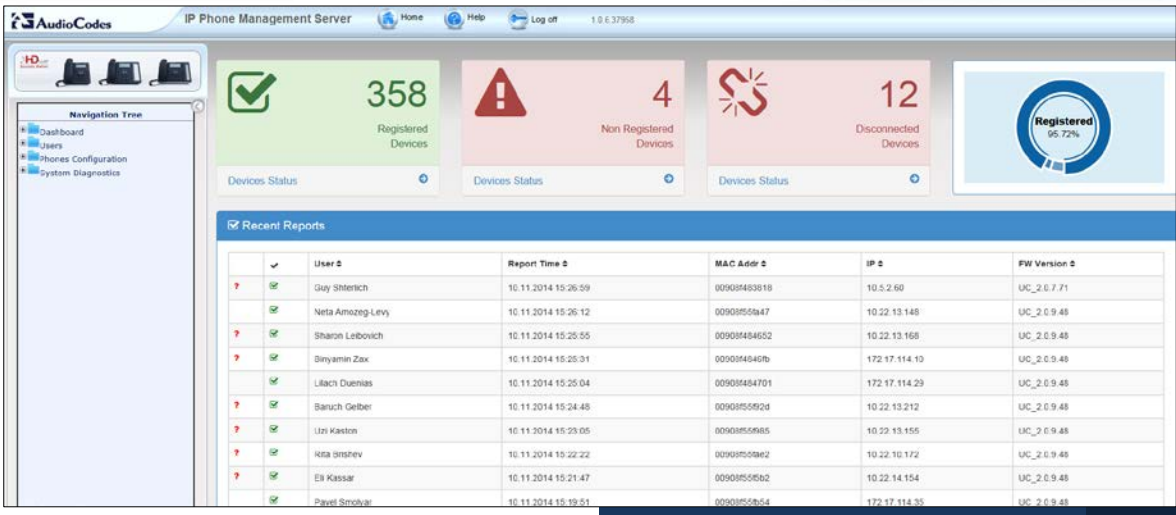
IP Phone Management Server

EMS Provisioning Server

400HD Series IP Phones

Administrator's Manual



Lync

Microsoft Partner
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Version 7

March 2015

Document # LTRT-91082

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Notice

This document shows how to use AudioCodes' IP Phones Management Server user interface.

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Abbreviations and Terminology

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

Related Documentation

Manual Name
420HD IP Phone User's Manual
430HD and 440HD IP Phone User's Manual
400HD Series IP Phones Administrator's Manual
400HD Series IP Phone with Microsoft Lync Administrator's Guide
420HD IP Phone Quick Guide
430HD IP Phone Quick Guide
440HD IP Phone Quick Guide
EMS and SEM Server IOM Manual
EMS User's Manual

Document Revision Record

LTRT	Description
91080	Initial document release for Version 7.0 beta.
91081	Version 7.0 GA. DHCP Option 160 changed. 'System' user added. New Device Status page features. Added img file management at device and region levels. Improved Template Placeholders. Installation procedure extended. New appendices. Enhanced alarm tables. New actions on multiple phones.
91082	Added support for the EMS to manage IP phones residing behind a NAT, though full management functionality support is still pending.

1 Introduction

AudioCodes' IP Phone Management Server features a user interface that enables enterprise network administrators to effortlessly and effectively set up, configure, and update up to 10000 AudioCodes 400HD Series IP phones in globally distributed corporations.

The IP Phone Management Server client, which network administrators can use to connect to the server, can be any standard web browser supporting HTML5:
Internet Explorer version 11 and later, Chrome or Firefox.

REST (Representational State Transfer) based architecture, an extension of HTTP, enables statuses, commands and alarms to be communicated between the IP phones and the server. The IP phones send their status to the server every hour for display in the user interface.

Accessed from AudioCodes' Element Manager Server (EMS), the IP Phone Management Server user interface enables network administrators to effortlessly load configuration files and firmware files on up to 10000 IP phones.

Other actions administrators can perform on multiple phones are to upload a CSV file with devices' MAC addresses and SIP credentials (supported in all environments except Lync), approve devices at the press of a button (supported in Lync environments only), send messages to phones' LCDs, reset phones, and move phones between regions.

A configuration file template feature lets network administrators customize configuration files per phone model, region, and device.

Integrated into the EMS, the IP Phone Management Server provides added value to AudioCodes 400HD Series IP phones.

1.1 EMS Platforms Specifications

EMS 7.0 must run on one of the following platforms to support the IP Phone Management Server:

- Dedicated hardware platform (HP ProLiant DL360p Gen8 Server) -OR-
- VMware ESXi Hypervisor virtual environment -OR-
- Microsoft Hyper-V virtual environment

These platforms must comply with the following specifications:

Table 1-1: EMS Platforms Specifications

EMS Platform	Platform Description	# of Managed IP Phones
HP ProLiant DL360p Gen8 Server	CPU: E5-2690 (8 cores X 2.9 GHz) Memory: 32 GB Disk: 2 disks X 1.2 TG in RAID 0 (SAS 10K RPM)	10000
VMware ESXi bare metal hypervisor / Microsoft Hyper-V (minimum)	CPU: 1 core X 2 GHz Memory: 4 GB Disk: 170 GB	1000
VMware ESXi bare metal hypervisor / Microsoft Hyper-V (maximum)	CPU: 6 cores X 2.0 GHz Memory: 32 GB Disk: 1.2 TB (SAS 10K RPM)	5000

For details on installing the EMS, see the *EMS and SEM Server IOM Manual*.

Note:

- The EMS can manage IP phones residing behind a NAT, though full management functionality support is still pending – see Section 1.3 below.
- Multi tenancy is not supported.

1.2 Ports Required for IP Phone Management

The table below shows the ports required for IP phone management. The table shows the firewall ports, protocol, and direction that users must open.

Table 1-2: Ports Required for IP Phone Management

Connection	Port Type	Port Number	Purpose	Port Side / Flow Direction
EMS Server ↔ IP Phones	TCP	8080	REST-based communication between EMS server and IP phones. Initiator: IP phone	EMS server side / Bi-Directional
	TCP	8081	REST-based communication between EMS server and IP phones. Initiator: EMS server	EMS server side / Bi-Directional

1.3 Managing IP Phones Behind a NAT

The EMS can manage IP phones residing behind a NAT, though support for full management functionality is still pending.

The EMS can automatically update phones' .cfg configuration file. The phone periodically checks whether there is a new file on the EMS server. The frequency of the check is configurable: Every night, Every hour, etc. The default setting is **Every day at 00:00**. The administrator can change a value in the .cfg file using the management interface and view the result after the phone loads the new file.

The EMS can automatically update phones' .img firmware file. The phone periodically checks whether there is a new .img file on the EMS server.

The administrator can also view phones' online statuses (Started, Registered, Unregistered, etc.). Support is pending for actions such as Send Message, Restart, Open Web Admin and Check Status.

1.4 About this Manual

This *Administrator's Manual* shows network administrators how to use the IP Phone Management Server to set up, configure, and maintain AudioCodes IP phones in an enterprise network, from a single centralized point.

2 Deploying the IP Phones

This section shows how to deploy AudioCodes IP phones in the enterprise.

2.1 Planning the Deployment

Before deploying the phones:

1. List the configurations specific to your phone network, e.g., language per region, speed dials, etc.
2. List the phone features and parameter configurations you want in each region.
3. In the EMS, configure the regions with which you want to associate different users configuration templates (see the *EMS User's Manual*).
4. Log in to the IP Phone Management Server (see Section 2.4).
5. Configure a 'system user' whose username is **system** and whose password is **system** (see Section 2.5).
6. Before plugging phones into the network, define parameter placeholders values for criteria such as region and phone model, to maintain an automatic provisioning scheme (see Section B.2.8).

2.2 Preparing the Enterprise Network

This section shows how to prepare the enterprise network for IP phones.

