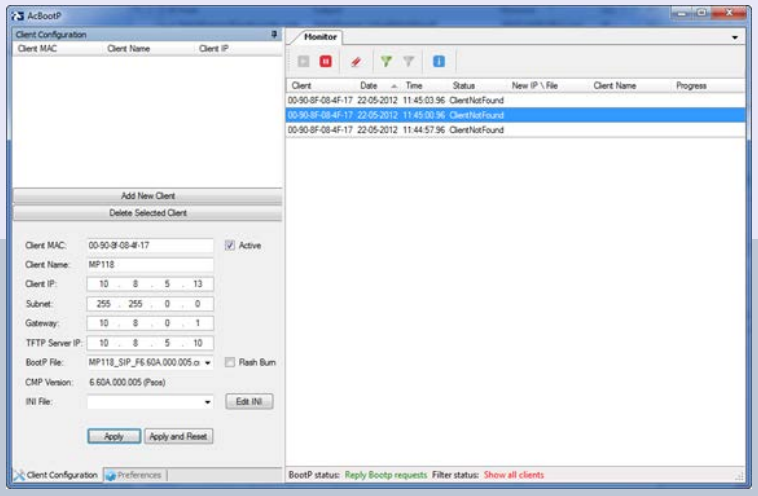
Multi-Service Business Routers

VoIP Media Gateways

SIP Protocol

User's Guide

Using the AcBootP Utility



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HD VoIP Sounds Better

AudioCodes

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This document describes how to use the AudioCodes BootP / TFTP Server utility.

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1 Introduction

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

The utility is comprised of 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 is no longer known and the device obtains a new IP address from the BootP
- The Web interface has been inadvertently disabled
- The Web interface's password is no longer known
- The 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 MSBR and Mediant 1000 MSBR for recovering these devices from "rescue" mode.

1.1 Vendor Specific Information Field

The device uses the Vendor Specific Information field in the BootP request to provide device-related initial startup information. The AcBootP utility displays this information in the 'Client' column. The Vendor Specific Information field is disabled by default. To enable it, use the ExtBootPReqEnable *ini* file parameter (refer to the *User's Manual*).

The table below details the Vendor Specific Information field per device:

Table 1-1: Vendor Specific Information Field

Tag #	Description	Value	Length
220	Device Type	▪ **#24** = TP-8410; IPM-8410 ▪ **#02** = TP-1610; IPM-1610; Mediant 2000; IPmedia 2000 ▪ **#08** = TP-6310; IPM-6310 ▪ **#09** = IPmedia 3000; Mediant 3000; Mediant 1000; Mediant 600 ▪ **#13** = MP-124 ▪ **#14** = MP-118 ▪ **#15** = MP-114 ▪ **#16** = MP-112	1
221	Current IP Address	xxx.xxx.xxx.xxx	4
222	Burned Boot Software Version	x.xx	4
223	Burned *cmp* Software Version	xxxxxxxxxxxx	12
224	Geographical Address	0-31	1
225	Chassis Geographical Address	0-31	1
228	Indoor / Outdoor	▪ **#0** = Indoor ▪ **#1** = Outdoor **Notes:** ▪ Applicable only to analog interfaces. ▪ Indoor is applicable only to FXS interfaces. ▪ Outdoor is applicable only to FXO interfaces.	1
230	Analog Channels	▪ **#2** = MediaPack only ▪ **#4**, **#8**, **#24** = Mediant 1000 and MediaPack ▪ **#12**, **#16**, **#20** = Mediant 1000 only **Note:** Applicable only to analog interfaces.	1

The following table shows an example of the structure of the vendor specific information field:

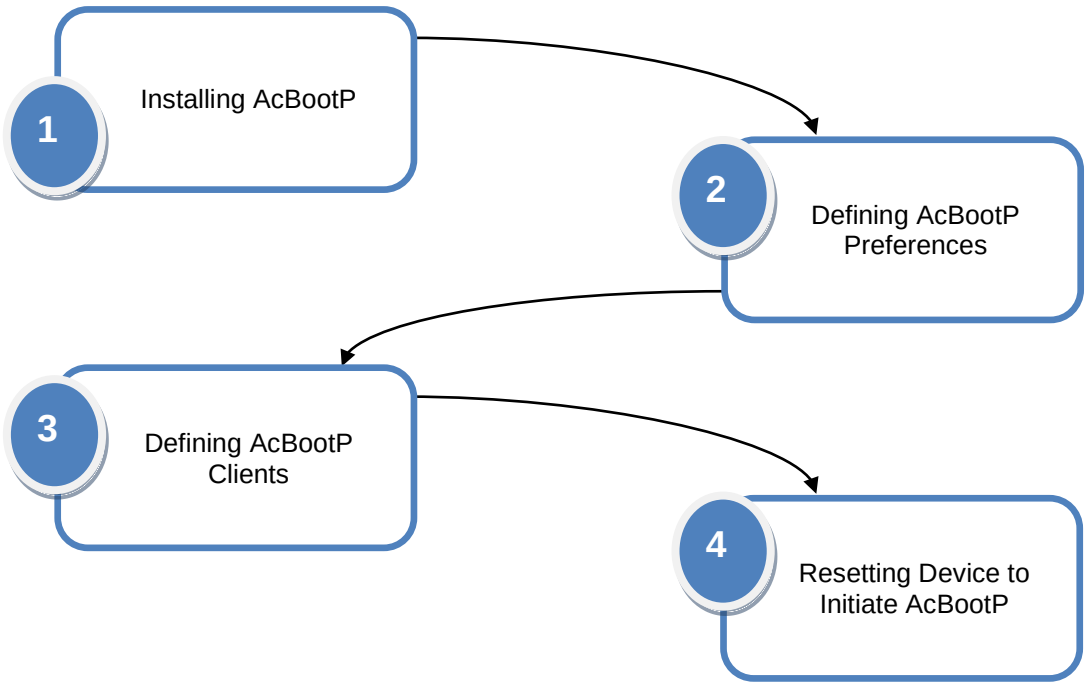
Table 1-2: Structure of the Vendor Specific Information Field

