



Preparing to Install the ATA 190 on Your Network

The ATA 190 enables you to communicate using voice over a data network. To provide this capability, the ATA 190 depends upon and interacts with several other key Cisco Unified IP Telephony and Network components, including Cisco Unified Communications Manager, DNS and DHCP servers, TFTP servers, media resources, and so on.

This chapter focuses on the interactions between the ATA 190, Cisco Unified Communications Manager, DNS and DHCP servers, TFTP servers, and switches. It also describes options for powering the ATA 190.

For related information about voice and IP communications, see this URL:

<http://www.cisco.com/c/en/us/products/unified-communications/index.html>

This chapter provides an overview of the interaction between the ATA 190 and other key components of the Voice over IP (VoIP) network. It includes these topics:

- [Understanding Interactions with Other Cisco Unified IP Communications Products, page 2-1](#)
- [Providing Power to the ATA 190, page 2-2](#)
- [Understanding Phone Configuration Files, page 2-3](#)
- [Understanding the ATA 190 Startup Process, page 2-4](#)
- [Adding the ATA 190 to the Cisco Unified Communications Manager Database, page 2-5](#)
- [Determining the MAC Address of an ATA 190, page 2-6](#)

Understanding Interactions with Other Cisco Unified IP Communications Products

To function in the IP telephony network, the ATA 190 must be connected to a networking device, such as a Cisco Catalyst switch. You must also register the ATA 190 with a Cisco Unified Communications Manager system before sending and receiving calls.

This section includes information on [Understanding ATA 190 Interaction with Cisco Unified Communications Manager, page 2-2](#).

Understanding ATA 190 Interaction with Cisco Unified Communications Manager

Cisco Unified Communications Manager is an open and industry-standard call processing system. Cisco Unified Communications Manager software sets up and tears down calls between analog phones that are connected to the ATA 190, and thus integrates traditional PBX functionality with the corporate IP network. Cisco Unified Communications Manager manages the components of the IP telephony system: the phones, the access gateways, and the resources necessary for features such as call conferencing and route planning. Cisco Unified Communications Manager also provides:

- Firmware for devices
- Authentication and encryption (if configured for the telephony system)
- Configuration and CTL files via the TFTP service
- Phone registration
- Call preservation, so that a media session continues if signaling is lost between the primary Communications Manager and a phone

For information about configuring Cisco Unified Communications Manager to work with the IP devices described in this chapter, see *Cisco Unified Communications Manager Administration Guide*, *Cisco Unified Communications Manager System Guide*, and *Cisco Unified Communications Manager Security Guide*.

Providing Power to the ATA 190

The ATA 190 is powered with external power. External power is provided through a separate power supply.

The following sections provide more information about powering an ATA 190:

- [Power Guidelines, page 2-2](#)
- [Power Outage, page 2-2](#)
- [Understanding Phone Configuration Files, page 2-3](#)

Power Guidelines

The following power type and guideline applies to external power for the ATA 190:

- Power Type—External power (provided through the Universal AC external power supply).
- Guidelines—The ATA 190 uses the Universal AC power supply 100/240V.

Power Outage

Your accessibility to emergency service through the phone depends the phone being powered. If there is an interruption in the power supply, Service and Emergency Calling Service dialing will not function until power is restored. In the case of a power failure or disruption, you may need to reset or reconfigure equipment before using the Service or Emergency Calling Service dialing.

Understanding Phone Configuration Files

Configuration files for a phone are stored on the TFTP server and define parameters for connecting to Cisco Unified Communications Manager. In general, any time you make a change in Cisco Unified Communications Manager that requires the ATA 190 line to be reset, a change is automatically made to the phone configuration file. If a system reset or restart is required, both lines must reset or restart at the same time.

Configuration files also contain information about which image load the ATA 190 should be running. If this image load differs from the one that is currently loaded on an ATA 190, the phone contacts the TFTP server to request the required load files. (These files are digitally signed to ensure the authenticity of the file source.)

If the device security mode in the configuration file is set to Authenticated and the CTL file on the ATA 190 has a valid certificate for Cisco Unified Communications Manager, the phone establishes a TLS connection to Cisco Unified Communications Manager. Otherwise, the ATA 190 establishes a TCP/UDP connection. Users can go to **Voice > Line > SIP Settings** on the ATA 190 web GUI, where the SIP Transport should correspond to the transport type in the Phone Security Profile in Cisco Unified Communications Manager.

If you configure security-related settings in Cisco Unified Communications Manager Administration, the phone configuration file contains sensitive information. To ensure the privacy of a configuration file, configure it for encryption. For detailed information, see [Configuring Encrypted Phone Configuration Files](#) in *Cisco Unified Communications Manager Security Guide*.

An ATA 190 accesses a default configuration file named XMLDefault.cnf.xml only when the ATA 190 cannot get configuration file named ATA<mac_address>.cnf.xml, where *mac_address* is the MAC address of the phone.

If autoregistration is not enabled and you did not add the ATA 190 to the Cisco Unified Communications Manager database, the ATA 190 does not attempt to register with Cisco Unified Communications Manager.

If the ATA 190 has registered before, the ATA 190 accesses the configuration file named ATA<mac_address>.cnf.xml, where *mac_address* is the MAC address of the phone.

For the ATA 190, the TFTP server generates these SIP configuration files:

- SIP IP Phone:
 - For unsigned and unencrypted files—ATA<mac>.cnf.xml
 - For signed files—ATA<mac>.cnf.xml.sgn
 - For signed and encrypted files—ATA<mac>.cnf.xml.enc.sgn
 - Maximum number of dial patterns is 10
 - Maximum length of each dial pattern is 30

The filenames are derived from the MAC Address in the Phone Configuration window of Cisco Unified Communications Manager Administration. The MAC address uniquely identifies the phone. For more information, see the *Cisco Unified Communications Manager Administration Guide*.