Note: This section applies to all AudioCodes 400HD Series IP Phones regardless of whether they're to be deployed in a Microsoft Lync or non-Lync environment.

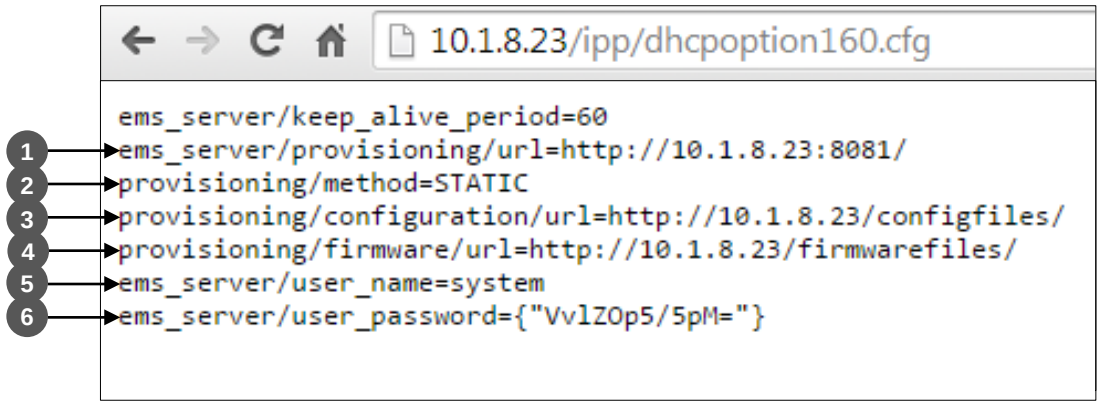
➢ **To prepare the enterprise network:**

- Obtain the phones' latest firmware files from AudioCodes and upload them to the EMS Provisioning Server - see under Section B.4 for detailed information:
  - In the Phone Firmware Files screen, click the **Upload firmware** button.
  - Navigate to the .img file and upload to the EMS server.
- Configure your enterprise's DHCP Server with DHCP Option 160 to point to the EMS provisioning server's URL.
  In addition to DHCP Option 160, DHCP Option 66/67 can also be used.

  As DHCP clients, AudioCodes IP phones will then automatically be provisioned with the cfg and img files located on the EMS provisioning server.

The figure below shows the default **dhcpoption160.cfg** file.

Figure 2-1: Default cfg File Located on the EMS Provisioning Server



Legend	Description
1	Pointing to the URL of the EMS provisioning server.
2	STATIC provisioning method, so the cfg and img files are automatically pulled from the EMS provisioning server rather than from the DHCP server.
3	Location of the cfg file, pulled by the phones when they're plugged into the network, on the EMS provisioning server.
4	Location of the img file, pulled by the phones when they're plugged into the network, on the EMS provisioning server.
5	Name of the 'system user', necessary for basic REST API authentication when the phones are plugged in to the network for the first time.
6	(Encrypted) Password of the 'system user', necessary for basic REST API authentication when the phones are plugged in to the network for the first time.

Note:

- The **dhcpoption160.cfg** file is created when logging in for the first time to the IP Phone Management Server.
- The file is an internal EMS file and cannot be manually modified.
- After installation, the first, second and third lines in the file are automatically updated.

2.3 Deploying Phones in a Lync vs. Non-Lync Environments

Deployment of IP phones in non-Lync environments differs slightly from deployment in a Lync environment.

This section shows:

- How to deploy phones in a Lync environment (see Section 2.3.1 below)
- How to deploy phones in non-Lync environments (see Section 2.3.2 below)

2.3.1 Lync Environment

This section describes how to deploy IP phones in a Microsoft Lync environment.

Note: Ensure you defined **http://<EMS IP address>/firmwarefiles;ipp/dhcpoption160.cfg** for DHCP Option 160 in the enterprise's DHCP server, as shown in the previous section.

➢ **To deploy IP phones in a Lync environment:**

1. Plug in the phone (see Section 2.6).
2. Approve the user and define the region with which the user is associated; the phone restarts and the cfg file is uploaded (see Section 2.7).

The cfg file includes default values and overwritten values according to configured placeholders. If no placeholder was configured, the cfg file will include only default values. See Section B.2.8 for details on how to configure parameters placeholders.

2.3.2 Non-Lync Environments

This section describes how to deploy IP phones in non-Lync environments.

Note: Ensure you defined **http://<EMS IP address>/firmwarefiles;ipp/dhcpoption160.cfg** for DHCP Option 160 in the enterprise's DHCP server, as shown in the previous section.

➢ **To deploy IP phones in non-Lync environments:**

1. Log in to the IP Phone Management Server (see Section 2.4).
1. Import a Comma Separated Values (CSV) file with users and devices. Best practice is to create one or more users with devices and export them to a CSV file, add to the CSV file new users and devices in the same format, and import it (see Appendix A).
2. Use the **Approve** button to add a device manually if you don't know it's MAC address (see Section 2.7.2).

2.4 Logging in to the Management Server

This section shows how to log in to the IP Phone Management Server UI. The UI is a secured web client that runs on any standard web browser supporting HTML5: Internet Explorer version 11 and later, Chrome or Firefox. Before logging in, you need to run the EMS.

Note: To access the IP Phone Management Server UI without running the EMS, point your web browser to **http://<EMS_IP_Address>/ipp** and then in the login screen that opens, log in.

For information on installing and operating the EMS, see the *EMS and SEM Server IOM Manual* and the *EMS User's Manual*.

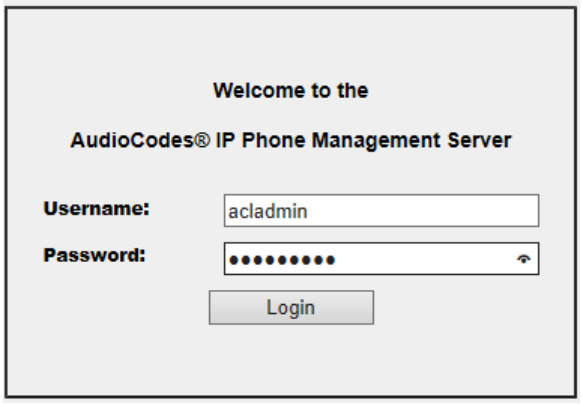
➢ **To log in to the IP Phone Management Server via the EMS:**

1. Open the EMS and in the main screen toolbar, click the **IP Phones** button.

Figure 2-2: EMS - IP Phone Management Server button

The Welcome to the IP Phone Management Server screen opens:

Figure 2-3: Welcome to the IP Phone Management Server

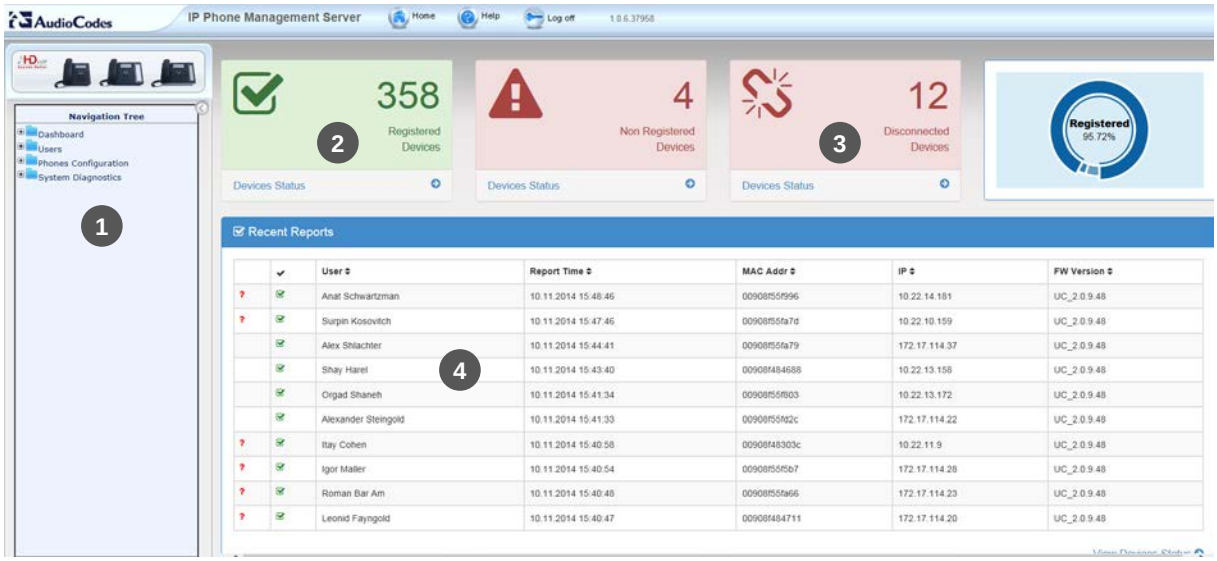


Note:

- The 'Username' and 'Password' used to log in to the IP Phone Management Server are the same as those used to log in to the EMS.
- Only the **Supervisor** and **Administrator** EMS roles can log in to the server.