Field	Value
Vendor-Specific Information Code	42
Length Total	12
Tag Num	220
Length	1
Value	2
Tab Num	225
Length	1
Value	1
Tag Num	221
Length	4
Value (1)	10
Value (2)	2
Value (3)	70
Value (4)	1
Tag End	255

1.2 Summary of Steps for using AcBootP Utility

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 AcBootP Utility

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

- Windows NT
- Windows 2000
- Windows XP
- Windows Vista and Windows 7 (32-bit and 64-bit)

Note: The BootP / TFTP utility cannot be installed on other operating system, such as Linux.

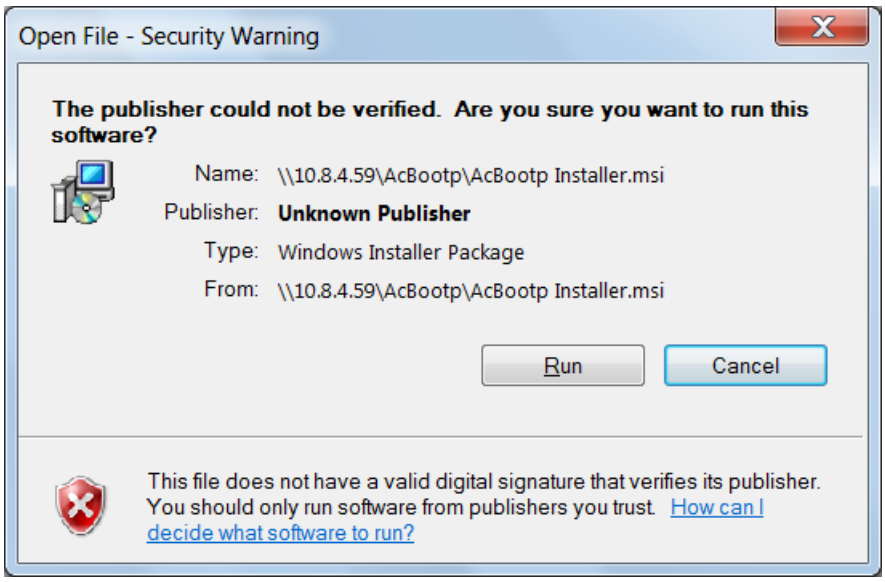
➢ **To install the utility on a computer:**

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 **AcBootP Installer.msi** link, select the 'I accept' check box, click **DOWNLOAD**, and then save the file to a folder on your computer.

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

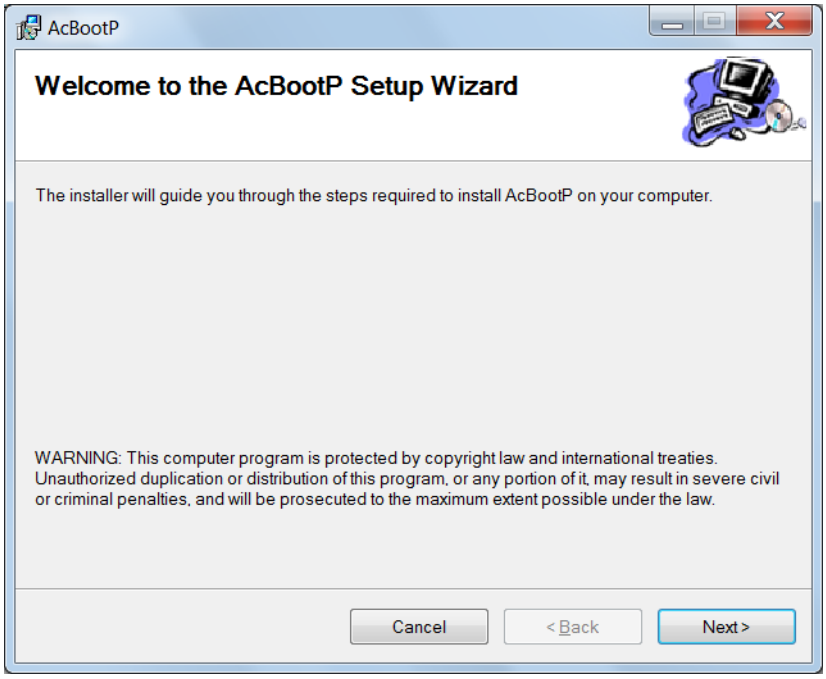
2. Click **Run** to start the installation wizard (as shown below).

