Multi-Service Business Gateways

VoIP Media Gateways

SIP Protocol

Technical Note
Using the BootP / TFTP Server Utility

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AudioCodes

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Abbreviations and Terminology

Each abbreviation, unless widely used, is spelled out in full when first used.

Reader's Notes

1   Introduction

This document describes AudioCodes proprietary BootP / TFTP Server utility (hereafter referred to as *utility*).

The utility comprises two functionalities:

- **Bootstrap Protocol (BootP):**

  - Assigns the device networking parameters (such as IP address, subnet mask, and default gateway).

  - Provides the device with the TFTP server's IP address (and the *ini* and cmp file names) from where the device can load these files via TFTP.

- **Trivial File Transfer Protocol (TFTP):** The TFTP server functionality allows you to load the device with the following files from a TFTP server:

  - Firmware file (*. *cmp*) for upgrading the device

  - Configuration file (*.*ini* file) for modifying the device's configuration settings

  - Auxiliary files (such as call progress tones / CPT)

When the device powers up (or is physically reset), it broadcasts a BootRequest message on the network (no BootP message is sent when the device is reset from the Web interface). A BootP server on the network receives this message and generates a BootReply if the device is successfully identified (according to its MAC address). The BootReply indicates the networking parameters that must be used by the device and optionally, specifies the *ini* and cmp file names and IP address of the TFTP server (from where these files must be loaded).

Therefore, the utility can be used for initializing the device, by providing it initial networking parameters. However, the utility is also useful for restoring connectivity to the device if lost. This loss of connectivity can be due to, for example, any of the following reasons:

- Software upgrade failure (when done through the Web interface)
- IP address no longer known (due to whatever reason) – device obtains new IP address from BootP
- Web interface has been inadvertently disabled
- Web interface's password is no longer known (due to whatever reason)
- Device has encountered a fault that cannot be recovered using the Web interface

Notes:

- This document applies to the MP-1xx (MP-11x and MP-124), Mediant 600, Mediant 1000, Mediant 2000, and Mediant 3000.
- BootP is only applicable to Mediant 800 MSBG and Mediant 1000 MSBG for recovering these devices from "rescue" mode.

The steps for configuring and using the utility are summarized in the flowchart below:

Figure 1-1: Flowchart for using the BootP / TFTP Server Utility
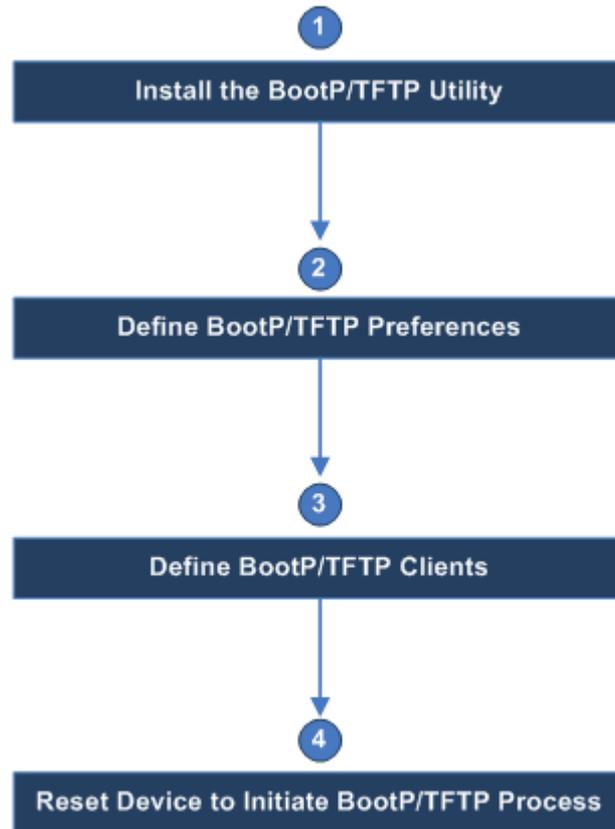
2   Installing the BootP / TFTP Server Utility

The utility can be installed on the following Windows™ operating systems (OS):

- Windows NT
- Windows 2000
- Windows XP
- Windows Vista and Windows 7

> **Notes:**
>
> - The BootP / TFTP utility cannot be installed on other OS, such as Linux.
> - The BootP / TFTP utility cannot be installed on 64-bit Windows OS.