2. Enter your Username and Password (default = **acladmin** and **pass_1234**) and click **Login**; the application is launched and the homepage displayed.

Figure 2-4: IP Phone Management Server User Interface - Homepage



1 = Navigation pane

2 = Network registration status

3 = Network health status

4 = List of users and their current status

Note: After first-time login, no users and devices are displayed in the Home page.

2.5 Configuring a 'System User'

This section shows how to configure a 'system user' whose user name is **system** and whose password is **system**. This is necessary for *basic REST API authentication*, after the phones are plugged in to the network for the first time.

➢ **To configure a 'system user':**

1. From the IP Phone Management Server navigation tree, access the Manage Users page (**Users** > **Manage Users**).

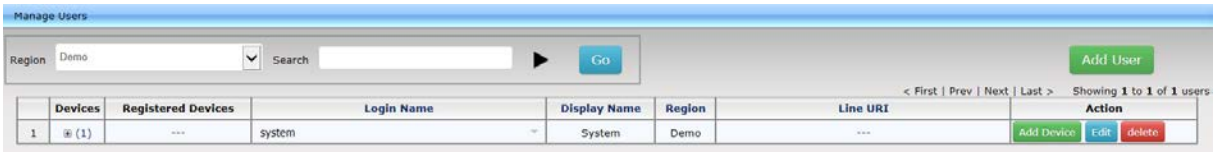
Figure 2-5: Manage Users

2. Click the **Add User** button; the Add User screen opens.

Figure 2-6: Add User

3. Configure the 'User Name' field as **system** and the 'Password' field as **system**.
4. From the dropdown, select the 'Region' you want, and then click the **Submit** button.
5. Make sure in the Manage Users screen that the user is added.

Figure 2-7: Manage Users Screen Displaying Added User



2.6 Plugging Phones into the Network

In Lync as well as in non-Lync environments, you can plug the phones into the network after configuring the 'system user'.

However, in non-Lync environments, *before* plugging the phones in for the first time, it is recommended to first:

1. Import a CSV file with users and devices. Best practice is to create one or more users with devices and export them to a CSV file, add new users and devices in the same format to the CSV file, and import it (see Appendix A).
2. Generate a cfg file and apply it to users (see Appendix B). After this, the phones pull the cfg containing unique usernames and passwords from the EMS provisioning server.

2.7 Approving Users

After plugging the phones into the network, you need to approve the users. If you import a CSV file containing *devices* (as well as users), this step is not necessary.

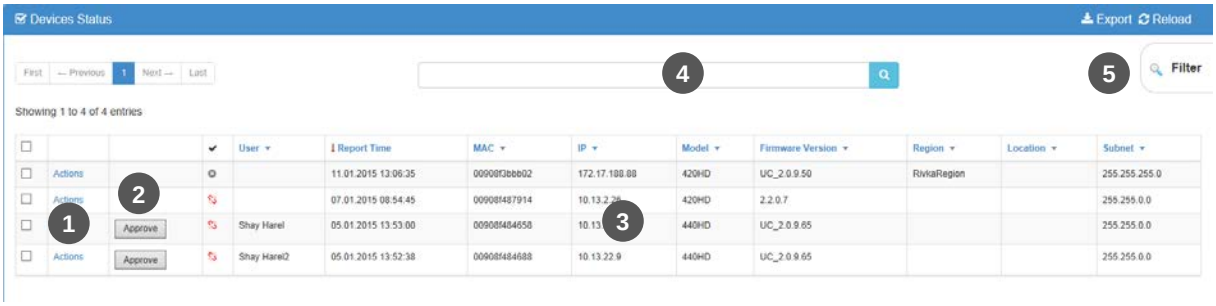
2.7.1 Lync Environment

After plugging the phones in, they report to the Management Server which does not display user name in the UI until sign-in is performed or, until users are approved in the UI.

➢ **To approve users in a Lync environment:**

1. In the IP Phone Management Server UI, open the Devices Status page (**Dashboard** > **Devices Status**).

Figure 2-8: Devices Status



1 = Device actions: refresh, reset, download files, open web page, delete, send text message to the phone

2 = Device approval

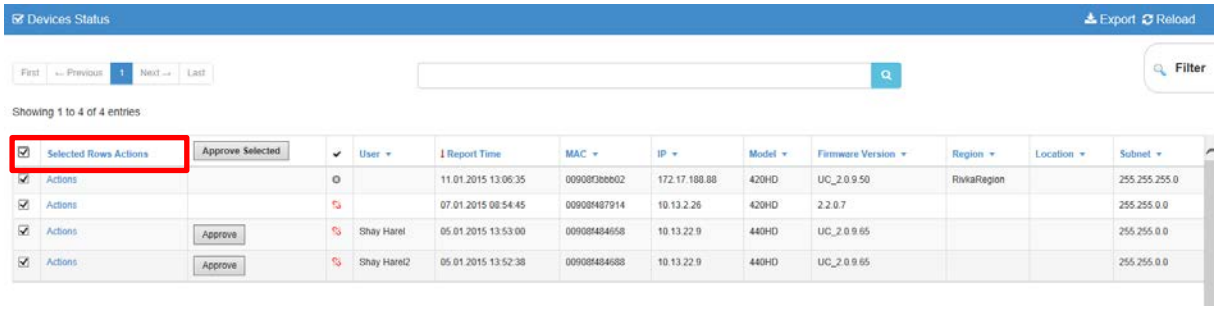
3 = Device status: User, MAC, IP Address, SIP URI, Location

4 = Search option

5 = Smart filters

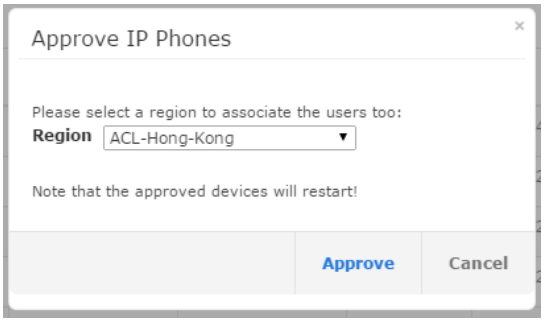
2. Select the upper left checkbox (in the figure below it's indicated in red); the **Selected Rows Actions** menu and the **Approve Selected** button are displayed.

Figure 2-9: Devices Status – Selected Rows Actions - Approve Selected



3. Click the **Approve Selected** button; you're prompted to approve the phone/s selected.

Figure 2-10: Approve IP Phones



4. In the prompt, select the region and then click **Approve**; all selected users are approved; all phones restart; the cfg file is automatically uploaded to the phones from the EMS provisioning server, which the DHCP server points them to.

2.7.2 Non-Lync Environments

After plugging phones in, they report to the Management Server, which does not display user names in the UI.

