



Configuring the Cisco ATA for SCCP

This section describes how to configure the Cisco ATA to operate with the Skinny Client Control Protocol (SCCP) signaling image and how the Cisco ATA obtains the latest signaling image.

You can configure the Cisco ATA for use with SCCP with any of the following methods:

- By using the Cisco CallManager TFTP server—This is the Cisco-recommended method for deploying a large number of Cisco ATAs. This method allows you to set up a default configuration file for all Cisco ATAs in the network. Additionally, you can set up a configuration file that is unique to a specific Cisco ATA. When the Cisco ATA powers up or boots up from a reset, it automatically downloads its configuration file from the Cisco CallManager TFTP server and updates its configuration parameters.
- By using manual configuration:
 - Voice configuration menu—This is the method you must use if the process of establishing IP connectivity for the Cisco ATA requires changing the default network configuration settings. These settings are CDP, VLAN, and DHCP. You also can use the voice configuration menu to review all IP connectivity settings. The voice configuration menu can also be used when Web access is not available.
 - Web-based configuration—This method is convenient if you plan to deploy a small number of Cisco ATAs in your network. To use this method, the Cisco ATA must first obtain IP connectivity, either through the use of a DHCP server or by using the voice configuration menu to statically configure IP addresses.

This section contains the following topics:

- [Default Boot Load Behavior, page 3-2](#)—This section describes the process that the Cisco ATA follows by default when it boots up. It is very important to understand this process because, if your network environment is not set up to follow this default behavior, you need to make the applicable configuration changes. For example, by default, the Cisco ATA attempts to contact a DHCP server for the necessary IP addresses to achieve network connectivity. However, if your network does not use a DHCP server, you must manually configure various IP settings as described in this section.
- [Specifying a Preconfigured VLAN ID or Disabling VLAN IP Encapsulation, page 3-3](#)—This section includes a table of the parameters you can configure for VLAN and CDP settings.
- [Steps Needed to Configure the Cisco ATA, page 3-6](#)—This section provides tables that summarize the general configuration steps you must follow to configure the Cisco ATA.
- [Configuring the Cisco ATA Using a TFTP Server, page 3-7](#)—This section describes procedures for configuring the Cisco ATA by using a Cisco CallManager TFTP server, which is the recommended configuration method for the deployment of a large number of Cisco ATAs.
- [Voice Configuration Menu, page 3-18](#)—This section includes information on how to obtain basic network connectivity for the Cisco ATA and how to perform a factory reset if necessary.

- [Cisco ATA Web Configuration Page, page 3-21](#)—This section shows the Cisco ATA Web configuration page and contains a procedure for how to configure Cisco ATA parameters using this interface.
- [Resetting the Cisco ATA Using Cisco CallManager, page 3-23](#)—This section gives the procedure (via the Cisco CallManager administration web pages) for resetting the Cisco ATA so that your configuration changes take effect.
- [Upgrading the SCCP Signaling Image, page 3-24](#)—This section provides references to the various means of upgrading your Cisco ATA signaling image.

**Note**

The term *Cisco ATA* is used throughout this manual to refer to both the Cisco ATA 186 and the Cisco ATA 188, unless differences between the Cisco ATA 186 and Cisco ATA 188 are explicitly stated.

Default Boot Load Behavior

Before configuring the Cisco ATA, you need to know how the default Cisco ATA boot load process works. Once you understand this process, you will be able to configure the Cisco ATA by following the instructions provided in this section and in the sections that follow.

All Cisco ATAs are shipped with a boot load signaling-protocol image. However, because this image is not a fully functional Cisco ATA image, the Cisco ATA seeks to obtain the image-load information from the Cisco CallManager and perform a software upgrade. In addition, the Cisco ATA obtains the necessary SCCP-specific configuration files for Cisco CallManager communication and the Cisco ATA configuration file during the boot load process.

The following list summarizes the default Cisco ATA behavior during its boot-up process:

1. The Cisco ATA uses the Cisco Discovery Protocol (CDP) to discover which VLAN to enter. If the Cisco ATA receives a VLAN ID response from the network switch, the Cisco ATA enters that VLAN and adds 802.1Q VLAN tags to its IP packets. If the Cisco ATA does not receive a response with a VLAN ID from the network switch, then the Cisco ATA assumes it is not operating in a VLAN environment and does not perform VLAN tagging on its packets.

**Note**

If your network environment is not set up to handle this default behavior, make the necessary configuration changes by referring to the [“Specifying a Preconfigured VLAN ID or Disabling VLAN IP Encapsulation”](#) section on page 3-3.

2. The Cisco ATA contacts the DHCP server to request its own IP address.

**Note**

If your network environment does not contain a DHCP server, you need to statically configure various IP addresses so that the Cisco ATA can obtain network connectivity. For a list of parameters that you must configure to obtain network connectivity, see [Table 3-6 on page 3-19](#). For instructions on how to use the voice configuration menu, which you must use to perform this configuration, see the [“Voice Configuration Menu”](#) section on page 3-18.

3. Also from the DHCP server, the Cisco ATA requests the IP address of the Cisco CallManager TFTP server.

4. The Cisco ATA contacts the Cisco CallManager TFTP server and downloads the appropriate .xml or .cnf configuration file that allows the Cisco ATA to communicate with the correct Cisco CallManager.
5. The .xml or .cnf file that the Cisco ATA downloads includes information about which signaling image the Cisco ATA needs to function properly. The Cisco ATA finds that image on the TFTP server and automatically downloads this image along with the corresponding version of Cisco ATA release software.



Note If you are not using a Cisco CallManager TFTP server, you need to manually upgrade the Cisco ATA to the correct signaling image. For information on this procedure, see the [“Upgrading the Signaling Image Manually”](#) section on page 7-4.

