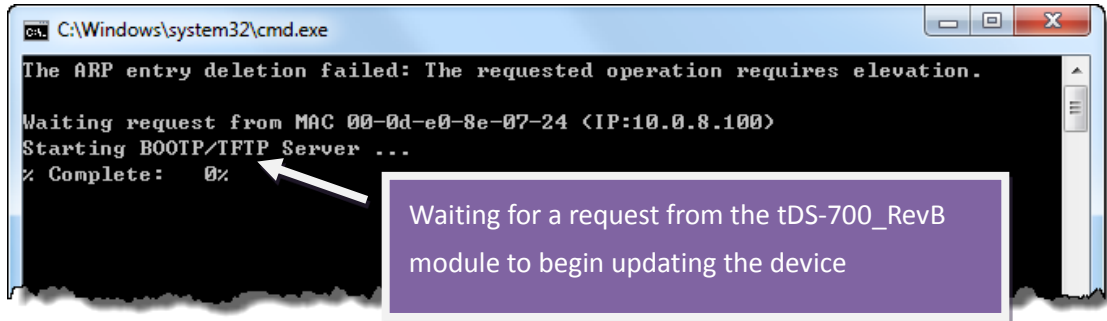


**Step 5:** Assign a **valid IP Address** (can be different with the current IP) and the **factory-default MAC Address** for the tDS-700\_RevB module. If this IP address is invalid (e.g. IP Address: 0.0.0.0) or a user-defined MAC address is assigned. Refer to **note 2 (Page 23)** and **note 3 (Page 24)** 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.

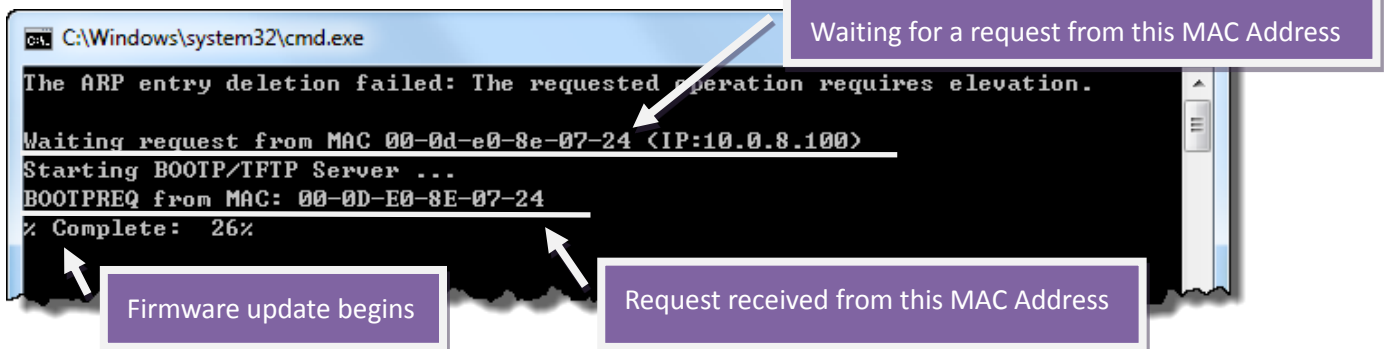


**Step 8:** Set the **“Init Switch”** on the tDS-700\_RevB module to the **“Init”** position.



**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 24)** below for more details.





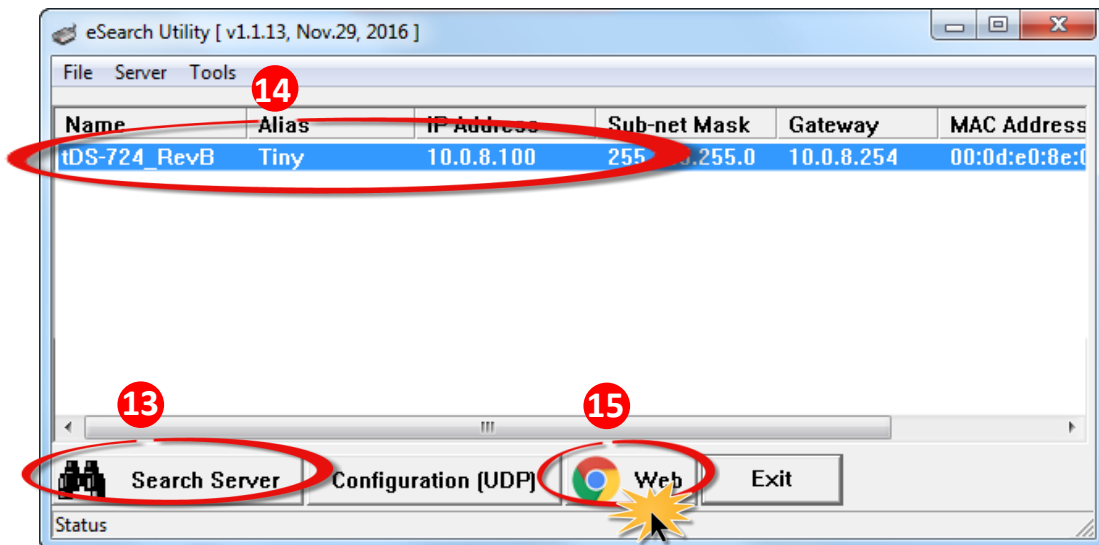
**Step 11:** Once the update is complete (i.e., when the progress indicator reaches 100%), set the “Init Switch” to the “Run” position.

**Step 12:** Power-on reset the tDS-700\_RevB module to operate the module in “Run Mode”.

**Step 13:** In the eSearch Utility, search for the tDS-700\_RevB 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 tDS-700\_RevB module to highlight it.

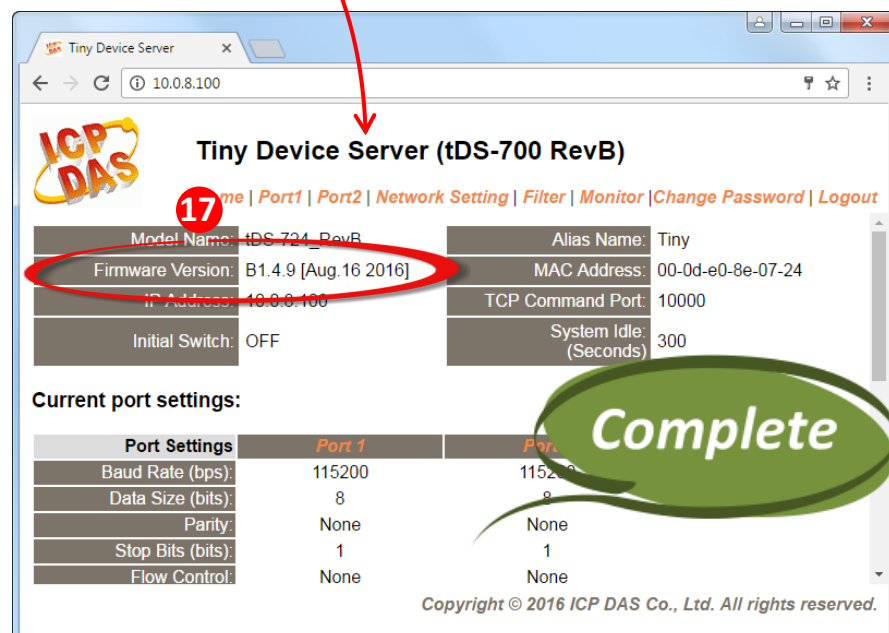
**Step 15:** Click the “Web” button and the default web browser will be opened.