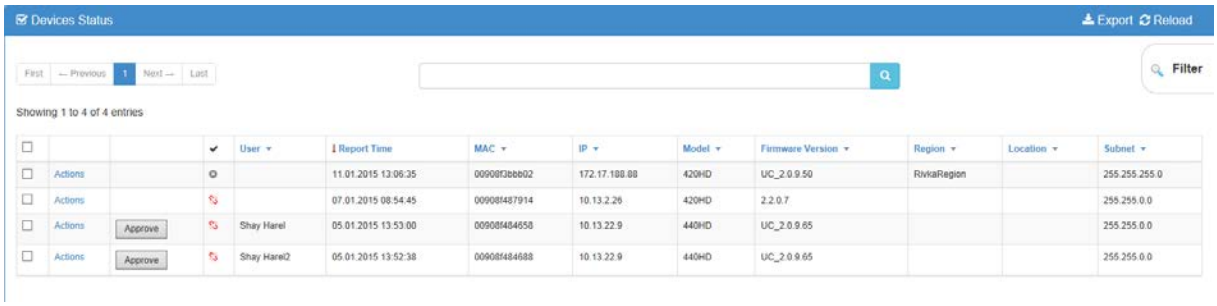
Note:

- Before plugging in the phones, it's recommended to import a CSV file with users and devices. Best practice is to create one or more users with devices, export them to a CSV file, add users and devices to the CSV file in the same format, and then import the file (see Appendix A).
- In contact centers, where multiple users may use a particular phone, a 'user' is sometimes made the equivalent of the Direct Inward Dialing (DID) number associated with the phone.

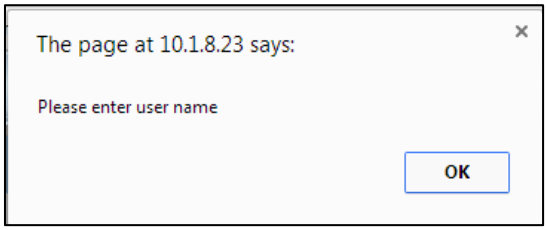
➢ **To approve users in non-Lync environments:**

1. In the IP Phone Management Server UI, open the Devices Status page (**Dashboard** > **Devices Status**).

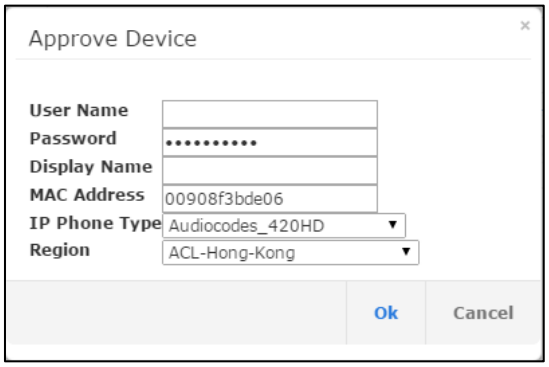
Figure 2-11: Devices Status



2. Click the **Approve** button adjacent to the user; you're prompted with:



3. Click **OK**; the Approve Device dialog opens.



4. Enter the User Name and the Display Name, and then click **OK**.; the user name is displayed in the Management Server UI and the user is approved.

   The User Name and Password will function as the SIP user name and password.

Note:

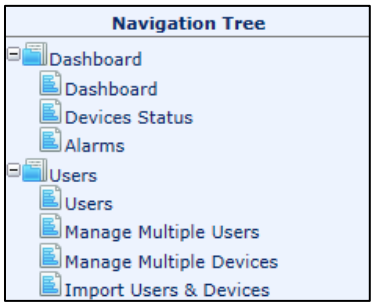
- This procedure only applies when connecting phones for the first time. After first-time connection, the cfg file - containing user name and password - is automatically uploaded to the phones from the EMS provisioning server, which the DHCP server points them to.
- In some non-Lync environments, for example, in Genesys contact centers, Password is not specified.

3 Monitoring and Maintaining the Phone Network

This section shows how to monitor and maintain the phone network in the enterprise.

The following Dashboard and Users pages let you monitor and maintain the phone network:

Figure 3-1: Dashboard and Users



The sections below show what each page lets you do.

3.1 Monitoring the Network from the Dashboard

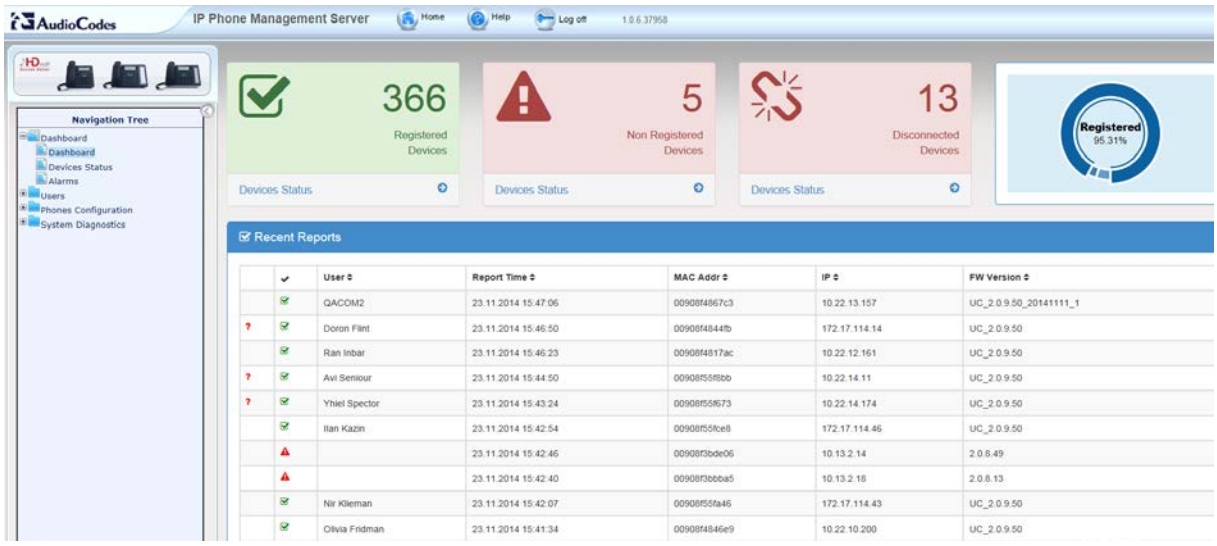
The Dashboard page lets you quickly identify

- which phones in the network are registered
- which phones in the network are non-registered
- # of registered and non-registered phones (in terms of SIP registration)
- % of registered phones
- MAC and IP address of each phone
- the time the information was reported
- the firmware version

➢ **To open the Dashboard page:**

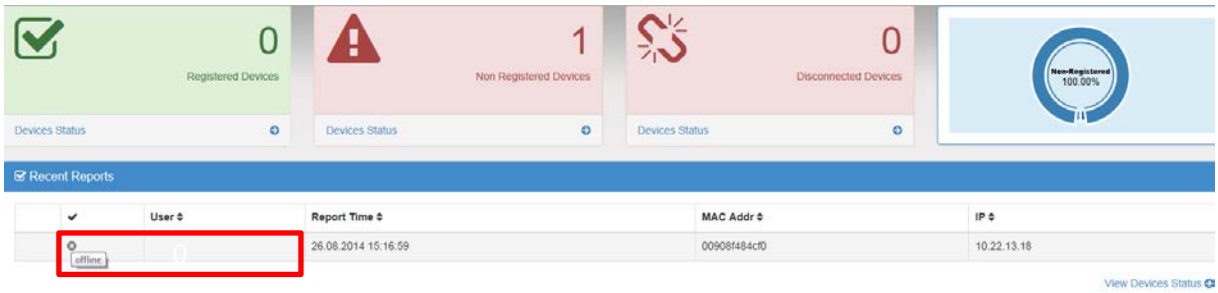
- In the navigation tree, click **Dashboard** > **Dashboard**.

