Third-Party Call Control Setup

Determine the Phone MAC Address

To add phones to the Third-Party Call Control system, determine the MAC address of a Cisco IP Phone.

Procedure

Perform one of the following actions:

- On the phone, press **Applications** > **Status** > **Product Information**, and look at the MAC address field.

- Look at the MAC label on the back of the phone.

- Display the web page for the phone and select **Info** > **Status** > **Product Information**.

Network Configuration

The Cisco IP Phone is used as a part of a SIP network, because the phone supports Session Initiation Protocol (SIP). The Cisco IP Phone is compatible with other SIP IP PBX call control systems, such as BroadSoft, MetaSwitch, and Asterisk.

Configuration of these systems is not described in this document. For more information, see the documentation for the SIP PBX system to which you are connecting the Cisco IP Phone.

This document describes some common network configurations; however, your configuration can vary, depending on the type of equipment that your service provider uses.

Provisioning

Phones can be provisioned to download configuration profiles or updated firmware from a remote server when they are connected to a network, when they are powered up, and at set intervals. Provisioning is typically part of high-volume, Voice-over-IP (VoIP) deployments and is limited to service providers. Configuration profiles or updated firmware are transferred to the device through use of TFTP, HTTP, or HTTPS.

Report Current Phone Configuration to the Provisioning Server

You can configure the phone to report its full configuration, delta changes in the configuration, or the status data to the server. You can add up to two URLs in the **Report Rule** field to specify the destination for the report, and include an optional encryption key.

When requesting delta configuration and status reports at once, separate report rules with a **space**. Include a destination upload-URL in each of the report rules. You can optionally precede the report rule by one or more content arguments that are enclosed in square brackets `[ ]`.

When a report upload is attempted, the *HTTP Report Method* field specifies whether the HTTP Request that the phone sends should be an *HTTP PUT* or an *HTTP POST*. Choose:

- **PUT Method**–To create a new report or overwrite an existing report at a known location on the server. For example, you may want to keep overwriting each report that you send and only store the most *current* configuration on the server.

- **POST Method**–To send the report data to the server for processing, such as, by a PHP script. This approach provides more flexibility for storing the configuration information. For example, you may want to send a series of phone status reports and store *all* the reports on the server.

Use the following content arguments in the **Report Rule** field to send specific configuration reports:

Content Argument	Report Content
Default: Blank	Full Configuration report
`[--delta]`	Configuration report contains *only* the latest changed fields For example, - Report 1 contains ABC changes. - Report 2 contains XYZ changes (*not* ABC and XYZ).
`[--status]`	Full Phone Status report

Note The preceding arguments can be combined with other arguments, such as, `--key`,`--uid`, and `--pwd`. These arguments control upload authentication and encryption, and are documented in the **Profile Rule** field.

- When you specify the **[--key <encryption key>]** argument in the **Report Rule**, the phone applies AES-256-CBC encryption to the file (configuration, status, or delta), with the specified encryption key.

Note If you have provisioned the phone with Input Keying Material (IKM) and want the phone to apply RFC 8188-based encryption to the file, do not specify the **--key** argument.

Before you begin

Access the phone administration web page. See Access the Phone Web Interface.

Procedure

Step 1 Select **Voice** > **Provisioning** > **Upload Configuration Options**.

Step 2 Set the parameter for each of the five fields as described in Parameters for Reporting the Phone Configuration to the Server, on page 5.

Step 3 Click **Submit All Changes**.

Example of user inputs and the resulting actions of the phone and provisioning server for the **Report Rule**:

- **HTTP PUT ALL configuration:**

  If the HTTP report method is PUT, you enter the URL for the report rule in this format:

  http://my_http_server/config-mpp.xml

  Then the phone will report the configuration data to *http://my_http_server/config-mpp.xml*.

- **HTTP PUT Changed Configuration**

  If the HTTP report method is PUT, you enter the URL for the report rule in this format:

  [--delta]http://my_http_server/config-mpp-delta.xml;

  Then the phone will report changed configuration to *http://my_http_server/config-mpp-delta.xml*.

- **HTTP PUT Encrypted Delta Configuration**

  If the HTTP report method is PUT, you enter the URL for the report rule in this format:

  [--delta --key test123]http://my_http_server/config-mpp-delta.enc.xml;

  The phone will report status data to *http://my_http_server/config-mpp-delta.enc.xml*

  On the report server side, the file can be decrypted like this: **# openssl enc -d -aes-256-cbc -k test123 -**in config-mpp-delta.enc-delta.enc -out cfg.xml

- **HTTP PUT Status Data**

  If the HTTP report method is PUT, you enter the URL for the report rule in this format:

  [--status]http://my_http_server/config-mpp-status.xml;

  The phone will report status data to *http://my_http_server/config-mpp-status.xml*

- **HTTP PUT Changed Configuration and Status**

  If the HTTP report method is PUT, you enter the URL for the report rule in this format:

  `[--status]http://my_http_server/config-mpp-status.xml`
  `[--delta]http://my_http_server/config-mpp-delta.xml`

  The phone will report status data to *http://my_http_server/config-mpp-status.xml* and *http://my_http_server/config-mpp-delta.xml*

- **HTTP POST Changed Configuration**

  If the report method is POST, you enter the URL for the report rule in this format:

  `[--delta]http://my_http_server/report_upload.php`

  The report upload file format"

```
// report_upload.php content
<?php
$filename = "report_cfg.xml";  // report file name
// where to put the file
$file = "/path/to/file".$filename;
// get data from http post
$report_data = file_get_contents('php://input');
// save the post data to file
$file_put_contents($file, $report_data);
?>
```

  The phone will upload changed data to *http://my_http_server/report_cfg.xml*

Parameters for Reporting the Phone Configuration to the Server

Table 1: Parameters for Reporting the Phone Configuration to the Server

Field	Description

Report Rule	Specifies how the phone reports its current internal configuration to the provisioning server. The URLs in this field specify the destination for a report and can include an encryption key.
	
	You can use the following keywords, encryption key, and file locations and names to control how you store the phone configuration information:
	
	• No keywords and *only* an XML file reports the *entire* configuration data to server.
	
	• **[--status]** keyword reports the *status data* to server.
	
	• **[--delta]** keyword reports the *changed* configuration to server.
	
	• **[--key <encryption key>]** keyword tells the phone to apply AES-256-CBC encryption with the specified encryption key to the configuration report, before sending it to the server.
	
	You can enclose the encryption key in double-quotes (") optionally.
	
	Note If you have provisioned the phone with Input Keying Material (IKM) and want the phone to apply RFC 8188-based encryption to the file, do not specify a AES-256-CBC encryption key.
	
	• Two rules used together as:
	
	`[--delta]http://my_http_server/config-mpp-delta.xml`
	`[--status]http://my_http_server/config-mpp-status.xml`
	
	Caution If you need to use the [--delta]xml-delta file rule and the [--status]xml-status file rule together, you must separate the two rules with a **space**.
	
	Perform one of the following:
	
	• In the phone configuration file with XML(cfg.xml), enter a string in this format:
	
	`<Profile_Rule ua="na">`
	`[--delta]http://my_http_server/config-mpp-delta.xml`
	`[--status]http://my_http_server/config-mpp-status.xml`
	`</Profile_Rule>`
	
	• In the phone web interface, enter the profile rule in this field.

Field	Description
HTTP Report method:	Specifies whether the HTTP Request that the phone sends should be an *PUT* or an *POST*. • **PUT**–To create a new report or overwrite an existing report at a known location on the server. For example, you may want to keep overwriting each report that you send and only store the most *current* configuration on the server. • **POST**–To send the report data to the server for processing, such as, by a PHP script. This approach provides more flexibility for storing the configuration information. For example, you may want to send a series of phone status reports and store *all* the reports on the server. Perform one of the following: • In the phone configuration file with XML(cfg.xml), enter a string in this format: `<HTTP_Report_Method ua="na">PUT</HTTP_Report_Method>` • In the phone web interface, select an HTTP report method. Allowed values: PUT|POST Default: POST
Report to Server:	Defines when the phone reports its configuration to the provisioning servers. • **On Request**: The phone reports its configuration only when an administrator sends a sip notify event, or the phone restarts. • **On Local Change**: The phone reports its configuration when any configuration parameter changes by an action on the phone or on the phone administration web page. The phone waits for a few seconds after a change is made, and then reports the configuration. This delay ensures that changes are reported to the web server in batches, rather than reporting a single change at a time. • **Periodically**: The phone reports its configuration at regular intervals. The interval is expressed in seconds. Perform one of the following: • In the phone configuration file with XML(cfg.xml), enter a string in this format: `<Report_to_Server ua="na">Periodically</Report_to_Server>` • In the phone web interface, select an option from the list. Allowed values: On Request|On Local Change|Periodically Default: On Request

Field	Description
Periodic Upload to Server:	Defines the interval (in seconds) that the phone reports its configuration to the provisioning servers.
	This field is used only when **Report to Server** is set to **Periodically**.
	Perform one of the following:
	• In the phone configuration file with XML(cfg.xml), enter a string in this format:
	`<periodic_upload_to_server ua="na">3600</periodic_upload_to_server>`
	• In the phone web interface, specify the interval in seconds.
	Allowed values: An integer ranging between 600 and 259200
	Default: 3600
Upload Delay On Local Change:	Defines the delay (in seconds) that the phone waits after a change is made, and then reports the configuration.
	This field is used only when **Report to Server** is set to **On Local Change**.
	Perform one of the following:
	• In the phone configuration file with XML(cfg.xml), enter a string in this format:
	`<Upload_Delay_On_Local_Change ua="na">60</Upload_Delay_On_Local_Change>`
	• In the phone web interface, specify the delay in seconds.
	Allowed values: An integer ranging between 10 and 900
	Default: 60