**Step 16: Log in to the web configuration pages for the tDS-700\_RevB (use the default password "admin").**

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

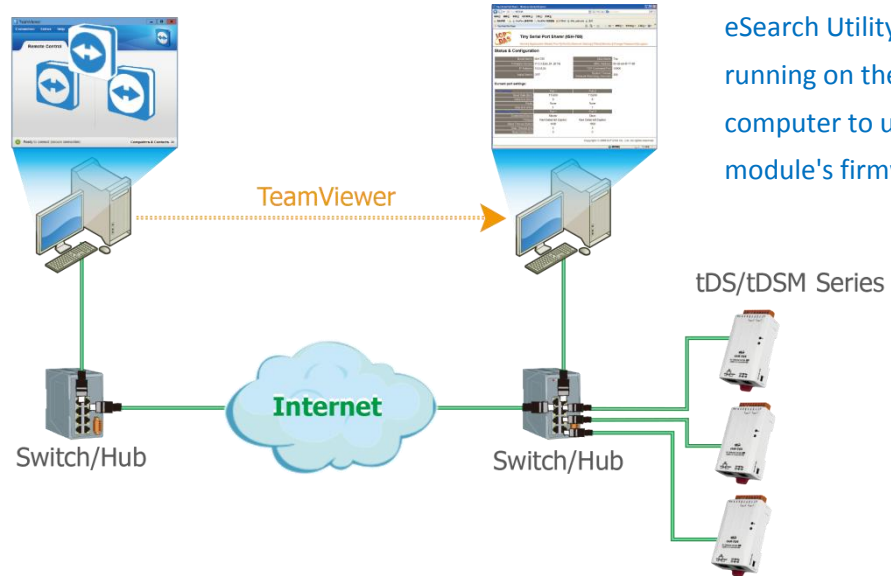




## 2.1.2 Remote Firmware Update

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.



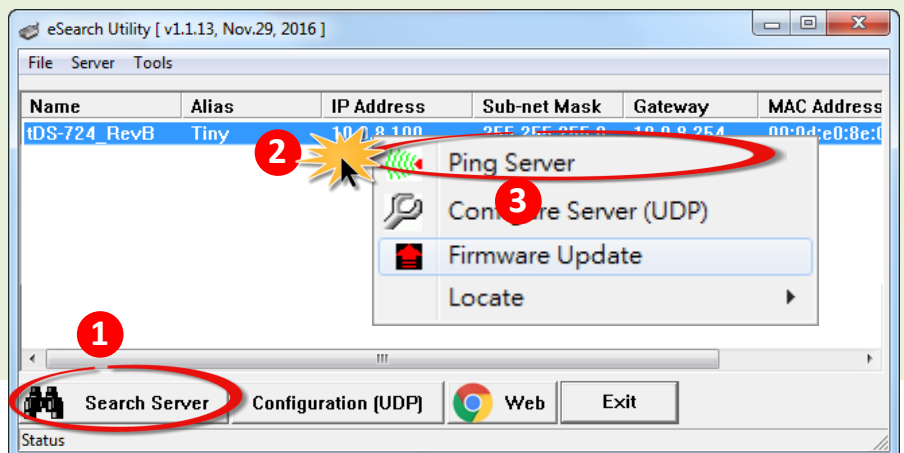
eSearch Utility is running on the computer to update module's firmware.

Follow the procedure described below to update firmware of the 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 the tDS-700\_RevB module 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 from the popup menu and the **“Open”** dialog box will be displayed.



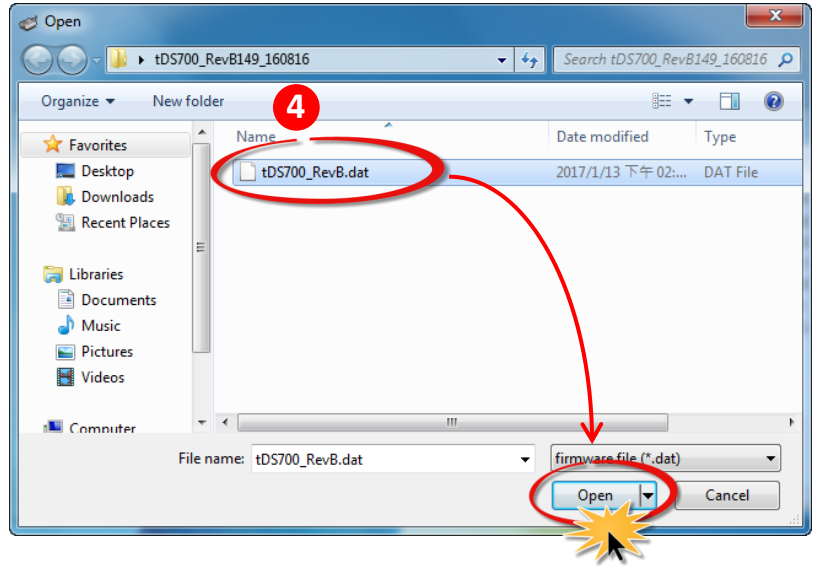
**Step 4:** In the “Open” dialog box, select the firmware file (*tDS700\_RevB.dat*) that will be used to update the module and then click the “Open” button.



[Download the Firmware File.](#)

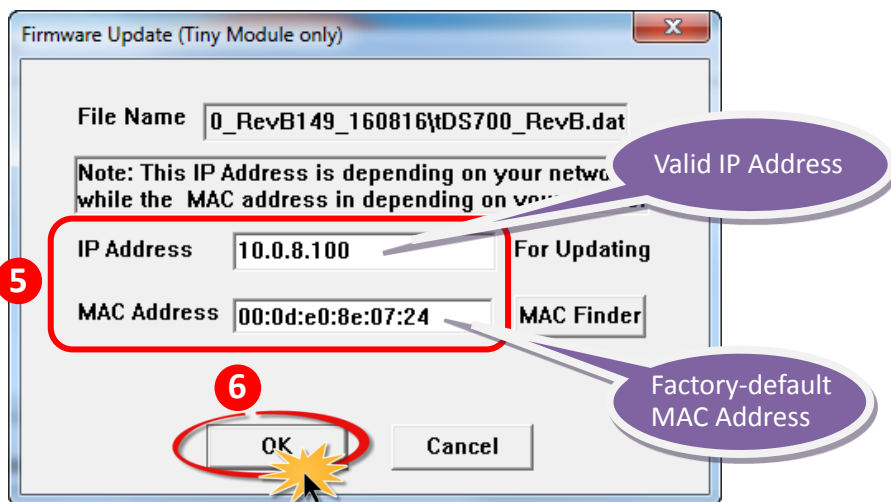


[Download the beta version of the firmware file.](#)