➢ **To install the utility on a computer:**

1. Download the utility's installation file from AudioCodes Web site:

   a. Browse to http://www.audiocodes.com/downloads and then login as a registered customer.

   b. Use the available drop-down boxes to search for the required software files.

   c. Click the **BootP & TFTP Configuration utility.zip** link, select the 'I accept' check box, click **DOWNLOAD**, and then save the file to a folder on your PC.

> **Note:** You must be a registered customer with login credentials to download this file from the Web site.

2. Unzip the downloaded file.

3. If you are installing on a Windows Vista or Windows 7 machine, do the following (otherwise, skip to Step 4):

   a. Right-click the *SETUP.exe* file, and then from the shortcut menu, choose **Properties**.

   b. Select the **Compatibility** tab.

c. Select the 'Run this program in compatibility mode for' option, and then from the drop-down list, select **Windows XP (Service Pack 3)**, as shown below.

Figure 2-1: Compatibility Tab (Windows Vista or Windows 7)
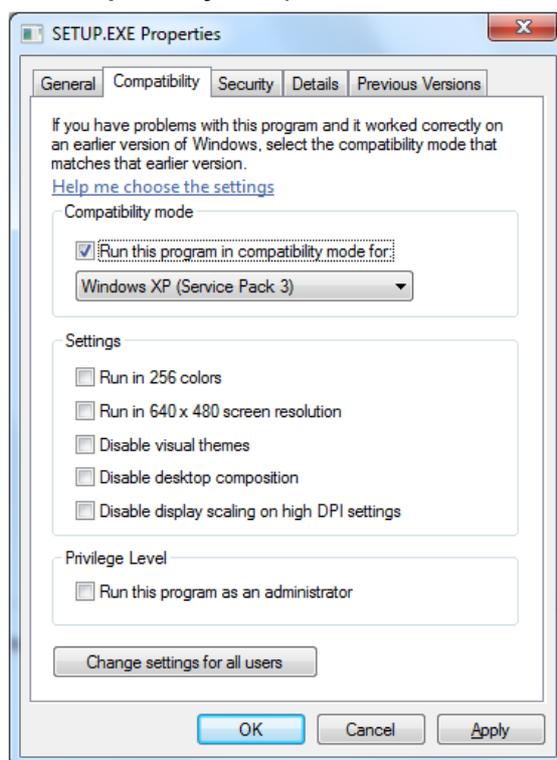
d. Click **OK**.

4. Click the *SETUP.exe* file to start the installation wizard (shown below).

Figure 2-2: BootP/TFTP Utility Installation Wizard

5. Follow the wizard's instructions to install the utility.

3   Defining the BootP / TFTP Settings

This section provides step-by-step procedures on how to define the utility settings.

3.1   Defining Preferences

The first stage is to define BootP / TFTP preferences. Preferences include settings for your BootP server and TFTP server.