6. The Cisco ATA looks for a Cisco ATA-specific configuration file (designated by the MAC address of the Cisco ATA and named `ata<macaddress>`) on the TFTP server and downloads this file if it exists.
7. If the Cisco ATA does not find the MAC-address configuration file, it looks for the `atadefault.cfg` configuration file and downloads this file if it exists. This file can contain default values for the Cisco ATA to use.



Note When the Cisco ATA is downloading its DHCP configuration, the function button on the top panel blinks.

Specifying a Preconfigured VLAN ID or Disabling VLAN IP Encapsulation

If you want the Cisco ATA to use a preconfigured VLAN ID instead of using the Cisco Discovery Protocol to locate a VLAN, or if you want to disable VLAN IP encapsulation, refer to [Table 3-1](#) for a reference to the parameters and bits you may need to configure. Use the voice configuration menu to configure these parameters. (See the [“Voice Configuration Menu”](#) section on page 3-18 for instructions on using this menu.) Also, refer to [Table 3-2](#) for a matrix that indicates which VLAN-related parameters and bits to configure depending on your network environment.

Table 3-1 Parameters and Bits for Preconfiguring a VLAN ID

Parameter and Bits	Reference
OpFlags: <ul style="list-style-type: none"> • Bit 4—Enable the use of user-specified voice VLAN ID. • Bit 5—Disable VLAN encapsulation • Bit 6—Disable CDP discovery. 	OpFlags, page 5-17
VLANSetting: <ul style="list-style-type: none"> • Bits 0-2—Specify VLAN CoS bit value (802.1P priority) for TCP packets. • Bits 3-5—Specify VLAN CoS bit value (802.1P priority) for UDP packets • Bits 18-29—User-specified 802.1Q VLAN ID 	VLANSetting, page 5-18

Table 3-2 VLAN-Related Features and Corresponding Configuration Parameters

Feature	OpFlags Bit 4	OpFlags Bit 5	OpFlags Bit 6	VLANSetting Bits 18-29
Static VLAN	1	0	1	VLAN ID
CDP-acquired VLAN	0	0	0	N/A
No VLAN	N/A	1	N/A	N/A
No CDP	N/A	N/A	1	N/A
No CDP and no VLAN	0	1	1	N/A

N/A indicates that the variable is not applicable to the feature and the setting of this variable does not affect the feature.

Example

The following procedure shows you how to configure the OpFlags and VLANSetting parameters to allow the Cisco ATA to use a user-specified VLAN ID. In this example, the voice VLAN ID is 115 (in decimal format).

- Step 1** Set bits 4-6 of the OpFlags parameter to 1, 0, and 1, respectively. This setting translates to the following bitmap:

```
xxxx xxxx xxxx xxxx xxxx xxxx x101 xxxx
```

The remaining bits of the OpFlags parameter, using all default values, make up the following bitmap representation:

```
0000 0000 0000 0000 0000 0000 0xxx 0010
```

Therefore, the resulting value of the OpFlags parameter becomes the following bitmap representation:

```
0000 0000 0000 0000 0000 0000 0101 0010
```

In hexadecimal format, this value is 0x00000052.

- Step 2** Set bits 18-29 of the VLANSetting parameter to voice VLAN ID 115. This setting translates to the following bitmap

```
xx00 0001 1100 11xx xxxx xxxx xxxx
```

where 000001110011 is the binary representation of the decimal value 115.

The remaining bits of the VLANSetting parameter, using all default values, make up the following representation:

```
00xx xxxx xxxx xx00 0000 0000 0010 1011
```

Therefore, the resulting value of the VLANSetting parameter becomes the following bitmap representation:

```
0000 0001 1100 1100 0000 0000 0010 1011
```

In hexadecimal format, this value is 0x01cc002b.

**Note**

If you are using the voice configuration menu to set the parameters, you must convert hexadecimal values to decimal values. For example, the OpFlags setting of 0x00000052 is equivalent to 82 in decimal format, and the VLANSetting of 0x01cc002b is equivalent to 30146603 in decimal format.

Steps Needed to Configure the Cisco ATA

This section contains the following topics:

- [Basic Configuration Steps in a Cisco CallManager TFTP Server Environment, page 3-6](#)
- [Basic Configuration Steps in a Non-TFTP Server Environment, page 3-7](#)

Basic Configuration Steps in a Cisco CallManager TFTP Server Environment

[Table 3-3](#) shows the basic steps for configuring the Cisco ATA and making it operational in a typical SCCP environment, which includes a Cisco CallManager TFTP server.

Table 3-3 Basic Steps to Configure the Cisco ATA in a Typical Cisco CallManager Environment

Action	Reference
1. Download the desired Cisco ATA release software zip file from the Cisco web site and store it on the Cisco CallManager TFTP server.	Setting Up the TFTP Server with Cisco ATA Software, page 3-8
2. Create a default configuration file that can be used by many Cisco ATAs in your Cisco CallManager environment. Note You can skip this step if the Cisco ATA default parameters do not require re-configuration in your network environment.	Creating a Cisco ATA Default Configuration File, page 3-10
3. Configure the method with which the Cisco ATA will locate the Cisco CallManager TFTP server at boot up time.	Configuring the Cisco ATA to Obtain its Configuration File from the TFTP Server, page 3-15
4. Add the Cisco ATA to the Cisco CallManager.	Chapter 4, “Adding the Cisco ATA to the Cisco CallManager”
5. Power up the Cisco ATA.	
6. Optionally, create a configuration file for a specific Cisco ATA.	Creating a Configuration File for a Specific Cisco ATA, page 3-12
7. If you make configuration changes to the Cisco ATA, you must reset the Cisco ATA by using the Cisco CallManager administration web pages.	Resetting the Cisco ATA Using Cisco CallManager, page 3-23

Basic Configuration Steps in a Non-TFTP Server Environment

Table 3-4 shows the basic steps for configuring the Cisco ATA without using the TFTP server method.