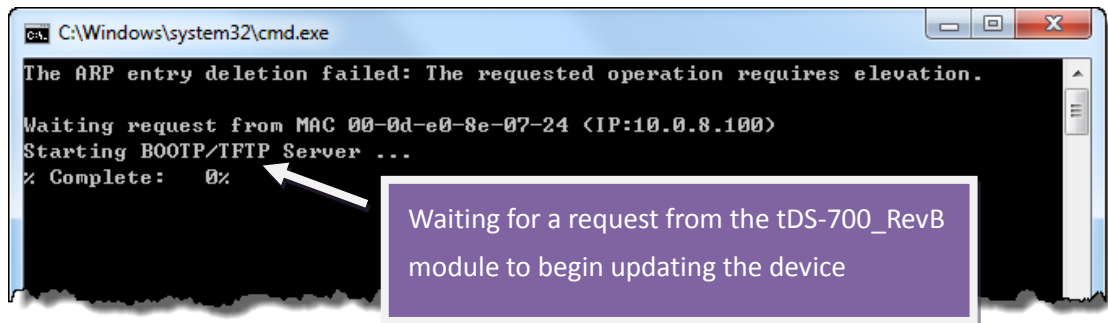


**Step 5:** Assign a **valid IP Address** (can be different with the current IP) and the **factory-default MAC Address** for the tDS-700\_RevB module. If this IP address is invalid (e.g. IP Address: 0.0.0.0) or a user-defined MAC address is assigned. Refer to [note 2 \(Page 23\)](#) and [note 3 \(Page 24\)](#) for more details.

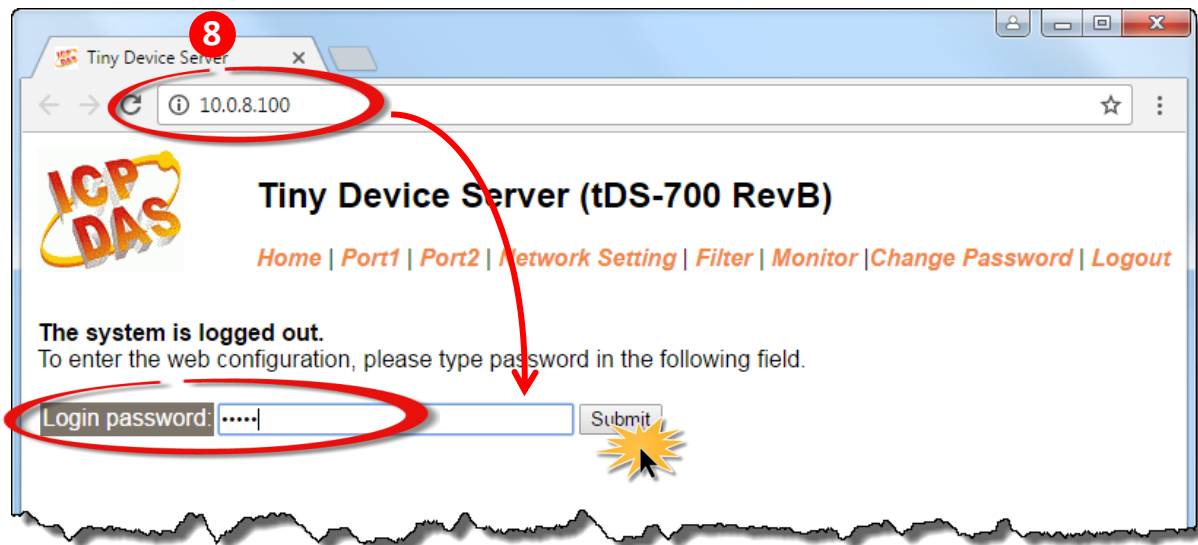
**Step 6:** Click the “OK” button.



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

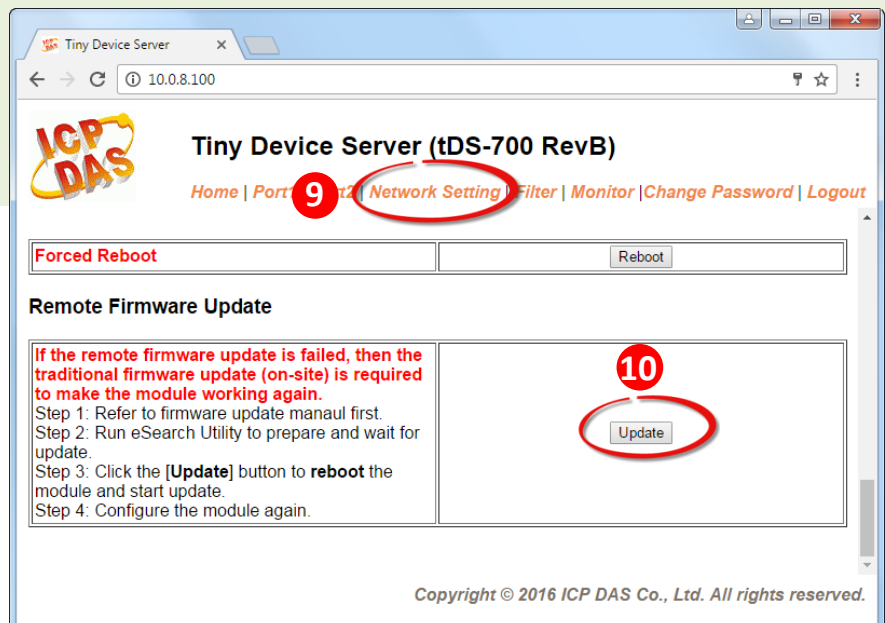


**Step 8:** Open a web browser such as Internet Explorer or Firefox and enter the URL for the tDS-700\_RevB in the address bar of the browser and log in to the web configuration pages (use the default password "admin").



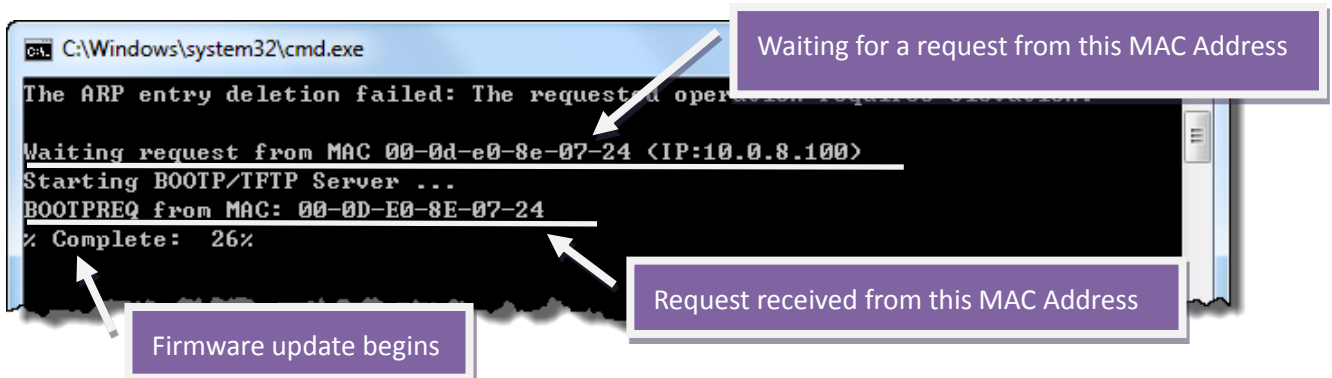
Step 9: Click the "Network Setting" tab to display the Network Settings page.