➢   **To define BootP / TFTP preferences:**

1.   From the **Edit** menu, choose **Preferences**; the 'Preferences' screen appears:

Figure 3-1: Preferences Screen
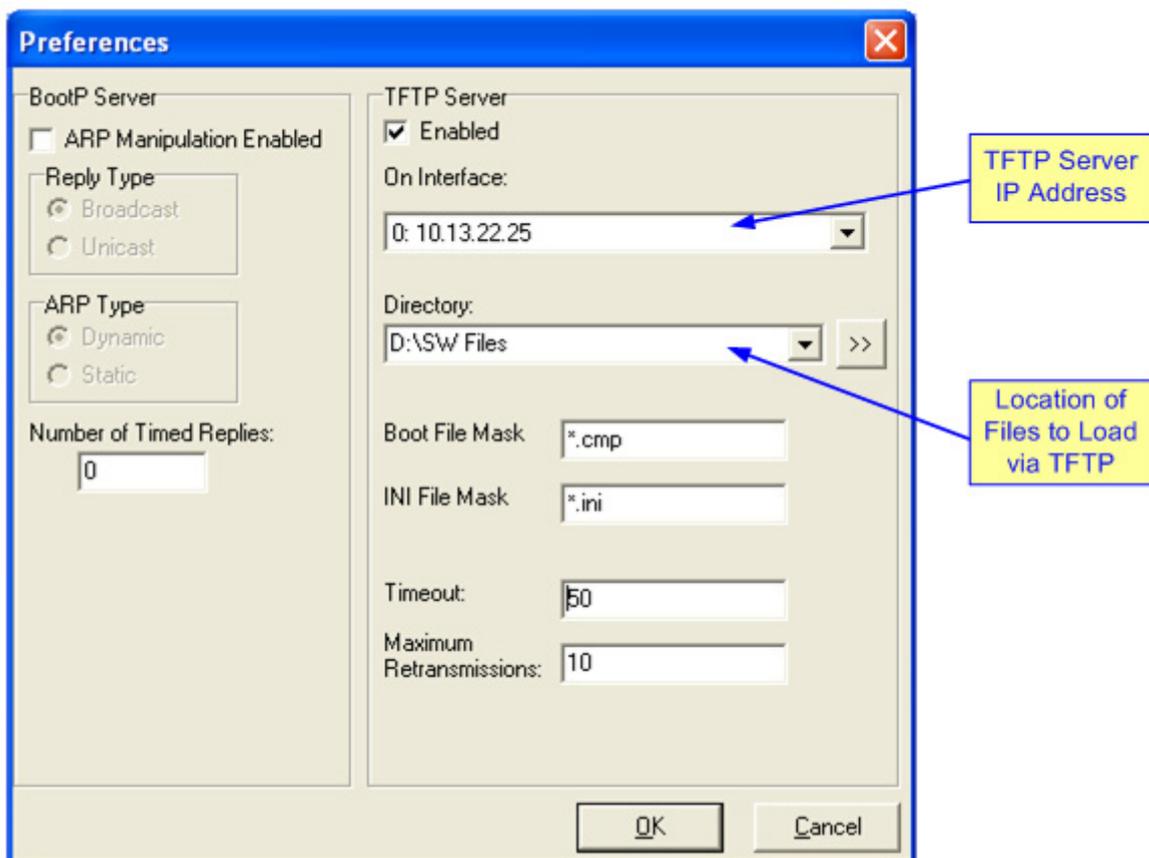
2.   Define TFTP preferences in the TFTP Server pane:

- **Enabled:** Select this check box to enable the TFTP functionality of the utility. If you want to use another TFTP application other than the one included with the utility, clear this check box.

- **On Interface:** From the drop-down list, select the network interface available on your PC that you want to use for the TFTP server. (Typically, only one interface is listed.)

> **Note:**   The 'On Interface' field is automatically set to the IP address of the PC on which the utility is running.

- **Directory:** This option is enabled only when TFTP is enabled. Specify the folder that contains the files for the TFTP utility to manage (cmp, *ini*, Call Progress Tones, etc.).
- **Timeout:** Specifies the number of seconds that the TFTP utility waits before retransmitting TFTP messages. The default value is 30, however, it is recommended to set it to 50 (the more congested your network, the higher you should set this value).

> **Note:** When upgrading the device between major software releases (e.g., from 6.0 to 6.2), it is recommended to set the maximum retransmissions to 20.

3.2   Defining Clients

This section describes how to configure BootP / TFTP clients. The clients are the AudioCodes devices that you want to configure with BootP / TFTP, and are defined by their MAC address.