Figure 3-2: Dashboard



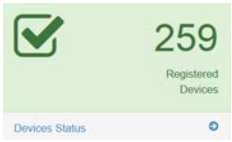
- If a Lync IP phone is signed out (offline, or not registered), you'll see a grey circle icon with an x inside, and the 'User' column will be blank, as shown in the figure below. It will be counted as a Non Registered Device.

Figure 3-3: Dashboard - Lync IP Phone Not Registered



- Point your mouse over the icon to view the 'offline' indication (see the figure above).
- If the phone is a generic model, a red triangle enclosing an exclamation mark will be displayed, as shown in the figure above.
- View the following status thumbnails on the Dashboard:

Table 3-1: Dashboard – Status Thumbnails

Status Thumbnail	Description
	The number of registered devices. Click the **Devices Status** link to quickly access the Devices Status page.
	The number of non-registered devices. Click the **Devices Status** link to quickly access the Devices Status page.
	The number of disconnected devices. Click the **Devices Status** link to quickly access the Devices Status page.
	The percentage of registered devices.

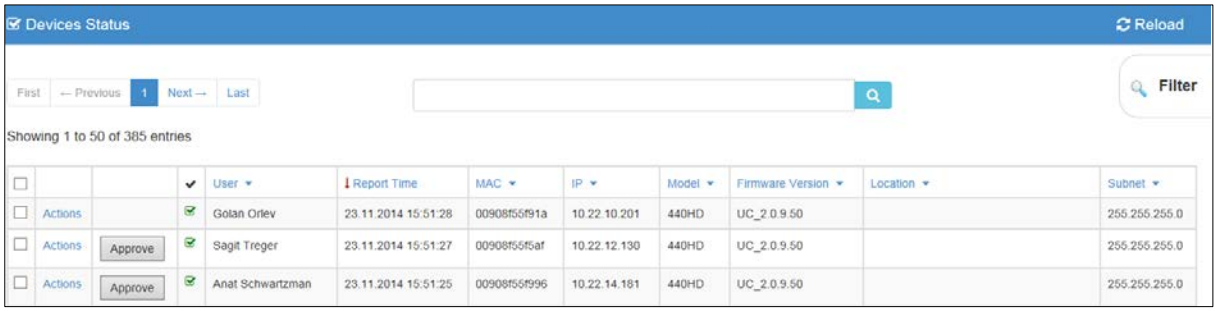
3.2 Checking Devices Status

The Devices Status page lets you check a phone's status

➢ **To check a phone's status:**

1. Open the Devices Status page (**Dashboard** > **Devices Statuses**)

Figure 3-4: Devices Status



2. Click the **Filter**; the filter lets you quickly access specific information in the page.

Figure 3-5: Devices Status Filter

3. You can filter per user, MAC, IP address, model, version, status (offline, registered, disconnected, approved or pending approval, or users with multiple devices.
4. Non-Lync and Lync phones are displayed differently. The format of 'User Agent' for non-Lync phones is for example **AUDC-IPPhone/2.0.4.30 (430HD; 00908F4867AF)** while the format for Lync phones is **AUDC-IPPhone-430HD_UC_2.0.7.70/1.0.0000.0** Only Lync phones are displayed under 'Location', non-Lync phones are not.

5. You can click an individual user's **Actions** link; the following menu is displayed:

Figure 3-6: Actions Menu - Single User

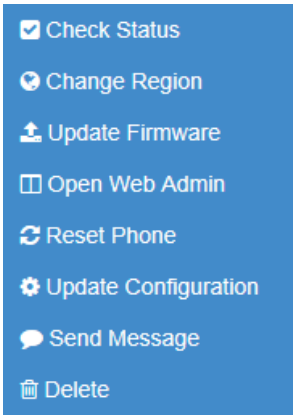
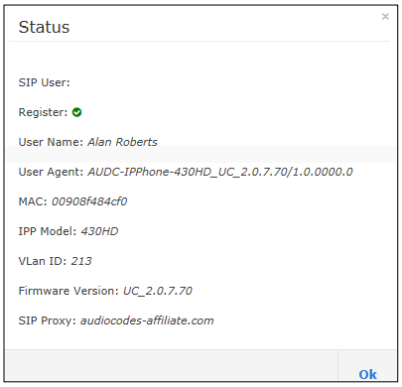
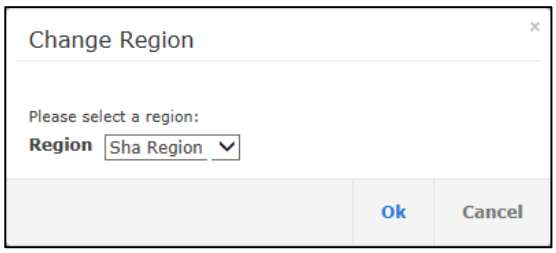
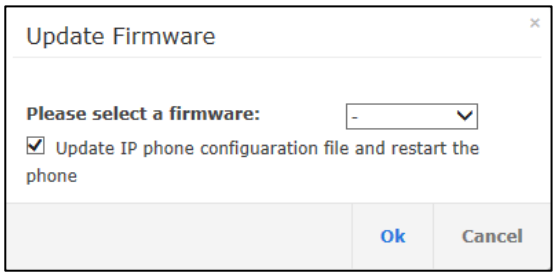


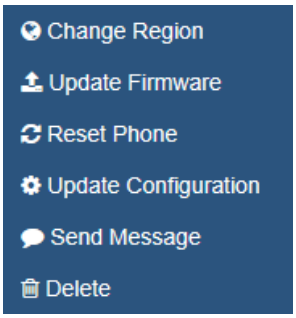
Table 3-2: Actions Menu

Action	Description
Check Status	Select the 'Check Status' option; the status is displayed: 
Change Region	Select the 'Change Region' option:  From the dropdown, select the region, and then click **Ok**.
Update Firmware	You can update firmware per device, or for multiple selected devices (see step 6 below). Select the 'Update Firmware' menu option:  From the dropdown, select the firmware file, and then click **Ok**.; the firmware file is updated.

Action	Description
Open Web Admin	Opens the Web interface (see the *Administrator's Manual*)
Reset Phone	Sends a reset command to the selected device/s. Note that some phone models wait for the user to finish an active call, while others may perform an immediate restart.
Update configuration	Sends a command to the phone to check whether there is a new configuration file to upload and updates the phone after a configurable 'Delay Time' (Default = 2 seconds).
Send Message	Lets you send a message to the LCD/s of the selected device/s. Enter the message in the 'Text' field. You can configure for how long the message will be displayed in the LCD/s.
Delete	Deletes the devices from the Status table.

6. You can select multiple users and then click the **Selected Rows Actions** link; the following menu is displayed:

Figure 3-7: Actions Menu - Selected Rows



See the table above for descriptions. Any action you choose will apply to all selected rows. For example, select rows, click the **Selected Rows Actions** link, and then select the **Update Firmware** option; all selected devices will be updated with the firmware file you select.

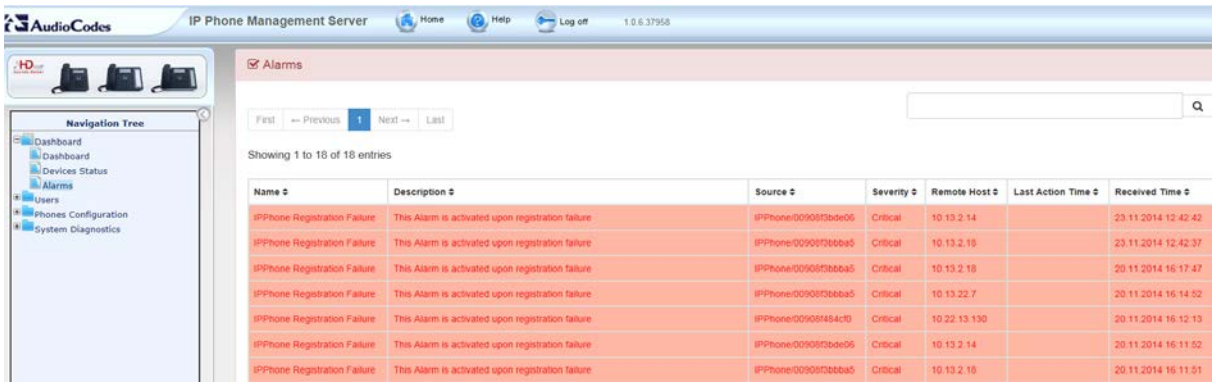
3.3 Monitoring Alarms

AudioCodes IP phones send alarms via the REST protocol. The EMS forwards them as mail, SNMP traps, etc.