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 "BOOTREQ 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 24) below for more details.

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

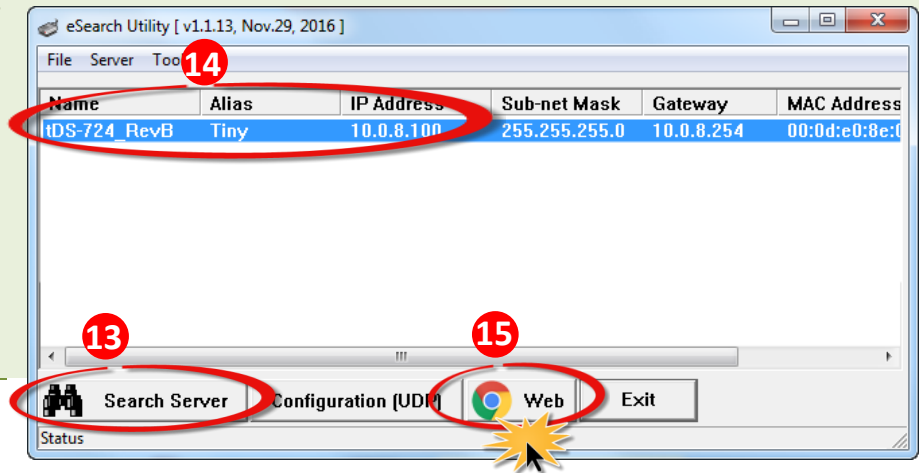


**Note:** If the Remote Firmware Update method fails, please refer to [Section 3.1 Firmware update in BOOT mode \(local operation\)](#) to restore the module.

**Step 13:** In the eSearch Utility, search for the tDS-700\_RevB 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 tDS-700\_RevB 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 tDS-700\_RevB (use the default password "admin").

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

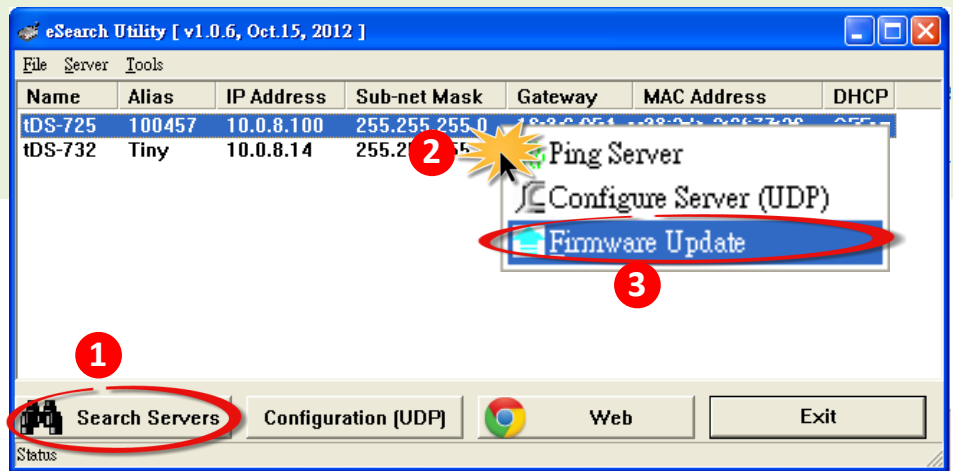


## 2.2 tDS-700 Firmware Update

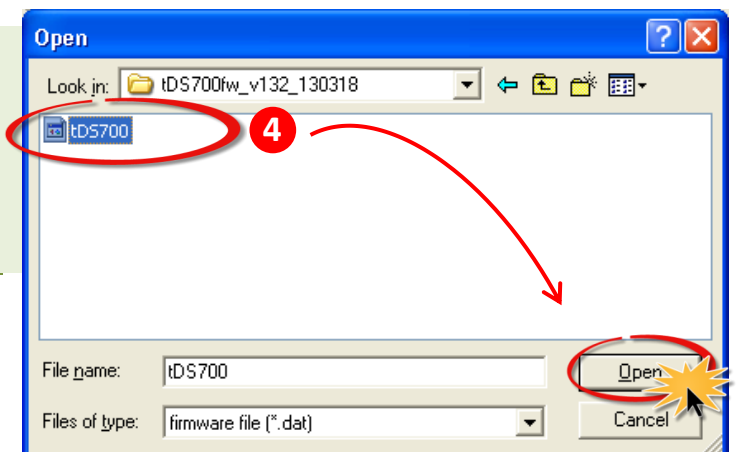
**Step 1:** In the eSearch Utility, click the **"Search Servers"** button to search for any tDS-700 modules connected to the network. (The network settings of the tDS-700 module as described in Step 3 on Page 1)

**Step 2:** **Right click** on the name of the tDS-700 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 (**tDS700.dat**) that will be used to update the module and then click the **"Open"** button.



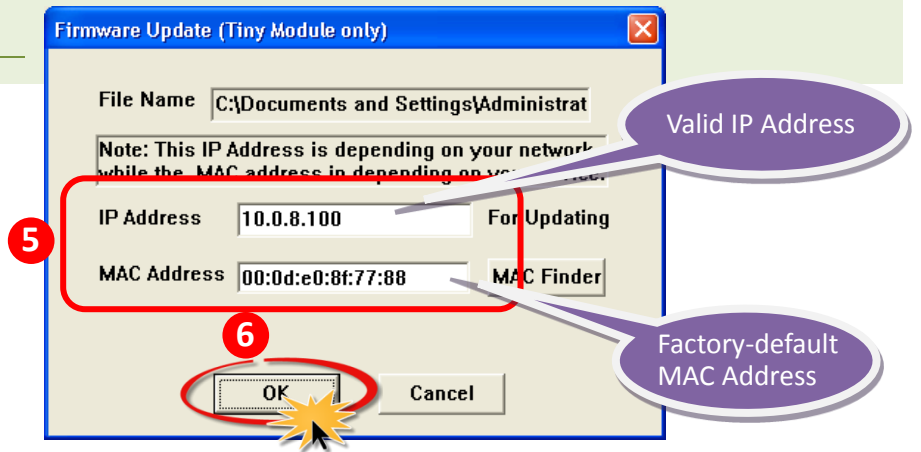
[Download the Firmware File.](#)



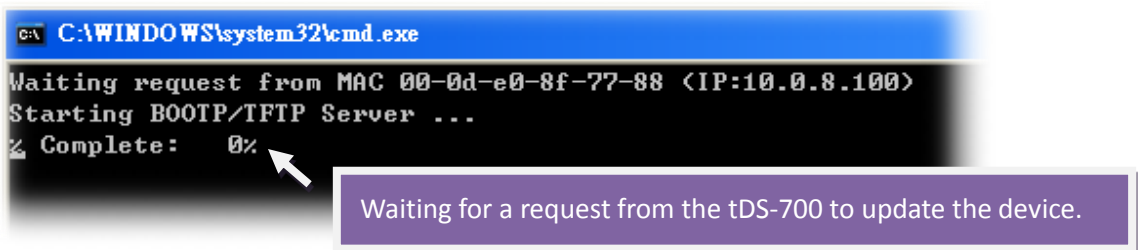
[Download the beta version of the firmware file.](#)

Step 5: Assign a **valid IP Address** and the **factory-default MAC Address** for the tDS-700 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 23)* and *note 3 (Page 24)* 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.