Table 3-4 Basic Steps to Configure the Cisco ATA Without Using the TFTP Server Method

Action	Reference
<ol style="list-style-type: none"> 1. Download the desired Cisco ATA release software zip file from the Cisco web site: <ol style="list-style-type: none"> a. If you are a registered CCO user, go to the following URL: http://www.cisco.com/cgi-bin/tablebuild.pl/ata186 b. Download the zip file that contains the software for the applicable release and signaling image you are using. The contents of each file are described next to the file name. c. Extract the files to the desired location on your PC. 	
 <p>Note The file that contains the protocol signaling image has an extension of .zup.</p>	
<ol style="list-style-type: none"> 2. Manually upgrade the Cisco ATA to the correct signaling image. 	Upgrading the Signaling Image Manually, page 7-4
<ol style="list-style-type: none"> 3. Configure the Cisco ATA by using either one of the manual-configuration methods. 	<ul style="list-style-type: none"> • Voice Configuration Menu, page 3-18 • Cisco ATA Web Configuration Page, page 3-21
<ol style="list-style-type: none"> 4. Manually configure the CA0orCM0 parameter to instruct the Cisco ATA about how to register with Cisco CallManager. 	CA0orCM0 and CA1orCM1, page 5-9
<ol style="list-style-type: none"> 5. Power up the Cisco ATA. 	

Configuring the Cisco ATA Using a TFTP Server

The TFTP method of configuration is useful when you have many Cisco ATA because you can use a TFTP server for remote, batch configuration of Cisco ATAs. A TFTP server can host one unique configuration file for each Cisco ATA.

This section contains the following topics:

- [Setting Up the TFTP Server with Cisco ATA Software, page 3-8](#)
- [Configurable Features and Related Parameters, page 3-8](#)
- [Parameters Not Used for SCCP, page 3-10](#)
- [Creating a Cisco ATA Default Configuration File, page 3-10](#)
- [Creating a Configuration File for a Specific Cisco ATA, page 3-12](#)
- [Configuring the Cisco ATA to Obtain its Configuration File from the TFTP Server, page 3-15](#)

Setting Up the TFTP Server with Cisco ATA Software

This section provides the procedure for the Cisco ATA administrator to obtain the correct Cisco ATA software and set up the Cisco CallManager TFTP server with this software.

Procedure

-
- Step 1** If you are a registered CCO user, go to the following URL:
<http://www.cisco.com/cgi-bin/tablebuild.pl/ata186>
- Step 2** Download the zip file that contains the software for the applicable release and signaling image you are using. The contents of each file are described next to the file name. Save the zip file onto a floppy disc.
-  **Note** The file that contains the protocol signaling image has an extension of .zup.
-
- Step 3** Insert the floppy disc into the Cisco CallManager disc drive.
- Step 4** From your computer, navigate to **Start > Programs > Terminal Services > Client**. The Terminal Services Client screen appears.
- Step 5** In the Services field of the Terminal Services Client screen, enter the IP address of the Cisco CallManager that contains the disc you inserted. Then, click the **Connect** button. The Login screen appears.
- Step 6** Enter your login information, then click **OK**. The TFTP Path screen appears.
- Step 7** Click on the **My Computer** icon that is located within the Terminal Services Client screen, then navigate to the **A:** drive.
- Step 8** From the **A:** drive, drag the zip file to the TFTP Path screen. This will extract all the files and place them onto the Cisco CallManager TFTP server.
-

Configurable Features and Related Parameters

Table 3-5 lists, in alphabetical order, various features that you can configure for the Cisco ATA. Table 3-5 also includes links to the related parameter that allows you to configure each of these features. Each link takes you to a detailed description of the parameter that includes its default values.

For an example of how to configure parameters for the TFTP Server configuration method, see the “Creating a Cisco ATA Default Configuration File” section on page 3-10.

Table 3-5 Configurable Features and Related Parameters

Configurable Features	Related Parameters
Audio Media Features <ul style="list-style-type: none"> • Low bit-rate codec selection (G.723.1, G.729) • Silence suppression • RTP media port configuration 	Audio Media Parameters <ul style="list-style-type: none"> • LBRCodec, page 5-11 • AudioMode, page 5-12 • MediaPort, page 5-27
Caller ID format	CallerIdMethod, page 5-14
Debug and Diagnosis	NPrintf, page 5-26, TraceFlags, page 5-27

Table 3-5 Configurable Features and Related Parameters (continued)

Configurable Features	Related Parameters
Fax Services Features <ul style="list-style-type: none"> Fax services mode selection Named Signalling Event (NSE) payload type for fax pass-through 	Fax Services Parameters <ul style="list-style-type: none"> AudioMode, page 5-12, ConnectMode, page 5-13 ConnectMode, page 5-13
Hook-flash detection timing configuration	SigTimer , page 5-19
Mid-call service format—Bellcore, Cisco VG248 or Cisco ATA	ConnectMode , page 5-13
Network-related Features <ul style="list-style-type: none"> Cisco Discovery Protocol (CDP)—on/off DHCP configuration DNS configuration Static IP configuration VLAN configuration 	Network-related Parameters <ul style="list-style-type: none"> OpFlags, page 5-17 DHCP, page 5-6, OpFlags, page 5-17 DNS1IP, page 5-15, DNS2IP, page 5-16 StaticIp, page 5-7, StaticRoute, page 5-7, StaticNetMask, page 5-8 OpFlags, page 5-17, VLANSetting, page 5-18
SCCP Terminal-related Features <ul style="list-style-type: none"> Cisco CallManager 3.0 support Cisco IOS Telephony Solution (ITS) support Domain name in Cisco CallManager environment SCCP/MGCP protocol selection Static Cisco CallManager configuration Terminal FXS lines 	SCCP Terminal-related Parameters <ul style="list-style-type: none"> ConnectMode, page 5-13 ConnectMode, page 5-13 Domain, page 5-16 UseMGCP, page 5-10 CA0orCM0 and CA1orCM1, page 5-9 EPID0orSID0 and EPID1orSID1, page 5-8
User Interface and TFTP Features <ul style="list-style-type: none"> User interface password TFTP Configuration TFTP Encryption key Web configuration—enable/disable 	User Interface and TFTP Parameters <ul style="list-style-type: none"> UIPassword, page 5-3 UseTFTP, page 5-4, TftpURL, page 5-4, OpFlags, page 5-17 EncryptKey, page 5-5 OpFlags, page 5-17
Packet Precedence Features <ul style="list-style-type: none"> UDP Type of Service (ToS) configuration 802.1P Class of Service (Cos) Bit configuration 	Packet Precedence Parameters <ul style="list-style-type: none"> UDPTOS, page 5-17 VLANSetting, page 5-18
Ring-cadence format	RingCadence , page 5-20
Tone format: BusyTone, CallWaitTone, ConfirmTone, DialTone, ReorderTone, and RingBackTone parameters	Call-Progress Tone Parameters , page 5-21