The Alarms page (**Dashboard** > **Alarms**) shows you

- each phone alarm in the network
- a description of each alarm
- MAC address of the phone (source)
- alarm severity
- IP address of the phone
- last action time
- date and time of receipt of the alarm

Figure 3-8: Alarms



The management server displays *active* alarms, not historical alarms.

Red indicates a severity level of Critical

Orange indicates a severity level of Major

After an alarm is cleared, it disappears from the Alarms screen.

The table below shows the three alarms that users can receive.

Table 3-3: Alarms

Alarm Name	IP Phone Type	Severity
Login Failure	Microsoft Lync	Critical
Registration Failure	Generic (non Lync)	Critical
Survivable Mode Start	Microsoft Lync	Major

3.3.1 Registration Failure Alarm

The table below describes the Registration Failure alarm. The alarm is issued if SIP registration, with the PBX, fails.

Table 3-4: IP Phone Registration Failure Alarm

Alarm	IPPhoneRegisterFailure
OID	.1.3.6.1.4.1.5003.9.20.3.2.0.39 is the OID used in the EMS to forward the IPPhoneRegisterFailure alarm
Description	This alarm is activated when a registration failure occurs
Alarm Title	Registration Failure
Alarm Type	communicationsAlarm(1)
Probable Cause	communicationsProtocolError(5)
Severity	Critical
Corrective Action	The problem is typically not related to the phone but to the server. The user/phone may not be defined, or may be incorrectly defined, or may previously have been defined but the username (for example) may have been changed, causing the registration to fail. Make sure the username and password credentials are the same in server and phone, and weren't changed; server-phone credentials must be synchronized. Make sure the server is responsive.

3.3.2 Survivable Mode Start Alarm

The table below describes the Survivable Mode Start alarm.

Table 3-5: IP Phone Survivable Mode Start Alarm

Alarm	IPPhoneSurvivableModeStart
OID	.1.3.6.1.4.1.5003.9.20.3.2.0.40 is the OID used in the EMS to forward the IPPhoneSurvivableModeStart alarm
Description	This alarm is activated when entering survivable mode state with limited services
Alarm Title	Survivable Mode Start
Alarm Type	Other(0)
Probable Cause	other (0)
Severity	Major
Additional Info	
Corrective Action	The problem is typically not related to the phone but to the server or network. Make sure all servers in the enterprise network are up. If one is down, limited service will result.

3.3.3 Lync Login Failure Alarm

The table below describes the Lync Login Failure alarm.

Table 3-6: IP Phone Lync Login Failure Alarm

Alarm	IPPhoneLyncLoginFailure
OID	.1.3.6.1.4.1.5003.9.20.3.2.0.41 is the OID used in the EMS to forward the IPPhoneLyncLoginFailure alarm
Description	This alarm is activated when failing to connect to the Lync server during sign in
Alarm Title	Lync Login Failure
Alarm Type	communicationsAlarm(1)
Probable Cause	communicationsProtocolError(5)
Severity	Critical
Additional Info	TlsConnectionFailure NtpServerError
Corrective Action	This alarm may typically occur if the user is not registered - or is registered incorrectly - in the Lync server. Make sure in the server that the username, password and PIN code are correctly configured and valid. Try resetting them. Try redefine the user.

3.3.3.1 Searching for Alarms

You can search for alarms in the Alarms page. The 'Search' field enables the functionality. You can search by

- alarm name
- a phone's MAC address
- a phone's IP address

3.4 Maintaining Users

The Manage Users page lets you maintain users. You can

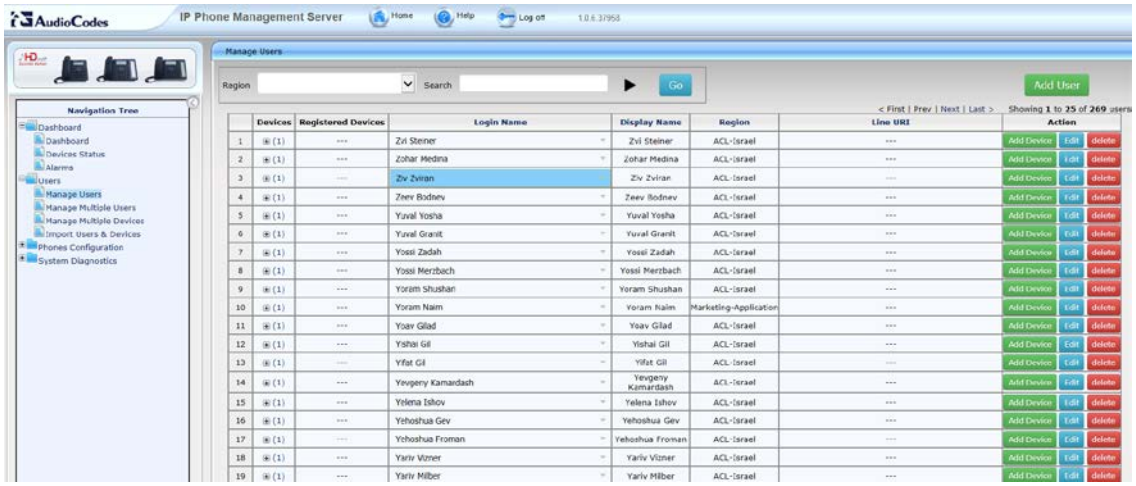
- add a user
- add a device to a user
- edit user/device
- delete a user/device
- search for a device by region
- search for a device by name

3.4.1 Adding a User

➢ **To add a user to the Management Server:**

1. Access the 'Manage Users' page (**Management** > **Users** > **Users**):

Figure 3-9: Manage Users



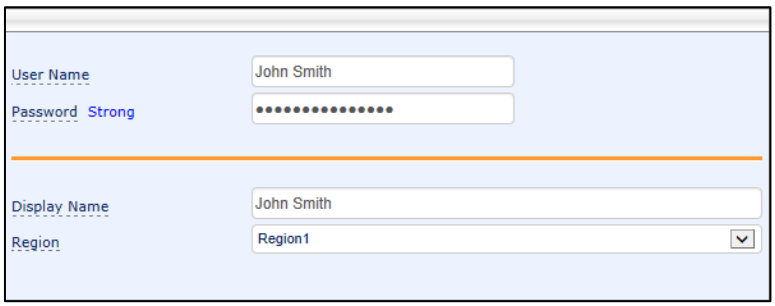
2. Click the **Add User** button (before adding phones to the IP phone management server you must add users); the following screen is displayed:

Figure 3-10: Add User

3. Define a name and password for the user.
4. Define the 'Display Name' and select a region from the 'Region' dropdown.

Note: Region/s must first be defined in the EMS.

Figure 3-11: Add User Definitions



5. Click the **Submit** button; you're returned to the Manage Users page; locate the listed added user.

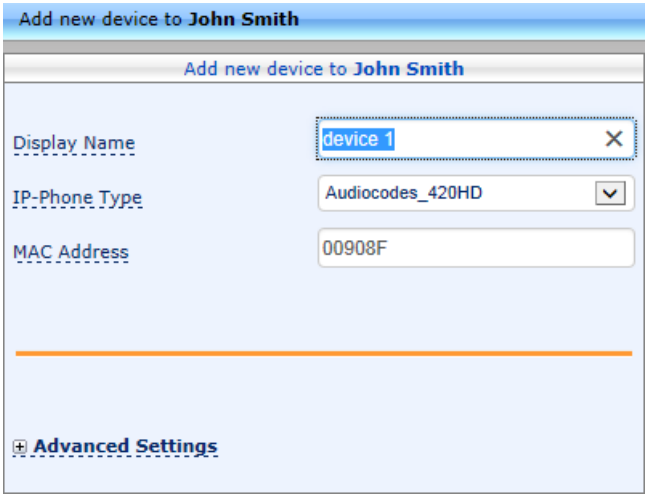
3.4.2 Adding a Phone

You can manually add a single phone to the server.