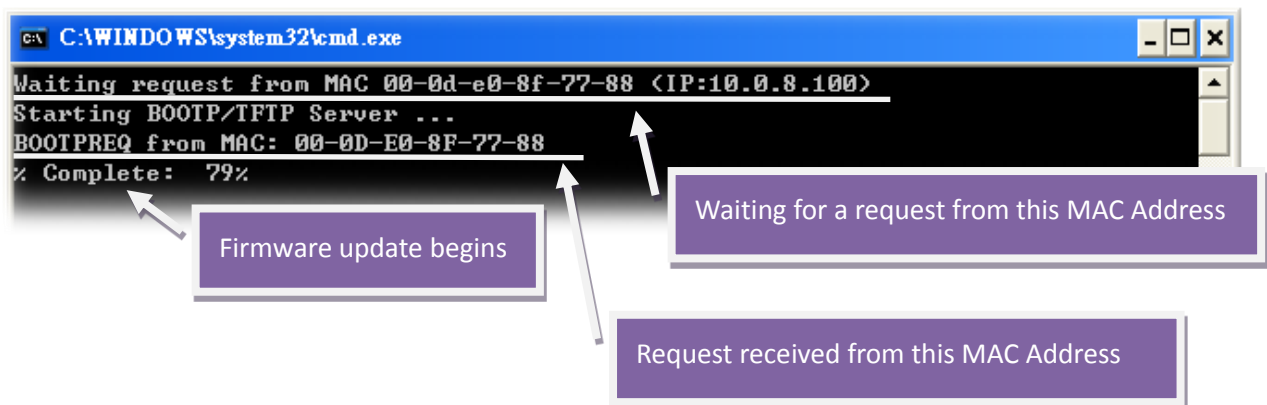
Step 8: Set the **“Init Switch”** on the tDS-700 module to the in **“Init Mode”** position.





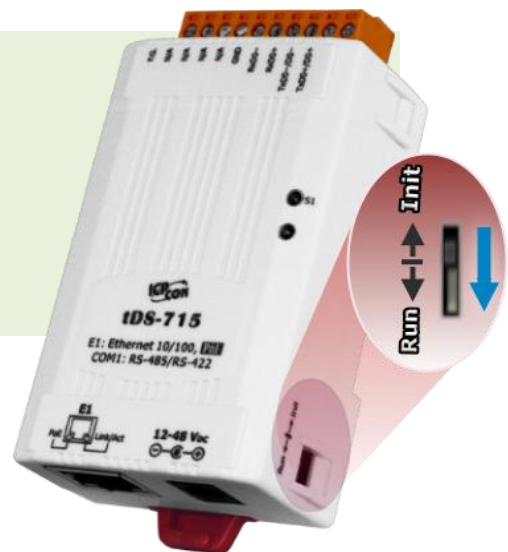
**Step 9: Power-on and reboot** the tDS-700 module in **“Init Mode”** to initiate the update.

**Step 10: Confirm** that the two MAC addresses (factory-default): **“Waiting request from MAC x.x.x.x”** and **“BOOTPREQ from MAC: x.x.x.x”** are the same, as indicated below . If these addresses do not match, the update cannot proceed, please refer to **note4 (Page 24)**.



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

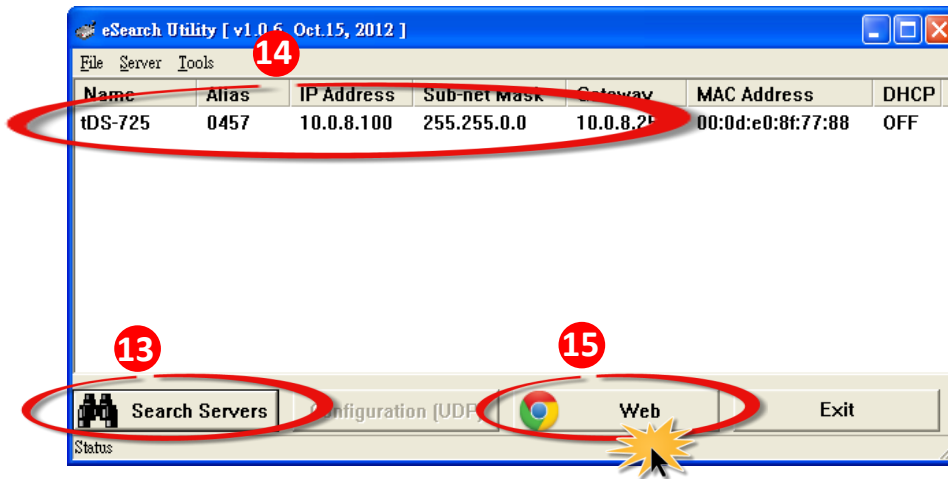
**Step 12: Power-on and reboot** the tDS-700 module in **“Run Mode”** to operate the module.