Parameters Not Used for SCCP

The following parameters appear on the Cisco ATA Web configuration screen but are used only for the MGCP image and not for SCCP:

- CA0UID
- CA1UID
- CfgInterval
- CodecName
- MGCPPort
- MGCPVer
- NumTxFrames
- PrefCodec
- RetxIntvl
- TetxLim
- ToConfig

Creating a Cisco ATA Default Configuration File

The Cisco ATA release-software zip files includes a file called atadefault.cfg, which is a binary file that contains all the default parameters for the Cisco ATA. However, you likely will need to create your own atadefault.cfg file to contain the default settings that you want Cisco ATAs in your environment to use. For information on each configuration parameter, including all default values, see [Chapter 5, “Parameters and Defaults.”](#)

Use the text file called sk_example.txt as a basis for creating your default file. The sk_example.txt file is included in the software-release zip file and contains all default values. This file is shown without its annotations in the [“Configuration Text File Template”](#) section on page 5-2.

The following procedure illustrates how to create the Cisco ATA default configuration file, convert it to the required binary format that the Cisco ATA can read, and store it on the TFTP server so that the Cisco ATA will download it during the boot-up process:

Procedure

-
- Step 1** Make a copy of the sk_example.txt file and rename it atadefault.txt.
 - Step 2** Make the desired configuration changes by editing the atadefault.txt file, then save the file.
 - Step 3** Convert the atadefault.txt file to a binary file by running the cfgfmt.exe tool, which is bundled with the Cisco ATA software.



Note Be sure to name the output file atadefault.cfg.

If you wish to encrypt the binary file for security reasons, see the [“Using the EncryptKey Parameter and cfgfmt Tool”](#) section on page 3-14.

The syntax of the `cfgfmt` program follows:

Syntax

cfgfmt [-eRC4Password] -tpTagFile input-text-file output-binary-file

- `-eRC4Password` is the optional RC 4key to encrypt the binary TFTP file provided by the `cfgfmt` program (up to eight alphanumeric characters).
- `pTagFile` is the command used to specify the `ptag.dat` file that is provided with the Cisco ATA software version you are running. Search on the keyword `ptag` to find the complete name of the `ptag` file that is included with the Cisco ATA software for the signaling protocol you are using. Be sure this file resides in the same directory from which you are running the `cfgfmt` program. The `ptag.dat` file is used by `cfgfmt.exe` to format a text input representation of the parameter/value pairs to its output binary representation.
- `input-text-file` is the input text file representation of the Cisco ATA configuration file.
- `output-binary-file` is the final output binary file that Cisco ATA uses as the TFTP configuration file.

Example

cfgfmt -tmgcp_ptag.dat atadefault.txt atadefault.cfg

- Step 4** Store the binary configuration file in the TFTP server root directory, overwriting the `atadefault.cfg` file that came bundled with the release-software download.

During the boot-up process, the Cisco ATA will download this file as its configuration file unless it first finds a Cisco ATA-specific configuration file named for the MAC address of the Cisco ATA. (If you want to create a MAC-address configuration file for a specific Cisco ATA, see the [“Creating a Configuration File for a Specific Cisco ATA”](#) section on page 3-12.)



Note If you want to make configuration changes after boot up, repeat the process of creating or editing the text file containing the desired parameters, then converting the text file to the binary file and storing the binary file on the TFTP server. For the configuration changes to take effect, reset the Cisco ATA. (See the [“Resetting the Cisco ATA Using Cisco CallManager”](#) section on page 3-23.)

Creating a Configuration File for a Specific Cisco ATA

Once you have booted up the Cisco ATA, you may decide that you want to create a configuration file that is specific to one Cisco ATA.

The following procedure illustrates how to create a Cisco ATA-specific configuration file, convert it to the required binary format that the Cisco ATA can read, and store it on the TFTP server so that the Cisco ATA will download it as soon as you reset the Cisco ATA.

Procedure

- Step 1** Open the `atadefault.txt` file that you created when you developed your own default file. Find the parameters whose values you want to change for this specific Cisco ATA. Copy only these parameters into a new text file. Save the new text file with the following name:

```
ata<macaddress>.txt
```

where *macaddress* is the non-dotted hexadecimal version of the MAC address of the Cisco ATA you are configuring. This non-dotted hexadecimal MAC address is labeled on the bottom of most Cisco ATAs next to the word “MAC.” The file name must be exactly 15 characters long. (However, if this filename is supplied by the DHCP server, the name can be as long as 31 characters and can be any name with printable ASCII characters.)