➢ **To add a phone:**

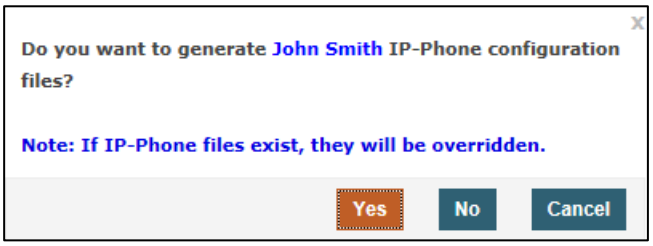
1. In the Manage Users page, click the **Add Device** button in the row of the listed added user; the following screen opens:

Figure 3-12: Add New Device to User



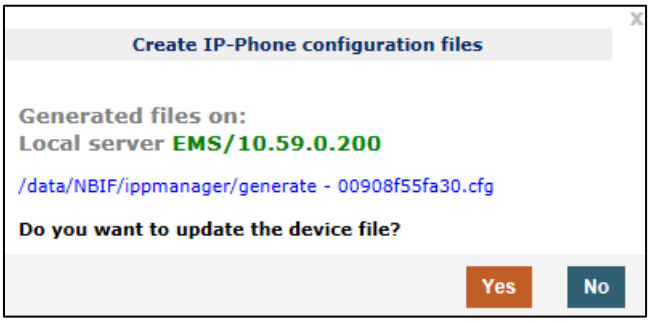
2. Enter the 'Display Name'. This is the name that will be displayed in the management server interface.
3. Click the **Submit** button.
4. Click **Add Device** (to associate the employee's name/line with the IP phone).
5. Enter the remaining characters of the 'MAC Address'. The prefix characters are displayed by default.
6. Click the **Submit** button; the following screen is displayed:

Figure 3-13: Prompt: Do you want to generate configuration files?



7. Click **Yes**.

Figure 3-14: Prompt: Do you want to update the device file?



8. Click **Yes**.

3.4.3 Editing a User

You can edit a user.

➢ **To edit a user:**

1. Click the **Edit** button in the row adjacent to the user; the Edit User screen opens, identical to that shown in Figure 3-10.
2. Edit the same fields as when adding the device (see Section 3.4.2).

3.4.4 Deleting a User

You can delete a user.

➢ **To delete a user:**

- Click the **Delete** button in the row adjacent to the user; the user and device are removed.

3.5 Managing Multiple Users

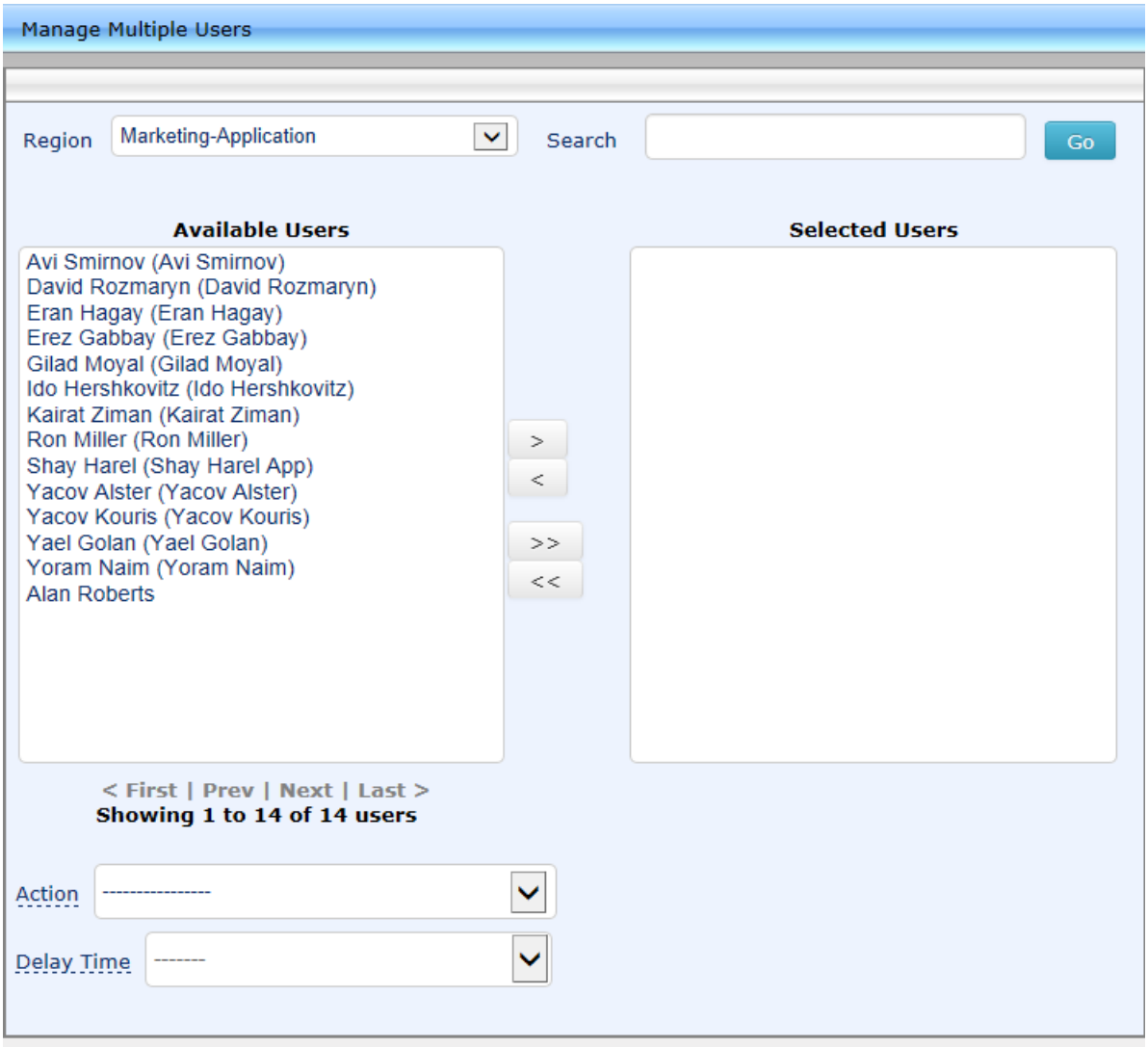
The Manage Multiple Users page lets you easily perform a single operation on all or on many users simultaneously:

- reset passwords
- delete users
- restart devices
- generate IP phones configuration files
- update configuration files
- send a message to multiple phones

➢ **To manage multiple users:**

1. Access the 'Manage Multiple Users' page (**Management** > **Users** > **Manage Multiple Users**):

Figure 3-15: Manage Multiple Users

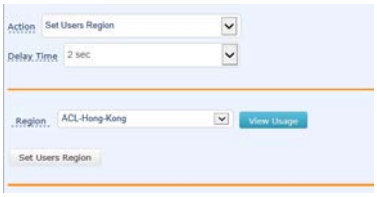
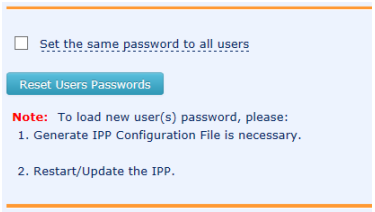


2. In the **Available Users** pane, select the users on which to perform the operation.
3. Click the right arrow (**>**) to add new users to the Selected Users pane. Click the left arrow (**<**) to remove selected users.