Figure 2-1: BootP/TFTP Utility Installation Wizard



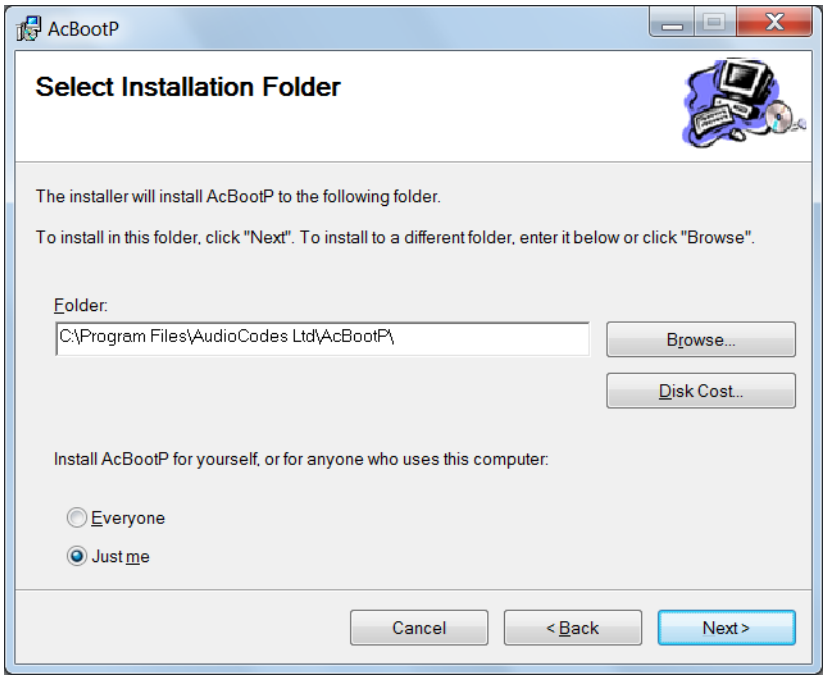
The following screen appears.

Figure 2-2: AcBootP Setup Wizard



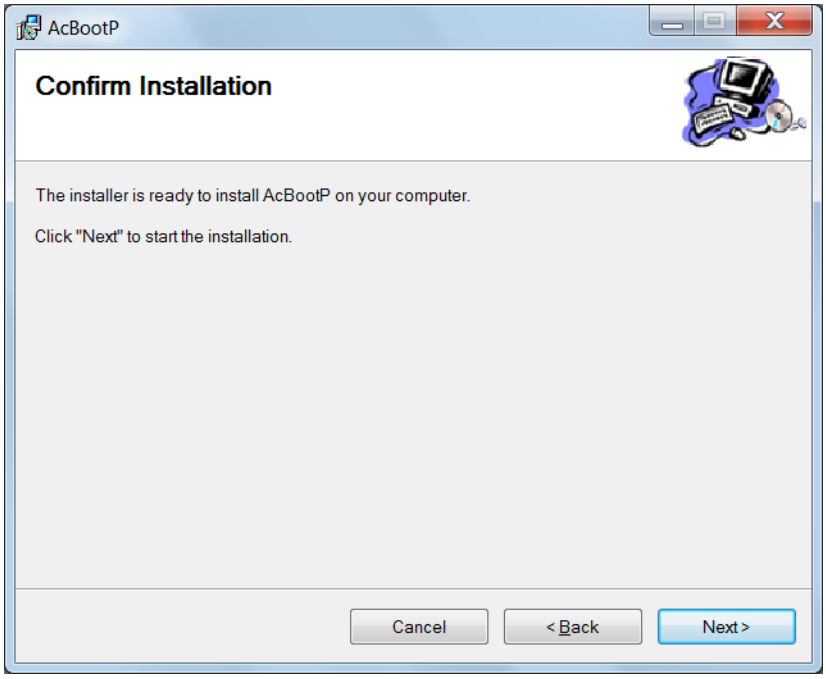
3. Click **Next**; the Select Installation Folder screen appears.

Figure 2-3: Select Installation Folder



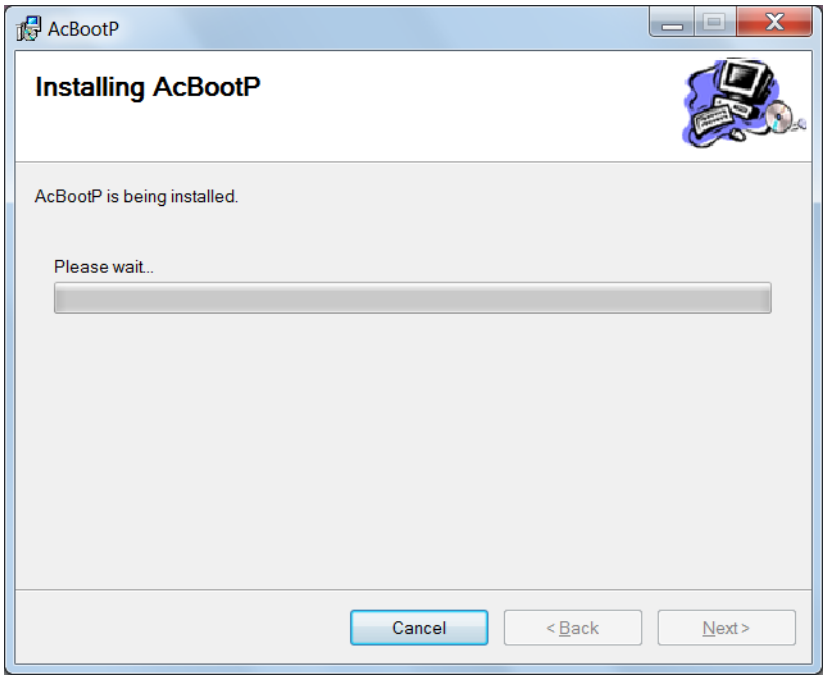
4. Click **Next**; the Confirm Installation screen appears.