If necessary, you can obtain the non-dotted hexadecimal MAC address by using the `atapname.exe` command. For information on using the `atapname.exe` command, see the [“Using atapname.exe Tool to Obtain MAC Address”](#) section on page 3-13. That section includes an example of a dotted decimal MAC address and its corresponding non-dotted hexadecimal address.



Note The `ata<macaddress>.txt` file should contain only those parameters whose values you are changing from their defaults. Parameter values in the `ata<macaddress>` configuration file will overwrite any manually configured values (values configured through the web or voice configuration menu) when the Cisco ATA powers up or resets.

Example

You might want to change the values of the following parameters, whose default values are shown first:

```
LBRCCodec:3  
AudioMode:0x00350035
```

You could change the values as follows:

```
LBRCCodec:0  
AudioMode:0x00350034
```

- Step 2** Save your changes.

- Step 3** Run the `cfgfmt.exe` tool, which is bundled with the Cisco ATA software, on the `ata<macaddress>.txt` text file to generate the binary configuration file. If you wish to encrypt the binary file for security reasons, see the [“Using the EncryptKey Parameter and `cfgfmt` Tool” section on page 3-14](#).

The syntax of the `cfgfmt` program follows:

Syntax

cfgfmt [-eRC4Password] -tpTagFile input-text-file output-binary-file

- `-eRC4Password` is the optional RC 4key to encrypt the binary TFTP file provided by the `cfgfmt` program (up to eight alphanumeric characters).
- `pTagFile` is the command used to specify the `ptag.dat` file that is provided with the Cisco ATA software version you are running. Search on the keyword `ptag` to find the complete name of the `ptag` file that is included with the Cisco ATA software for the signaling protocol you are using. Be sure this file resides in the same directory from which you are running the `cfgfmt` program. The `ptag.dat` file is used by `cfgfmt.exe` to format a text input representation of the parameter/value pairs to its output binary representation.
- `input-text-file` is the input text file representation of the Cisco ATA configuration file.
- `output-binary-file` is the final output binary file that Cisco ATA uses as the TFTP configuration file.

Example

cfgfmt -tmgcp_ptag.dat ata0a141e28323c.txt ata0a141e28323c

This example is based on a Cisco ATA MAC address of 10.20.30.40.50.60, which converts to the two-digit, lower-case hexadecimal representation of each integer as 0a141e28323c.

- Step 4** Store the binary configuration file in the TFTP server root directory.
- Step 5** Reset the Cisco ATA using the Cisco CallManager. (See the [“Resetting the Cisco ATA Using Cisco CallManager” section on page 3-23](#).)

After being reset, the Cisco ATA will download this `ata<macaddress>` binary configuration file as its unique configuration file. This file takes precedence over the `atadefault.cfg` file. If the Cisco ATA finds an `ata<macaddress>` file on the TFTP server, the Cisco ATA does not look for the `atadefault.cfg` file.

Using `atapname.exe` Tool to Obtain MAC Address

This bundled tool is useful for converting the dotted decimal version of the Cisco ATA MAC address (available on the Cisco ATA Web configuration page or from the voice configuration menu code **24#**) to its default Cisco ATA profile name. This name has the following format:

`ataxxxxxxxxxxxx`

where each `xx` is the two-digit, lower-case hexadecimal representation of each integer in the dotted, decimal version of the Cisco ATA MAC address. This is the name you use for the unique Cisco ATA binary configuration file.

The following command and output show an example of this command.

Command Example

```
atapname.exe 10.20.30.40.50.60
```

Command Output

```
ata0a141e28323c
```



Note

The same functionality is available from the voice configuration menu (voice menu code **84#**), which will announce the Cisco ATA profile name.

Using the EncryptKey Parameter and cfgfmt Tool

The EncryptKey parameter encrypts binary files being transferred over a TFTP server. You can make this parameter unique for each Cisco ATA.

By default, the Cisco ATA-specific `ata<macaddress>` configuration file is not encrypted. If encryption of is required, however, you must manually configure the EncryptKey parameter before you boot up the Cisco ATA so that the TFTP method is secure. Use either the voice configuration menu (see the [“Voice Configuration Menu”](#) section on page 3-18) or the Cisco ATA web configuration page (see the [“Cisco ATA Web Configuration Page”](#) section on page 3-21) to configure the EncryptKey parameter.



Note

Because the factory-fresh Cisco ATA cannot accept encrypted configuration files, the first unencrypted file, if intercepted, can easily be read. (You would still have to know the data structure format in order to decode the binary information from the unencrypted file.) Therefore, the new encryption key in the unencrypted file can be compromised.

Set the EncryptKey parameter to a nonzero value. When this value is nonzero, the Cisco ATA assumes that the binary configuration file on the TFTP server is to be encrypted with this key by means of the RC4 cipher algorithm. The Cisco ATA will use this key to decrypt the configuration file.

The Cisco ATA EncryptKey parameter and the encryption key used in the `cfgfmt` tool command syntax must match.



Note

For security reasons, Cisco recommends that you set the UIPassword parameter (if desired) in the configuration file and not by using one of the manual configuration methods.

The `cfgfmt.exe` syntax affects how the EncryptKey parameter is used, as shown in the following examples. In these examples, `input_text` is the `ata<macaddress>.txt` file that you will convert to binary to create an `ata<macaddress>` configuration file for the Cisco ATA; `output_binary` is that binary `ata<macaddress>` file, and `Secret` is the encryption key.

Syntax examples

- `cfgfmt -tpTagFile input-text-file output-binary-file`

If `input-text-file` sets the Cisco ATA EncryptKey parameter to 0, then `output-binary-file` is not encrypted. If the `input-text-file` sets EncryptKey to a non-zero value, then `output-binary-file` is encrypted with that value.