**Step 13: In the eSearch Utility, search for the tDS-700 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.**

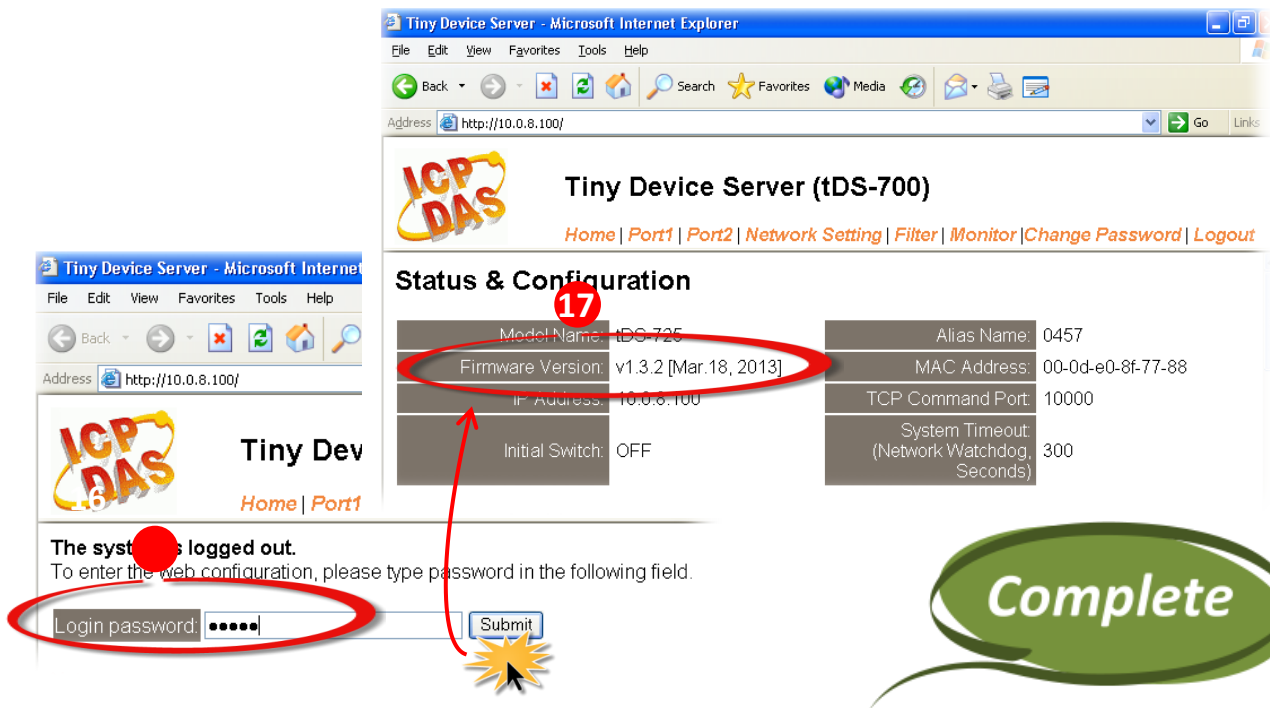
Step 14: Click the name of the tDS-700 module.

Step 15: Click the "Web" button.



Step 16: Log in to the web configuration pages for the tDS-700 (use the default password "admin").

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

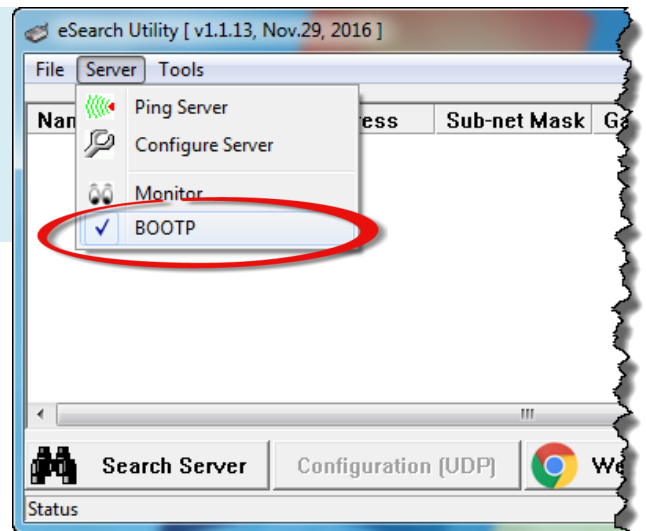


# 3. Troubleshooting

## 3.1 Firmware update in BOOTP mode

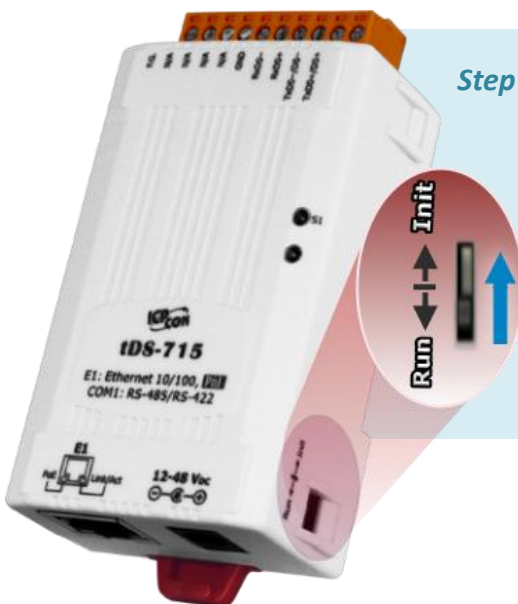
If the module is not functioning correctly (e.g. there is no response to the search request, or if the system LED is always displayed as either off or on), please download a new image of the firmware from the ICPDAS web site and then update the firmware for the module using the following procedure.

*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.*

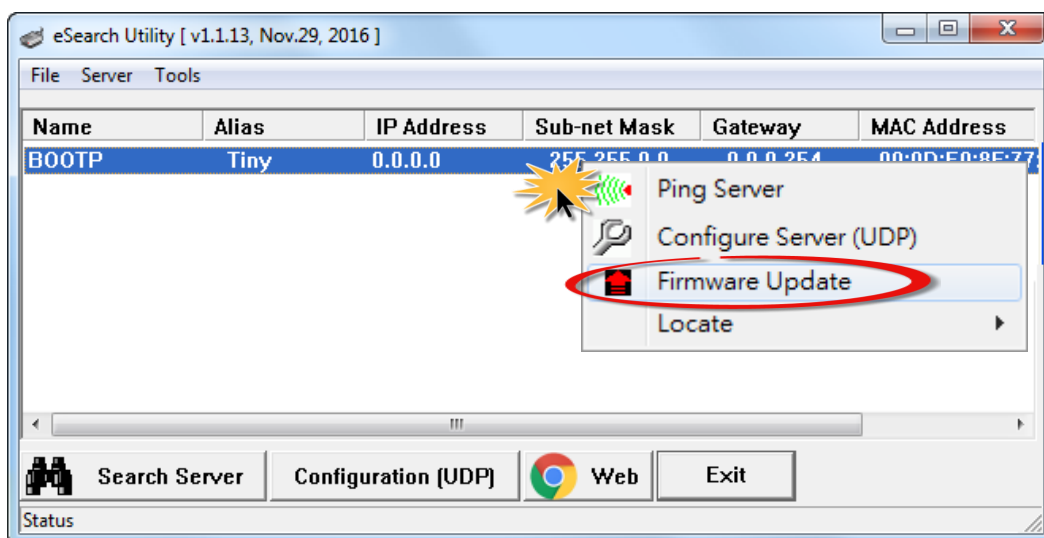


*Step 2: Set the "Init Switch" to the "Init Mode" position.*

*Step 3: Power-on and reboot the tDS-700 series module and then click the "Search Servers" button to search for the tDS-700 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.*