Figure 2-4: Confirm Installation



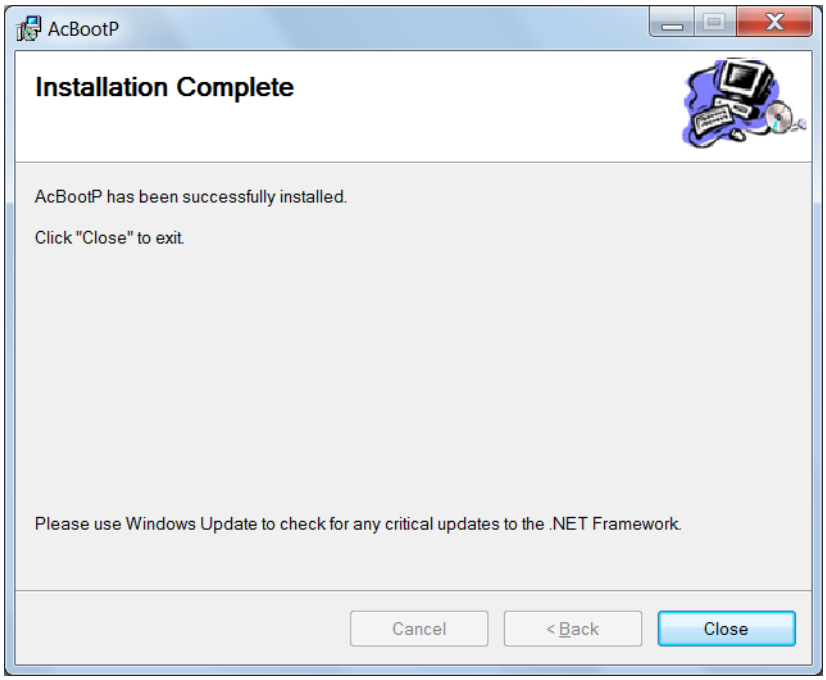
5. Click **Next**; the Installing AcBootP screen appears.

Figure 2-5: Installing AcBootP



6. When the progress bar is displayed and the installation has completed, click **Next**; the Installation Complete screen appears.

Figure 2-6: Installation Complete



7. Click **Close**.

3 Defining AcBootP Settings

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

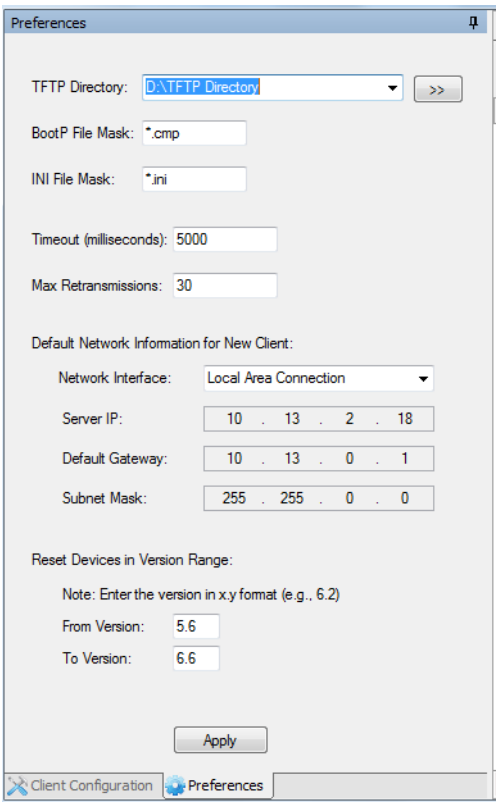
3.1 Defining Preferences

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

➢ **To define AcBootP preferences:**

1. Start the AcBootP application.
2. Click the **Preferences** tab. (When the screen is docked, the tabs appear on the bottom left side of the screen; when the screen is in 'Hide' mode, the tabs appear on the upper left side of the screen.)

Figure 3-1: Preferences Screen



3. Define TFTP preferences on the Preferences pane:
   - **Directory:** Specifies the folder that contains the files for the TFTP utility to manage (*cmp*, *ini*, Call Progress Tones, etc.).
   - **BootP File Mask:** Specifies the file extension used by the TFTP utility for the boot file that is included in the BootReply message. This is the file that contains the device's software, i.e., *cmp*.
   - **INI File Mask:** Specifies the file extension used by the TFTP utility for the configuration file that is included in the BootReply message. This is the file that contains device's configuration parameters, i.e., *ini*.
   - **Timeout:** Specifies the number of seconds that the TFTP utility waits before retransmitting TFTP messages. The default value is 5000 (ms).
   - **Max Retransmissions:** Specifies the number of times that the TFTP utility tries to resend messages after timeout. This can be left at the default value of 30.

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.