➢   **To add a client:**

1.   From the **Services** menu, choose **Clients**; the 'Client Configuration' screen appears.

Figure 3-2: Client Configuration Screen
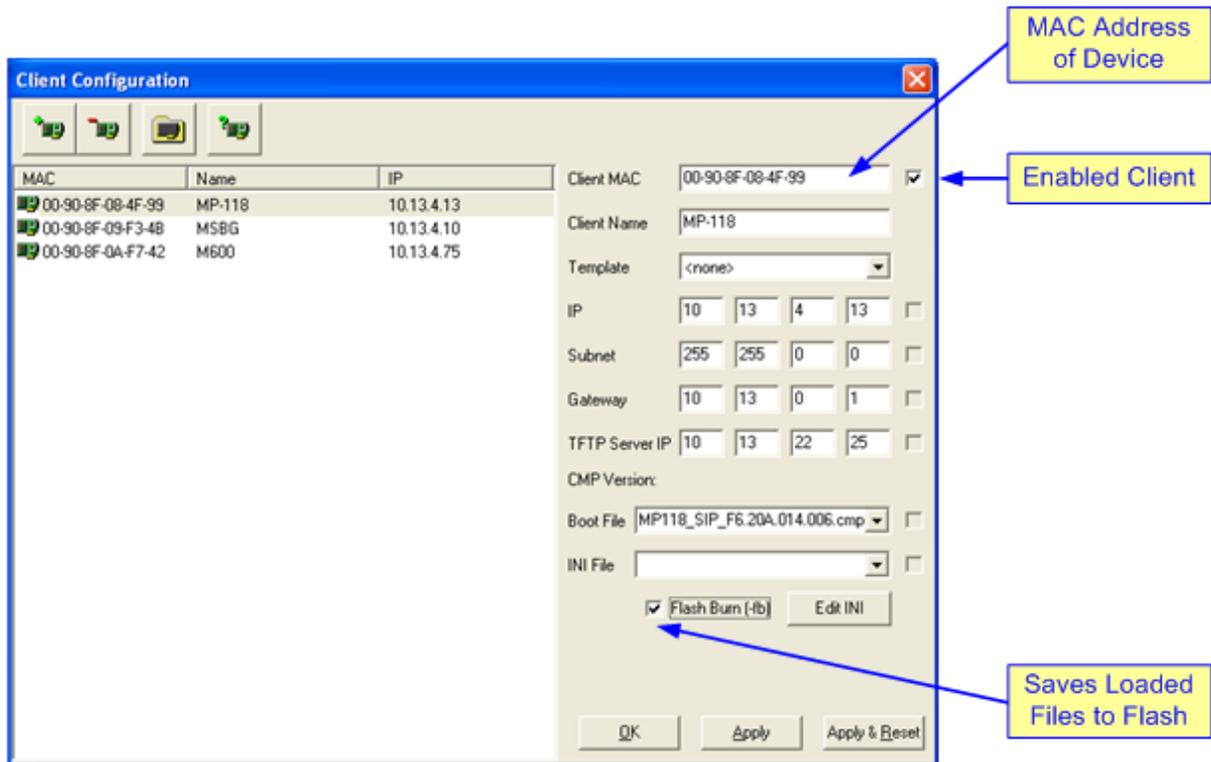
3.   Click the **Add New Client** 🔲 button.

4.   Define the client's parameters:

- **Client MAC**: Enter the Ethernet MAC address of the device. The MAC address of the device is printed on a label located on the device hardware. BootP uses the MAC address to identify the device. Select the check box to the right of this field to enable this client in the BootP (if the client is disabled, no replies are sent to BootP requests).

- **Client Name:** Enter an optional, descriptive name for the client so that you can easily identify it later.

- **IP:** Enter the IP address (in dotted-decimal notation) that you want to assign to the device.

- **Subnet:** Enter the subnet mask (in dotted-decimal notation) that you want to assign to the device.

- **Gateway:** Enter the IP address of the default gateway used on this subnet that you want to assign to the device.

- **TFTP Server IP:** Enter the IP address of the TFTP server for transferring software and *ini* files to the device. When creating a new client, this field is populated with the IP address used by the utility. If a different TFTP server utility is used, change the IP address to the IP address used by the other utility.

- **Boot File:** Specify the file name for the software file (cmp) that is loaded by the TFTP server to the device. The software file is located in the TFTP utility directory, specified in Section 3.1.

- **INI File:** Select the *ini* file that you want to load to the device. The *ini* file is located in the TFTP utility directory, specified in Section 3.1.

- Select the **Flash Burn** check box (to save the software to the device's non-volatile memory).

5. Click **Apply** to save the new client.

6. Click **OK**; the Client Configuration window closes and the main window appears.

4   Resetting Device to Initiate BootP / TFTP

Once you have defined your BootP/TFTP preferences and the client in the utility, you can then initiate the BootP/TFTP process, as described in the procedure below.

> **Notes:**
> - If an *ini* file is not specified in the BootP process, the device's current configuration (except for the networking parameters specified in BootP) is retained.
> - To restore the configuration to factory defaults, load an empty *ini* file to the device.

➢ **To reset the device to initiate the Boot / TFTP process:**

1. Verify that the BootP / TFTP utility is not paused - the pause button ▮▮ must not be selected.

2. Reset the device by doing one of the following:
   - Press the hardware reset pinhole button located on the device and then release.
   - Disconnect and then reconnect power to the device.

   The BootP server waits for a BootP request from a client that has the specified MAC address. Upon a request, the BootP then assigns the device the specified IP address and then uploads the files to the device.

The main window of the BootP/TFTP utility logs all BootP requests and replies, and TFTP transactions, displaying the progress of the BootP process, as follows:

a. The first indication is that the device (client) with this MAC address was located.

b. The second indication shows the progress of uploading files to the device. When "100% OK", the BootP completed successfully.

Figure 4-1: Main Window Displaying BootP Progress

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