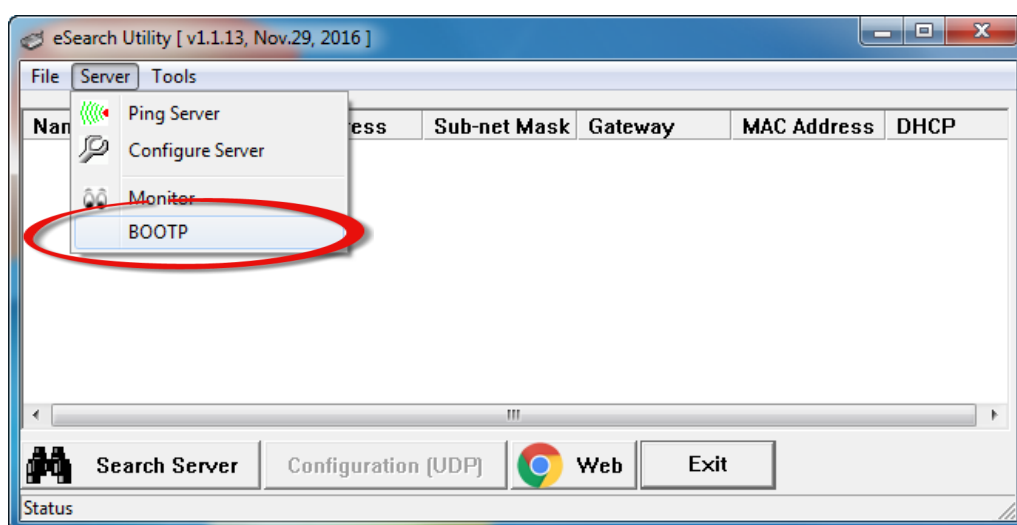


**Step 4:** Right click on the name "BOOTP" and then select the "Firmware Update" item from the popup menu.



**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 page4.

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



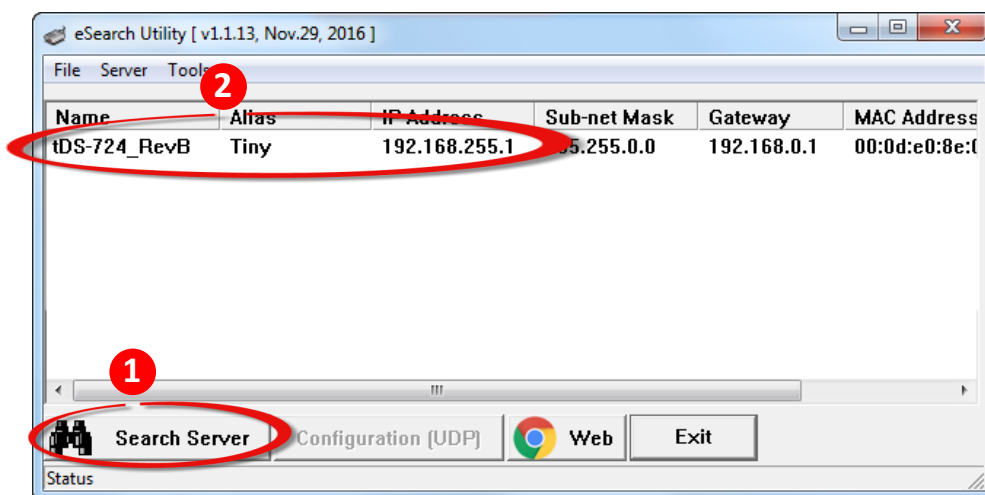
## 3.2 How to update Firmware when the Different Network Segment for IP Address of the tDS-700 and Host PC.

For example, the first time to get the tDS-700 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.

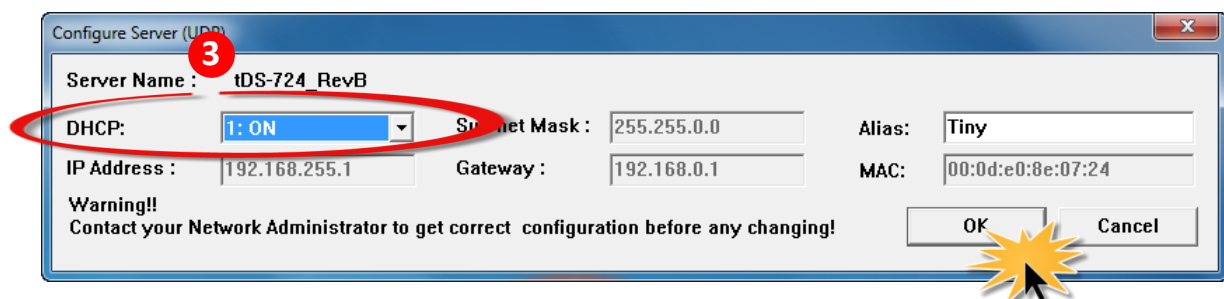
**Method 1:** Using **“Dynamic Host Configuration Protocol (DHCP)”** to automatically assigns an IP address to tDS-700 series module. Follow the procedure described below:

*Step 1: Run the eSearch Utility to search for any tDS-700 series modules to the network*

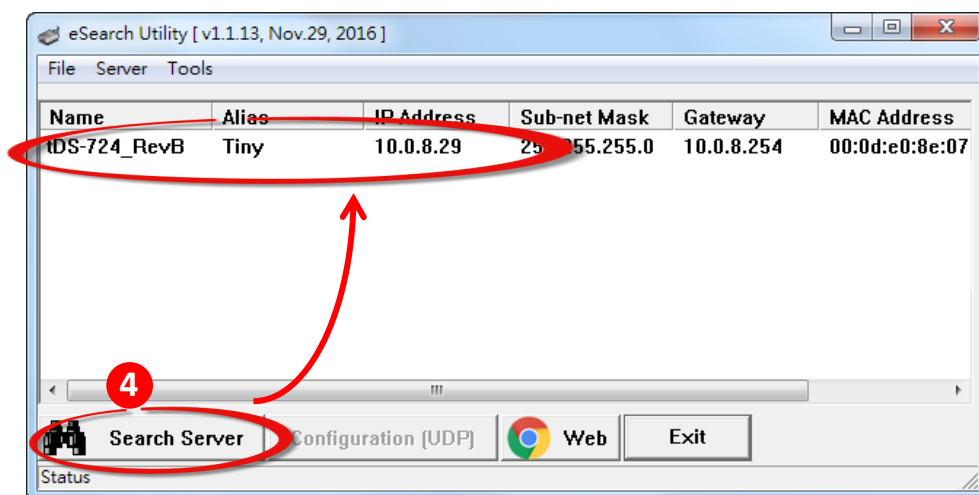
*Step 2: Double click the name of tDS-700 series to open the **“Configure Server (UDP)”** dialog box.*



*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 tDS-700 series is working well with new configuration.