   - **Default Network Information For New Client:** Displays the default network interface. If more than one Network Interface Controller (NIC) is present, select the default values for the Client Configuration form:
     - **Server IP**
     - **Default Gateway**
     - **Network Mask**
   - **Recent Versions Range:** Insert the following fields in the appropriate format:
     - **From Version**
     - **To Version**

     The BootP application sends a reset to the devices that are loaded within the range of 'From Version' to 'To Version'. The default version values are **5.6** and **6.6**. This range can be changed according to existing and future versions on the devices.

Note: Insert the Version in number in x.x format (e.g., 6.2).

4. Click **Apply**; the preferences have been configured.

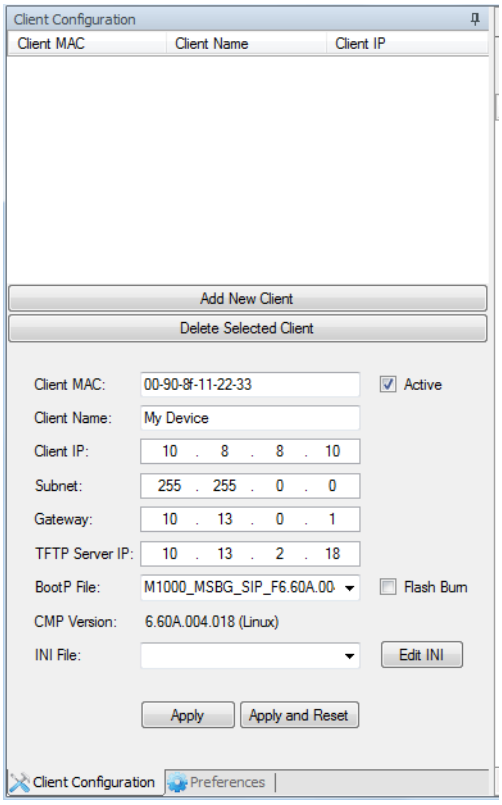
3.2 Defining Clients

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. Click the **Client Configuration** tab. (When the screen is docked, the tabs appear on the bottom left side of the screen; when the screen is in 'Hide' mode, the tabs appear on the upper left side of the screen.); the 'Client Configuration' appears.
2. The **Client Configuration** form on the upper part of the screen displays the clients that the BootP serves.
3. Click **Add New Client** and enter the following:
   - **Client MAC:** Defines 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:** Defines an optional, descriptive name for the client so that you can easily identify it later.
   - **Client IP:** Defines the IP address (in dotted-decimal notation) that you want to assign to the device.
   - **Subnet:** Defines the subnet mask (in dotted-decimal notation) that you want to assign to the device.
   - **Gateway:** Defines the IP address of the default gateway used on this subnet that you want to assign to the device.
   - **TFTP Server IP:** Defines 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.
   - **BootP File:** Defines 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.
   - **Flash Burn check box:** Saves the software to the device's non-volatile memory.
   - **Ini File:** Defines 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.
   - **Edit Ini:** Defines the *ini* file for editing.

Figure 3-2: Client Configuration



4. Click **Apply** to save the new client or click **Apply Reset** to save the changes and send a reset to the device.

3.3 Viewing Monitor Screen

The following table describes the features of the Monitor screen.

Table 3-1: Monitor Screen Features

Icon	Name	Description
	Reply BootP Requests	AcBootP replies to the BootP requests from existing clients in the database.
	Ignore BootP Requests	AcBootP ignores BootP requests from existing clients in the database.
	Clear Monitor Log	Deletes and monitors activity of the BootP.
	Filter (red)	Filters unknown clients.
	Filter (green)	Displays all clients.
	About	Displays the version number of AcBootP.
-	**Status Bar**	Displays BootP Status and Filter Status.