For more information about how the phone interacts with the TFTP server, see the *Cisco Unified Communications Manager System Guide*, Cisco TFTP section.

Understanding the ATA 190 Startup Process

When connecting to the VoIP network, the ATA 190 goes through a standard startup process, as described in [Table 2-1](#). Depending on your specific network configuration, not all these process steps may occur on your ATA 190.

Table 2-1 **ATA 190 Startup Process**

Task	Purpose	Related Topics
1.	Obtaining Power. The ATA 190 uses external power.	See Providing Power to the ATA 190, page 2-2 .
2.	Loading the Stored Image. The Cisco ATA 190 has nonvolatile flash memory in which it stores firmware images and user-defined preferences. At startup, the ATA 190 runs a bootstrap loader that loads an ATA 190 image stored in flash memory. Using this image, the ATA 190 initializes its software and hardware.	
3.	Obtaining an IP Address. If the Cisco ATA 190 is using DHCP to obtain an IP address, the device queries the DHCP server to obtain one. If you are not using DHCP in your network, assign static IP addresses to each device locally.	
4.	Requesting the CTL file. The TFTP server stores the CTL file. This file contains the certificates necessary for establishing a secure connection between the device and Cisco Unified Communications Manager.	See the <i>Cisco Unified Communications Manager Security Guide, Configuring the Cisco CTL Client</i> .
5.	Requesting the Configuration File. The TFTP server has configuration files, which define parameters for connecting to Cisco Unified Communications Manager and other information for the ATA 190.	See Understanding Phone Configuration Files, page 2-3 .
6.	Contacting Cisco Unified Communications Manager. The configuration file defines how the ATA 190 communicates with Cisco Unified Communications Manager and provides a device with its load ID. After obtaining the file from the TFTP server, the device attempts to make a connection to the highest priority Cisco Unified Communications Manager on the list. If the security profile of the device is configured for secure signaling (encrypted or authenticated), and the Cisco Unified Communications Manager is set to Mixed (security) mode, the device makes a TLS connection. Otherwise, it makes a nonsecure TCP/UDP connection.	See Understanding Phone Configuration Files, page 2-3 .

Adding the ATA 190 to the Cisco Unified Communications Manager Database

Before installing the ATA 190, choose a method for adding the devices to the Cisco Unified Communications Manager database. These sections describe the methods:

- [Adding the ATA 190 with Auto-Registration, page 2-5](#)
- [Adding the ATA 190 with Cisco Unified Communications Manager Administration, page 2-6](#)

Table 2-2 provides an overview of these methods for adding the ATA 190 to the Cisco Unified Communications Manager database.

Table 2-2 *Methods for Adding the ATA 190 to the Cisco Unified Communications Manager Database*

Method	Requires MAC Address?	Notes
Autoregistration	No	<ul style="list-style-type: none"> • Results in automatic assignment of directory numbers. • Not available when mixed mode is enabled.
Using the Cisco Unified Communications Manager Administration	Yes	Requires phones to be added individually.

Adding the ATA 190 with Auto-Registration

By enabling autoregistration before you begin installing the ATA 190, you can:

- Automatically add devices without first gathering MAC addresses from the ATA 190.
- Automatically add an ATA 190 to the Cisco Unified Communications Manager database when you physically connect the phone to your IP telephony network. During autoregistration, Cisco Unified Communications Manager assigns the next available sequential directory number to the phone.
- If you want to change settings, quickly enter devices into the Cisco Unified Communications Manager database and modify any settings, such as the directory numbers, from Cisco Unified Communications Manager.
- Move autoregistered devices to new locations and assign them to different device pools without affecting their directory numbers.



Note

Support exists for autoregistration for several devices in the Unified CM at the same time.

Autoregistration is disabled by default. Sometimes, you may not want to use autoregistration. For example, if you want to assign a specific directory number to the phone or if you plan to use secure connection with Cisco Unified Communications Manager as described in the *Cisco Unified Communications Manager Security Guide*. For information about enabling autoregistration, see the Enabling Auto-Registration in the *Cisco Unified Communications Manager Administration Guide*.

**Note**

For mixed mode, autoregistration is automatically disabled and cannot be changed. For nonsecure mode, autoregistration is disabled by default but can be enabled manually.

Related Topics

[Adding the ATA 190 with Cisco Unified Communications Manager Administration, page 2-6](#)

Adding the ATA 190 with Cisco Unified Communications Manager Administration

You can add the ATA 190 individually to the Cisco Unified Communications Manager database using Cisco Unified Communications Manager Administration. To do so, first obtain the MAC address for each device.

For information about determining a MAC address, see [Determining the MAC Address of an ATA 190, page 2-6](#).

After you have collected MAC addresses, in Cisco Unified Communications Manager Administration, choose **Device > Phone** and click **Add New** to begin.

**Note**

ATA 190 has two FXS ports, and each port has its MAC address. The first ATA 190 port uses the MAC address and the second ATA 190 port uses the shifted MAC address (example, AABCCDDEEFF to BBCCDDEEFF01). You can add two devices from the Unified CM administration page.

For complete instructions and conceptual information about Cisco Unified Communications Manager, see the *Cisco Unified Communications Manager Administration Guide* and the *Cisco Unified Communications Manager System Guide*.

Related Topics

[Adding the ATA 190 with Auto-Registration, page 2-5](#)

Determining the MAC Address of an ATA 190

Several of the procedures that are described in this document require you to determine the MAC address of an ATA 190. You can determine the MAC address for a device in any of these ways:

- Look at the MAC label on the back of the device.
- Go to **Voice > Information** on the web page of the device and check the MAC address.