- `cfgfmt -eSecret -tpTagFile input-text-file output-binary-file`

If the Cisco ATA EncryptKey parameter has the value of 0 or is not included in input-text-file, the *Secret* is used to encrypt the output-binary-file. If input-text-file sets the Cisco ATA EncryptKey parameter to a nonzero value and the -e option is used, then output-binary-file is encrypted with the EncryptKey parameter set in input-text-file and *Secret* is ignored.

- `cfgfmt -E -tpTagFile input-text-file output-binary-file`

The -E (uppercase) option means that any value specified for the Cisco ATA EncryptKey parameter in input-text-file is ignored. However, because *Secret* is not specified in this example, output-binary-file is not encrypted. Nevertheless, the EncryptKey parameter and its value, if specified in input-file-text, will be included in output-binary-file for possible encryption at a later time.

- `cfgfmt -E -eSecret -tpTagFile input-text-file output-binary-file`

The -E (uppercase) option means that any value specified for the Cisco ATA EncryptKey parameter in input-text-file is ignored and the output-binary-file is encrypted with the *Secret* key. However, the EncryptKey parameter and its value, if specified in input-text-file, will be included in output-binary-file.

Configuring the Cisco ATA to Obtain its Configuration File from the TFTP Server

This section describes three methods from which to choose how the Cisco ATA contacts the TFTP server to obtain its configuration file:

- [Using a DHCP Server, page 3-15](#)
 - The Cisco ATA contacts the DHCP server, which provides the IP address of the TFTP server
 - The Cisco ATA uses the DHCP server but the DHCP server does not know about TFTP server
- [Without Using a DHCP Server, page 3-17](#)



Note

In the rare instance where no TFTP server is used, you must manually configure the CA0orCM0 parameter to instruct the Cisco ATA about how to register with Cisco CallManager. For this scenario, see the “[CA0orCM0 and CA1orCMI](#)” section on page 5-9.

Using a DHCP Server

When using a DHCP server, configuration settings vary depending on whether or not the DHCP server is under the control of the Cisco ATA system administrator or the service provider. The simplest configuration is when the DHCP server is under the control of the Cisco ATA administrator, in which case the DHCP server provides the IP address of the TFTP server. Depending on who controls the DHCP server, follow the applicable configuration procedure:

- [Procedure if DHCP Server is Under Control of Cisco ATA Administrator, page 3-16](#)
- [Procedure if DHCP Server is not Under Control of Cisco ATA Administrator, page 3-16](#)

This section also includes the topic:

- [Other DHCP Options You Can Set, page 3-17](#)

**Note**

If no DHCP server is found and the Cisco ATA is programmed to find one, the function button continues to blink.

Procedure if DHCP Server is Under Control of Cisco ATA Administrator**Procedure**

Step 1 On the DHCP server, set one of the following two options:

- DHCP option 150 (TFTP server IP address)
- Standard DHCP option 66 (TFTP server name)

If you use DHCP option 150, the Cisco ATA will ignore DHCP option 66. However, if you use DHCP option 66, you must turn off DHCP option 150 or set its value to 0.

**Note**

You can turn off the DHCP option 150 request by using the Cisco ATA OpFlags parameter (see the [“OpFlags” section on page 5-17](#)).

Step 2 Make sure to use default values for the following Cisco ATA parameters:

- TFTPUrl=0
- UseTFTP=1
- DHCP=1
- CA0orCM0=0

This completes the parameter settings and DHCP options you need to configure for this procedure. The Cisco ATA will contact the DHCP server for the IP address of the TFTP server that contains the Cisco ATA configuration file.

Procedure if DHCP Server is not Under Control of Cisco ATA Administrator

This is the procedure to use if the DHCP server is not under the control of the Cisco ATA administrator, which means that the URL of the TFTP server must be manually configured.

Procedure

Step 1 Using the voice configuration menu, set the parameter TftpURL to the IP address or URL of the TFTP server. For more information on setting the TftpURL parameter, see the [“TftpURL” section on page 5-4](#). For information about using the Cisco ATA voice configuration menu, see the [“Voice Configuration Menu” section on page 3-18](#).

**Note**

If you are not using a DHCP server to provide the TFTP server location, you *must* manually configure the TftpURL. You can do this by using the voice configuration menu without first obtaining network connectivity for the Cisco ATA. If you want to configure this value using the Web configuration page, you first must obtain network connectivity by using the voice configuration menu to statically configure IP address information (see the [“Voice Configuration Menu” section on page 3-18](#)).

- Step 2** Use the default value of 1 for the Cisco ATA parameter DHCP.
- Step 3** Use the default value of 1 for the Cisco ATA parameter UseTftp.
- Step 4** Use the default value of 0 for the Cisco ATA parameter CA0orCM0.

This completes the parameter settings you need to configure for this procedure. The Cisco ATA will contact the manually configured TFTP server that contains the Cisco ATA configuration file.

Other DHCP Options You Can Set

The following parameters can also be configured with DHCP:

- Boot file name of DHCP header—The `ata<macaddress>` binary Cisco ATA configuration file, which can have a maximum of 31 characters and can be any name with printable ASCII characters
- Client PC address
- DHCP option 1—Client Subnet Mask
- DHCP option 3—Routers on the client's subnet
- DHCP option 6—One or two Domain Name servers
- DHCP option 43—Set this option to identify the protocol (for example, **SCCP**)
- DHCP Option 60 (DHCP_VENDOR_CLASS_ID)—Use this parameter to identify the type of Cisco ATA box (**ATA186** or **ATA188**).

Without Using a DHCP Server

Use the following procedure if you are not using a DHCP server in your environment but are still using a TFTP server to obtain the Cisco ATA configuration file:

Procedure

- Step 1** Set the DHCP parameter to 0.
- Step 2** Set the UseTFTP parameter to 1.
- Step 3** Set the Cisco ATA parameter TftpURL to the IP address or URL of the TFTP server. For more information on setting the TftpURL parameter, see the [“TftpURL” section on page 5-4](#).