Figure 3-3: AcBootP Monitor

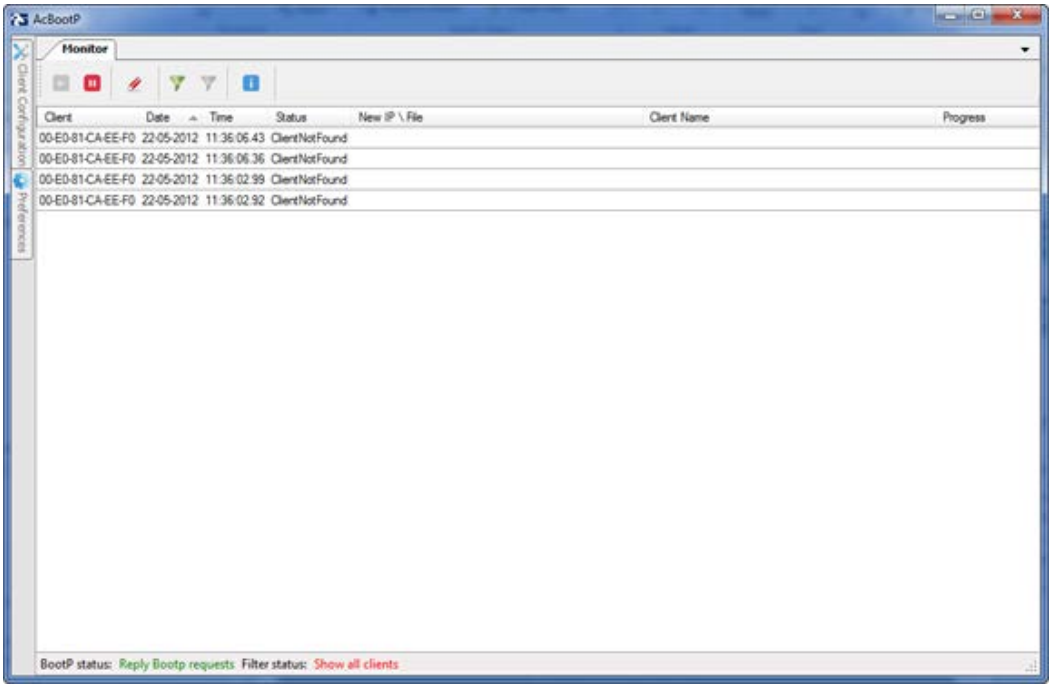


Table 3-2: Logged Table Description

Column	Description
Client	Address of the device, which is the MAC address of the client for BootP transactions or the IP address of the client for TFTP transactions.
Date	Date of the transaction, based on the internal calendar of the computer.
Time	Time of day of the transaction, based on the internal clock of the computer.
Status	Status of the transaction: ▪ *Client Not Found:* A BootRequest was received, but there is no matching client entry in the utility. ▪ *Client Found:* A BootRequest was received and there is a matching client entry in the utility. A BootReply is sent.
New IP / File	IP address applied to the client as a result of the BootP transaction as well as the file name and path of a file transfer for a TFTP transaction.
Client Name	Client name as configured for the client in the utility.
Progress	Progress (in percentage) of the TFTP load to the client.

When double-clicking on a highlighted line that has a status of “Client Not Found”, the Client Configuration opens with a screen status of “Add New Client” and adds the client MAC address.

Figure 3-4: AcBootP Monitor with Add New Client

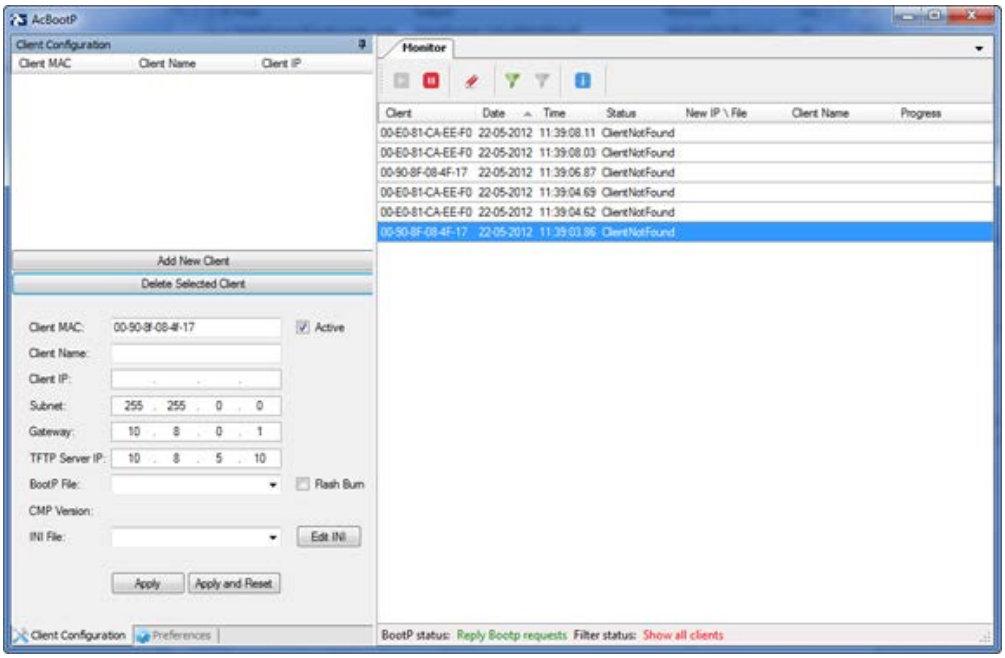
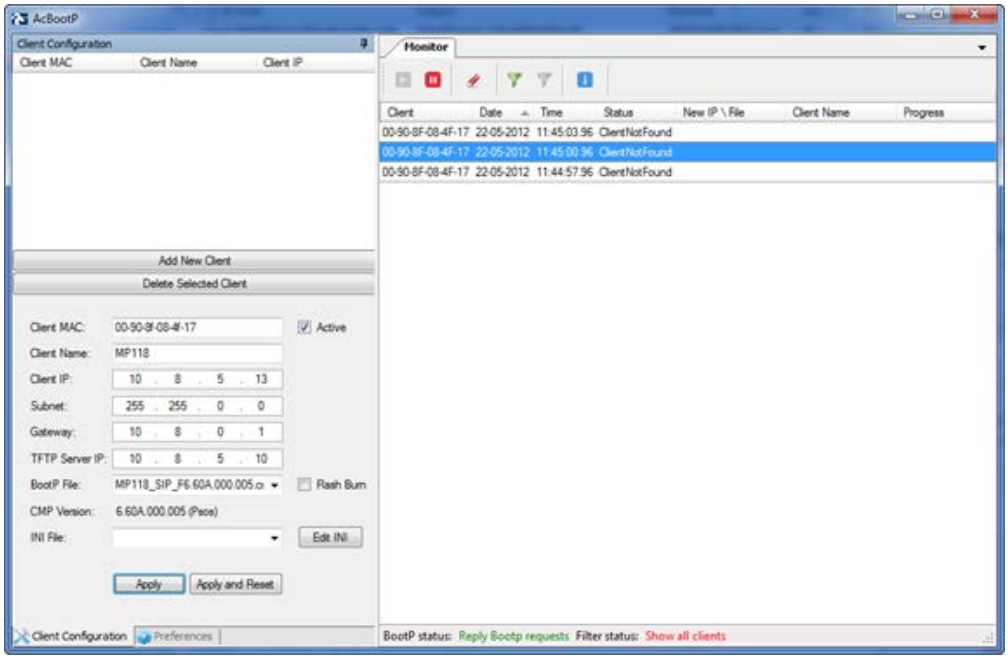