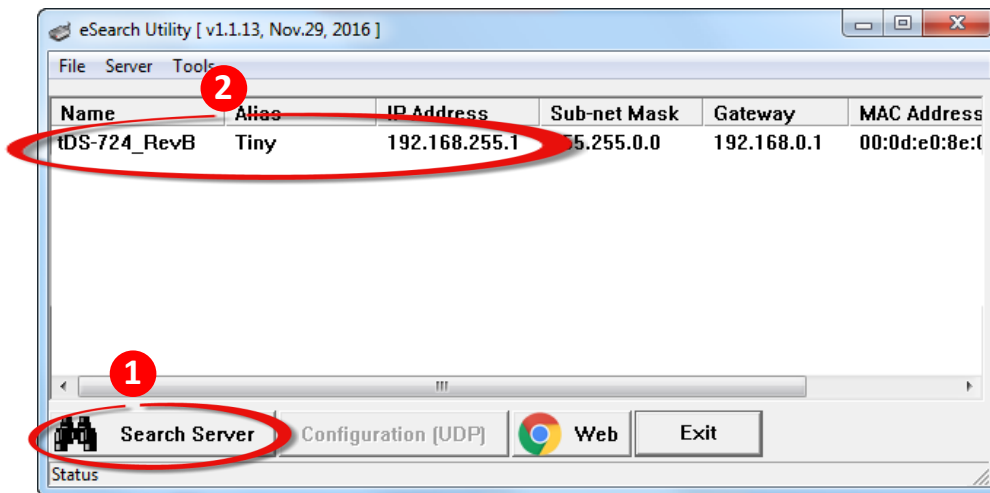


**Step 5:** Refer to **“Chapter 2-Firmware Update Procedure”** for details of how to complete the update process.

**Method 2:** Using **“Manual configuration”** to assigns an IP address to tDS-700 series module. Follow the procedure described below:

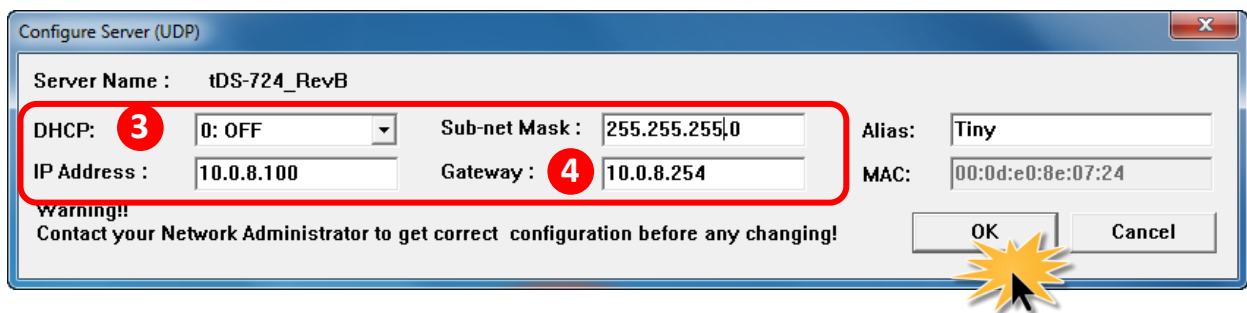
**Step 1:** Run the eSearch Utility to search for any tDS-700 series modules to the network

**Step 2:** Double click the name of tDS-700 series to open the **“Configure Server (UDP)”** dialog box.



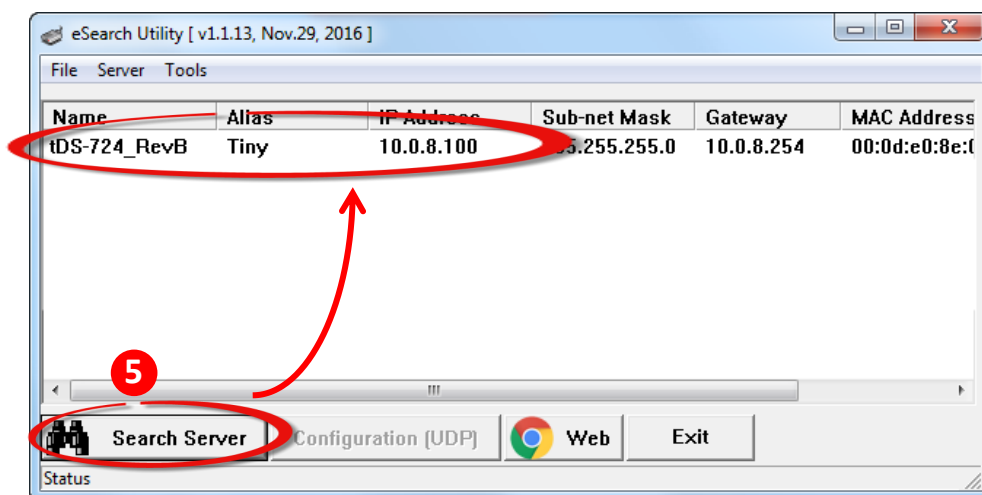
**Step 3:** Select the **“0: OFF”** option from the **“DHCP:”** drop-down menu.

**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 tDS-700 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 itself. 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 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 series uses the factory-default MAC address rather than any user-defined MAC addresses.*** The tDS-700 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 tDS-700 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:

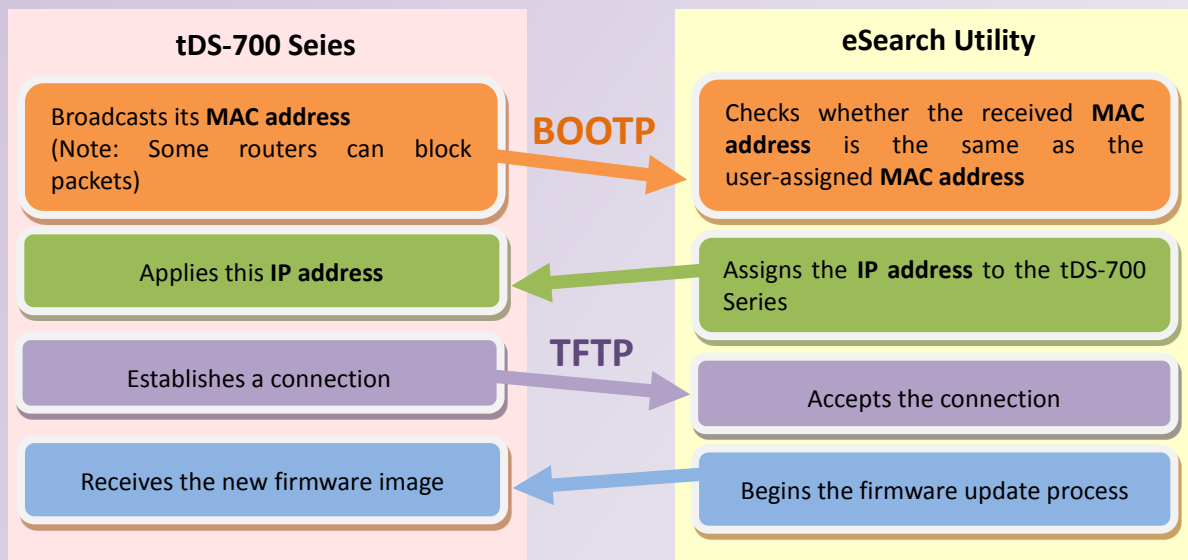
 **Note 1:** If the IP address settings do not work correctly (e.g. there is no response to a ping command), please contact your network administrator to obtain a valid IP address for the tDS-700 series module. .... [back](#)

 **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 tDS-700 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.



..... [back](#)

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

**Note 6:** TFTP (Trivial File Transfer Protocol) is defined in RFC-1350 and uses UDP port 69.