Note If you are not using a DHCP server to provide the TFTP server location, you must manually enter the TftpURL using either the voice configuration menu or the web configuration page.

- Step 4** If you have done already done so, statically configure the following parameters using the voice configuration menu (see the [“Voice Configuration Menu” section on page 3-18](#)). These are the parameters you need to configure for the Cisco ATA to obtain network connectivity:
- StaticIP
 - StaticRoute
 - StaticNetMask

Other parameters that are normally supplied by DHCP may be provided statically by configuring their values. These parameters are:

- DNS1IP
- DNS2IP
- Domain

This completes the parameter settings you need to configure in order for the Cisco ATA to contact the TFTP server (without using DHCP) that will contain the configuration file for the Cisco ATA.

Voice Configuration Menu

The main reasons to use the voice configuration menu are to establish IP connectivity for the Cisco ATA if a DHCP server is not being used in your network environment, and to reset the Cisco ATA to its factory values if necessary. You can also use the voice configuration menu if you need to configure a small number of parameters or if the web interface and TFTP configuration are not available.



Note

Do not use the voice configuration menu to attempt to change any values that you configured by means of the TFTP configuration file method. Whenever the Cisco ATA resets, it downloads its `ata<macaddress>` configuration file or `atadefault.cfg` default configuration file from the TFTP server, and the values in either of these files will overwrite the values of any corresponding parameters configured with the voice configuration menu.

See [Chapter 5, “Parameters and Defaults,”](#) for a complete list of parameters and their definitions. Also see [Table 3-5 on page 3-8](#) for an alphabetical listing of configurable features and references to their corresponding parameters.

This section contains the following topics:

- [Using the Voice Configuration Menu, page 3-18](#)
- [Entering Alphanumeric Values, page 3-20](#)
- [Resetting the Cisco ATA to Factory Default Values, page 3-20](#)

Using the Voice Configuration Menu

To manually configure the Cisco ATA by using the voice configuration menu and the telephone keypad, perform the following steps:

Procedure

- Step 1** Connect an analog touch-tone phone to the port labeled **Phone 1** on the back of the Cisco ATA.
- Step 2** Lift the handset and press the function button located on the top of the Cisco ATA. You should receive the initial voice configuration menu voice prompt.
- Step 3** Using the telephone keypad, enter the voice menu code for the parameter that you want to configure or the command that you want to execute, then press #. For a list of voice menu codes, see [Appendix B, “Voice Menu Codes.”](#)

[Table 3-6](#) lists the menu options that you need to configure basic IP connectivity for the Cisco ATA, after which you can use the Cisco ATA web configuration page to configure additional parameters.



Note If you are using the voice configuration menu to statically configure the Cisco ATA IP address, you must disable DHCP by setting its value to 0.

Table 3-6 Parameters that Provide Basic IP Connectivity for the Cisco ATA

Voice Menu Number	Features
1	StaticIP—IP address of the Cisco ATA.
2	StaticRoute—Default gateway for the Cisco ATA to use.
10	StaticNetMask—Subnet mask of the Cisco ATA.
20	DHCP—Set value to 0 to disable the use of a DHCP server; set value to 1 to enable DHCP.
21	Review the IP address of the Cisco ATA.
22	Review the default router for the Cisco ATA to use.
23	Review subnet mask of the Cisco ATA.

Step 4 Follow the voice prompts and enter the appropriate values, then press the # key.



Note Use the * key to indicate a delimiter (dot). For example, to enter an IP address of 192.168.3.1, you would enter 192*168*3*1 on your telephone keypad.



Note When entering values for a field that contains a hexadecimal value, you must convert the hexadecimal value to a decimal value in order to enter it into the voice configuration menu system. For example, to enter the hexadecimal value 0x6A, you would enter the number 106 on the telephone keypad.

The voice configuration menu repeats the value you entered, then prompts you to press one of the following keys:

- 1=Change your entered value
- 2=Review your entered value
- 3=Save your entered value
- 4=Review the current saved value

Step 5 Press the # key after you have entered the desired key. If you do not press the # key, the system will automatically timeout after 10 seconds.

Step 6 Cisco strongly recommends that you set a password. Use the voice menu code 7387277 (SETPASS) to configure a password through the voice configuration menu, after which you are prompted for the password whenever you attempt to change a parameter value.

Step 7 After completing the configuration through the voice configuration menu, press the # key to exit.

Step 8 Hang up the telephone. The Cisco ATA configuration refreshes. The function button fast-blinks when the refresh is completed.

Entering Alphanumeric Values

Some voice configuration menu options require you to enter alphanumeric characters. Alphanumeric entry differs from numeric entry because you must press # after each character selected.

If you need to enter an alphanumeric value, the voice prompt tells you to enter an alphanumeric value; otherwise, enter a numeric value (0 to 9).

Table 3-7 lists the keys on a telephone keypad and their respective alphanumeric characters.

Using Table 3-7 as a guide, enter the appropriate number key on the telephone keypad as many times as needed to select the number, letter, or symbol required. For example, to enter 58sQ, you would enter:

```
5 # 8 # 7 7 7 7 7 # 7 7 7 7 7 7 7 # #
```

Table 3-7 Alphanumeric Characters

Key	Alphanumeric Characters
1	1 ./_\ @*space return +-.!/? ^#=#\$%^&'<>[] ;:}{()&
2	2 a b c A B C
3	3 d e f D E F
4	4 g h i G H I
5	5 j k l J K L
6	6 m n o M N O
7	7 p q r s P Q R S
8	8 t u v T U V
9	9 w x y z W X Y Z
0	0

Resetting the Cisco ATA to Factory Default Values

It is possible that you may, under some circumstances, want to reset the Cisco ATA to its factory default values. For example, this is the only way to recover a forgotten password without contacting your Cisco representative.