Figure 3-5: AcBootP Monitor with Add New Client and Client Name



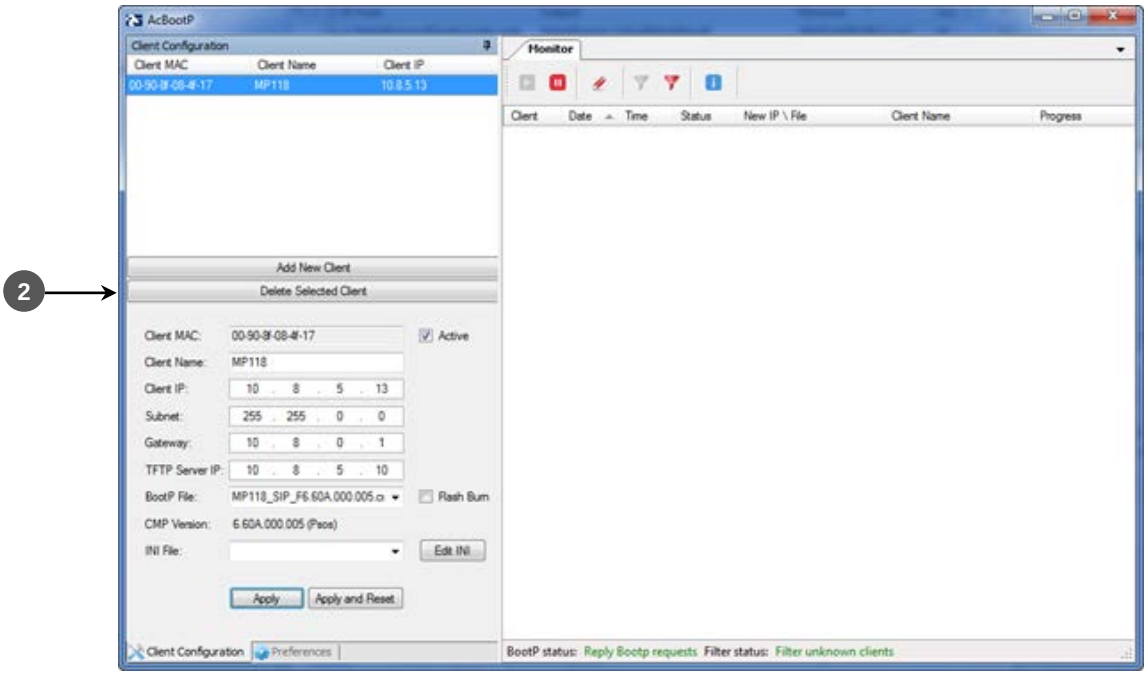
3.4 Deleting Selected Client

You can delete a selected client from the Client Configuration.

➢ **To delete a selected client:**

1. Select the client to be deleted from the Client Configuration.
2. Click D**elete Selected Client**; the client is deleted from the client list.

Figure 3-6: Deleting Selected Client



4 Resetting Device to Initiate BootP/TFTP

Once you have defined your AcBootP 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 BootP/TFTP process:**

1. 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.
2. The Monitor window of the AcBootP utility logs all BootP requests and replies, and TFTP transactions, displaying the progress of the AcBootP process, as follows:
   - The first indication is that the device (client) with this MAC address was located. When double-clicking on the highlighted line that has a status of “Client Found”, the Client Configuration displays the client as the selected one.
   - The second indication shows the progress of uploading files to the device. When the Progress field displays "100%", the BootP has completed successfully.

Figure 4-1: Monitor Displaying AcBootP Progress

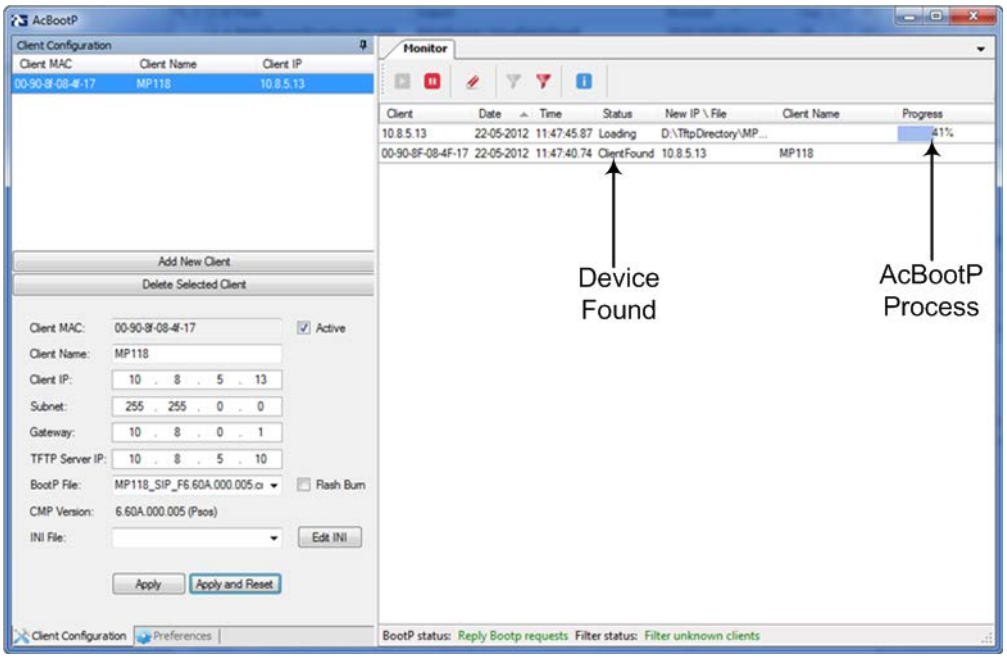
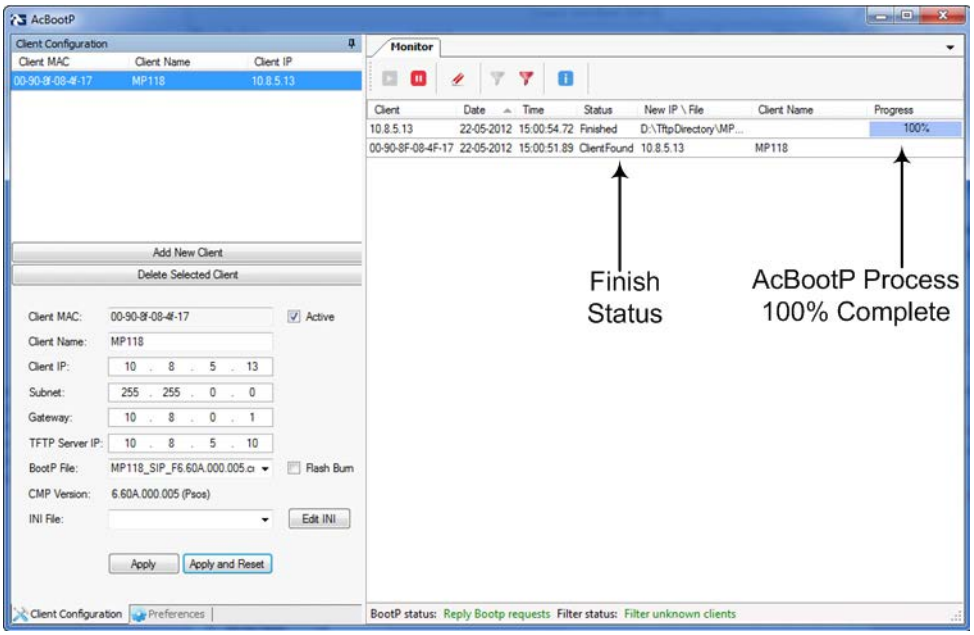


Figure 4-2: Process Complete – Apply



3. Click **Apply** to save the changes or click **Apply And Reset** to save the changes and send a reset to the device.

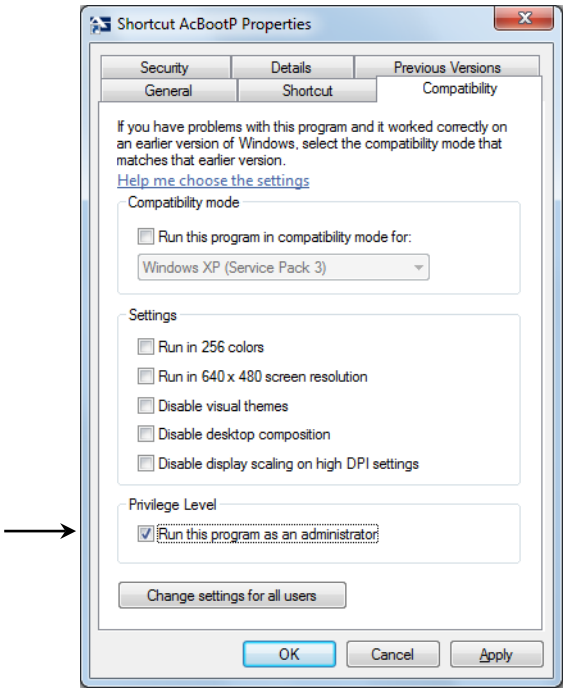
5 Troubleshooting

5.1 No Response to TFTP Requests

If no response is received from the TFTP requests sent by the AcBootP utility, try the following troubleshooting solutions:

1. Enable the AcBootP program as an administrator on the computer:
   a. Right-click the **AcBootP** icon, and then from the shortcut menu, choose **Properties**.
   b. Click the **Compatibility** tab.

Figure 5-1: AcBootP Properties Dialog Box



   c. Select the **Run this program as an administrator** check box, and then click **OK**.
2. Make sure that your firewall allows TFTP applications. However, do this only in accordance with your company's network security policy.

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