To perform a factory reset, you must use the voice configuration menu and follow these steps:

Procedure

-
- Step 1** Press the function button on the Cisco ATA.
 - Step 2** Press the digits **322873738** (**FACTRESET**) then press # on the telephone keypad.
 - Step 3** Press **3** on your telephone keypad to confirm that you want to reset the Cisco ATA, then hang up the phone.
-

Cisco ATA Web Configuration Page

You can use the Cisco ATA web configuration page in a non-TFTP configuration environment, or in a TFTP configuration environment as a read-only record of individual customer parameters.

[Figure 3-1](#) shows an example of the Cisco ATA web configuration page, which displays all configurable parameters. The different colors on the screen are for different parameter groupings, as described in [Chapter 5, “Parameters and Defaults.”](#)

**Note**

Do not use the web configuration page to attempt to change any values that you configured by means of the TFTP configuration file method. Whenever the Cisco ATA resets, it downloads its `ata<macaddress>` configuration file or `atadefault.cfg` default configuration file from the TFTP server, and the values in either of these files will overwrite the values of any corresponding parameters configured with the Web configuration method.

Figure 3-1 Cisco ATA Web Configuration Page

UIPassword:	*	ToConfig:	0
UseTftp:	0	TftpURL:	0
CfgInterval:	3600	EncryptKey:	*
Dhcp:	0	StaticIP:	192.168.2.44
StaticRoute:	192.168.2.54	StaticNetMask:	255.255.254.0
EPID0orSID0:	a001	EPID1orSID1:	a002
CA0orCM0:	192.168.2.64	CA1orCM1:	0
CA0UID:	0	CA1UID:	0
UseMGCP:	1	MGCPVer:	MGCP1.0
RetxIntvl:	250	RetxLim:	3
MGCPPort:	2427	CodecName:	PCMU, PCMA, G723, G729
LBRCcodec:	3	PrfCodec:	2
AudioMode:	0x00150015	ConnectMode:	0x00060400
CallerIdMethod:	0xc0019e60	DNS1IP:	0.0.0.0
DNS2IP:	0.0.0.0	Domain:	.
NumTxFrames:	2	UDPTOS:	0x000000a0
OpFlags:	0x00000002	VLANSetting:	0x0000002b
SigTimer:	0x00000064	RingCadence:	2, 4, 25
DialTone:	2,31538,30831,3100,38	BusyTone:	2, 30467, 28959, 1191, 1
ReorderTone:	2,30467,28959,1191,15	RingBackTone:	2, 30831, 30467, 1943, 2
CallWaitTone:	1,30831,0,5493,0,0,240	ConfirmTone:	1, 30467, 0, 5970, 0, 0, 4
NPrintf:	192.168.2.159.1011	TraceFlags:	0x00000001
MediaPort:	16384		

85760

You can access the web configuration page from any graphics-capable browser, such as Microsoft Internet Explorer or Netscape. This provides easy initial access to the Cisco ATA configuration within the administrator's private network.

Follow these steps to set parameters using the web configuration page:

Procedure

Step 1 Make sure that your PC and the Cisco ATA are already networked and visible to each another.

Step 2 Open your web browser.

Step 3 Enter the URL for your configuration page. The default URL for the web server is:

`http://IP Address/dev`

For example, the configuration page for a Cisco ATA with the IP address 192.168.3.225 is:

`http://192.168.3.225/dev`

Step 4 Select the values for the items that you want to configure. See [Chapter 5, “Parameters and Defaults,”](#) for a complete list of parameters and their definitions. Also see [Table 3-5 on page 3-8](#) for an alphabetical listing of configurable features and references to their corresponding parameters.



Note

Cisco strongly recommends that you set a password. Use the UIPassword parameter to configure a password, after which you are prompted for the password whenever you attempt to change a parameter value. Configuration parameters cannot be accessed through the voice configuration menu if the password contains one or more letters and can be changed only by using the web interface or the TFTP configuration method.

Step 5 Click **apply** to save your changes.

The Cisco ATA automatically refreshes its configuration.

Step 6 Close your web browser.

Resetting the Cisco ATA Using Cisco CallManager

Whenever you make configuration changes to the Cisco ATA, you must reset the Cisco ATA using the Cisco CallManager for these configuration changes to take effect. To reset the Cisco ATA, use the following procedure:

Procedure

Step 1 Go to the main Cisco CallManager Administration screen.

Step 2 Using voice configuration menu code 21, review the Cisco ATA IP address.

Step 3 From the Device pull-down menu, select **Phone**. The Find and List Phones screen appears.

Step 4 In the area next to the Find button, enter a portion or all of the Cisco ATA MAC address, then press **Find**. The Find and List Phones screen reappears, and now contains the Cisco ATAs that match the *find* criteria you entered in the previous screen.

Step 5 Click the icon of the Cisco ATA that you would like to reset. The Phone Configuration screen appears.

- Step 6** Click the **Reset Phone** button on the Phone Configuration screen. The Reset Device pop-up window appears.
- Step 7** Click **Reset**.
- Step 8** A confirmation box appears. Click **OK**.
-

Upgrading the SCCP Signaling Image

For instructions on how to upgrade the Cisco ATA to the most recent SCCP signaling image, refer to the following list:

- To use the recommended Cisco CallManager TFTP method of upgrading any or all Cisco ATAs at one time, see the [“Upgrading the Signaling Image Via Cisco CallManager”](#) section on page 7-2.
- In the rare instance that you are not using the Cisco CallManager TFTP to configure the Cisco ATA and to obtain software upgrades, you must manually upgrade to the latest signaling image immediately after the Cisco ATA boots up. In this case, see the [“Upgrading the Signaling Image Manually”](#) section on page 7-4.