4. From the **Action** dropdown, select the required action.

Use the table below as reference.

Table 3-7: Managing Multiple Users - Actions

Action	Description
Set Users Region	 Sets the region for users selected.
Reset Users Passwords	 Resets users passwords. A random password is generated for each user. To generate a single password for all users selected, select the **Set the same password to all users** option. To load the new user passwords: ▪ Generate the phone's configuration file ▪ Restart/Update the phone
Delete Users	Deletes users and applies a configurable 'Delay Time' (Default = 2 seconds) after each delete is performed.
Restart Devices	Restarts devices. A reset command is sent to all selected devices. The commands are sent in batches; each batch contains 5 devices with a delay of 2 minutes between each batch. From the dropdown, choose the type of restart: ▪ Graceful (default) ▪ Force ▪ Scheduled Before restarting, some models wait for the user to finish an active call while others may perform an immediate restart.
Generate IP Phones Configuration Files	Generates new configuration files. Updates each phone with the newly generated configuration files after a configurable 'Delay Time' (default = 2 seconds) - if you select the **Updating IP Phones after generating files** option. You can generate a private configuration file per user group, device group, or specific regions.
Update Configuration Files	Updates each phone after a configurable 'Delay Time' (default = 2 seconds).

Action	Description
Send Message	Lets you send a message to the LCDs of all user phones selected. Enter the message in the 'Text' field. You can configure the length of time the message will be displayed in the LCD. Phones beep to alert users when messages come in. 

The page also lets you

- filter per region, before selecting the users on which to perform an action

3.6 Maintaining Multiple Devices

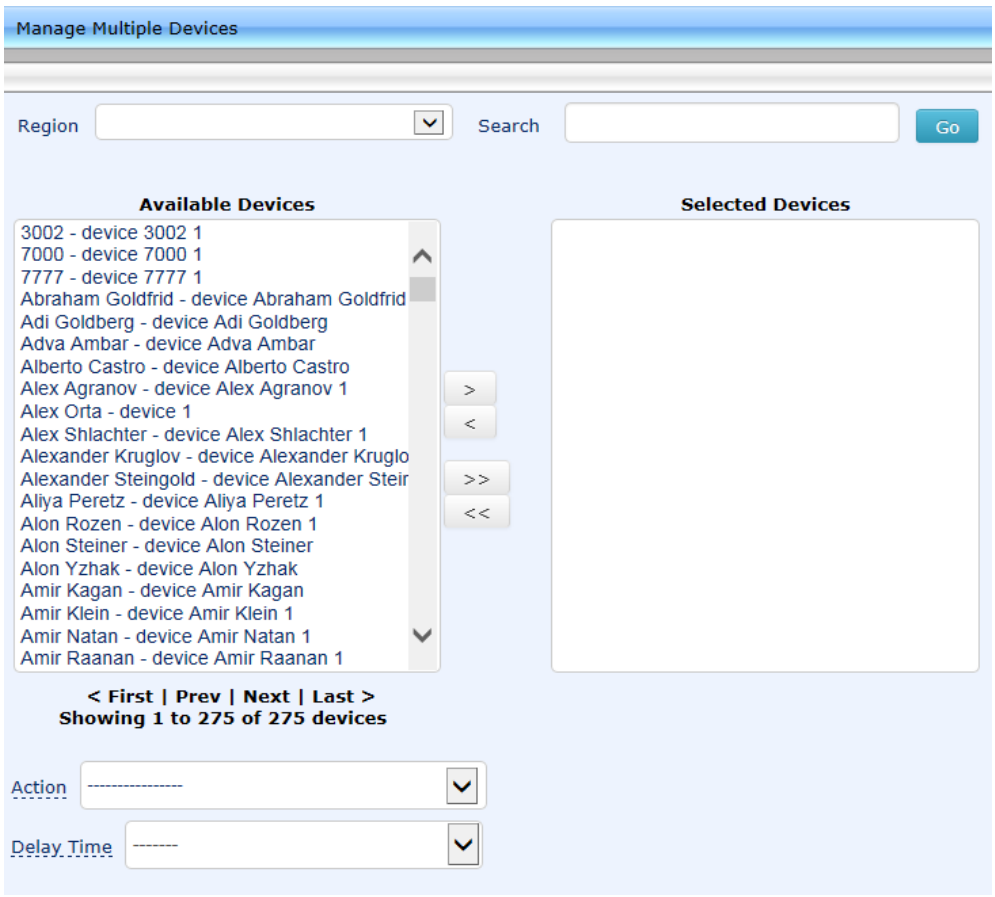
The Manage Multiple Devices page lets you perform a single operation on all or on many user devices. The page lets you

- delete multiple devices
- change IP phone type
- change language
- restart multiple devices
- generate IP phones configuration files
- update configuration files
- send a message to multiple phones

➢ **To manage multiple devices:**

1. Access the 'Manage Multiple Users' page (**Management** > **Users** > **Manage Multiple Devices**):

Figure 3-16: Manage Multiple Devices

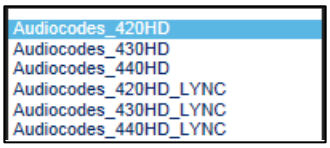


The devices are displayed in the following format:

2. You can search for devices by entering a string in the 'Search' field and then clicking **Go**.
3. You can filter the devices per region, before selecting those on which to perform an action.
4. In the Available Devices pane, select the devices on which to perform the action.
5. Click the right arrow → to add new devices to the Selected Devices pane, or use the left arrow ← to remove selected devices.

6. From the **Action** dropdown, select an action. Use the table below as reference.

Table 3-8: Managing Multiple Devices - Actions

Action	Description
Delete Devices	Deletes selected devices from the server applying a configurable 'Delay Time' (default = 2 seconds) in the process.
Change IP Phone Type	You can change the phone model:  To view the usage of a model, click **View Usage**. To load a new phone model: 1 Generate the phone's configuration file. 2 Restart/update the phone.
Change Language	Changes the phone language. Select the language from the **Language** dropdown and click **Change**. To view the usage of a language, click **View Usage**. To load a new language: 1 Generate the phone's configuration file. 2 Restart/update the phone.
Restart Devices	Restarts online devices. Before restarting, some models wait for the user to finish an active call while others may perform an immediate restart. From the dropdown, choose the type of restart: ▪ Graceful (default) ▪ Force ▪ Scheduled
Generate IP Phone Configuration files	Generates new configuration files. Updates each phone with the newly generated configuration files after a configurable 'Delay Time' (default = 2 seconds) - if you selected the **Updating IP Phones after generating files** option.
Update Configuration Files	Updates each phone after a configurable 'Delay Time' (default = 2 seconds).
Send Message	Lets you send a message to the LCDs of all user phones selected. Enter the message in the 'Text' field. You can configure the length of time the message will be displayed in the LCD. Phones beep to alert users when messages come in. 

➢ **To update all existing configuration files according to the new template:**

■ Use the **Generate IP Phones Configuration Files** option in the Manage Multiple Devices page.

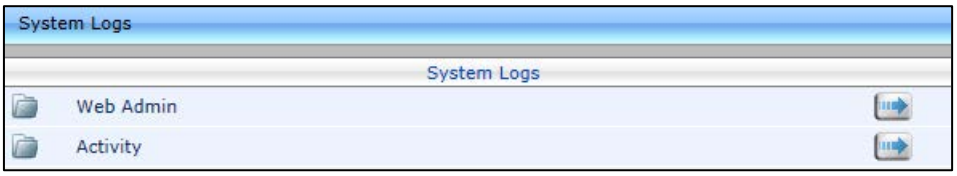
4 Troubleshooting

You can display log files to help troubleshoot problems and determine cause.

➢ **To display log files:**

1. Access the System Logs page (**System Diagnostics** > **System Logs**):

Figure 4-1: System Logs



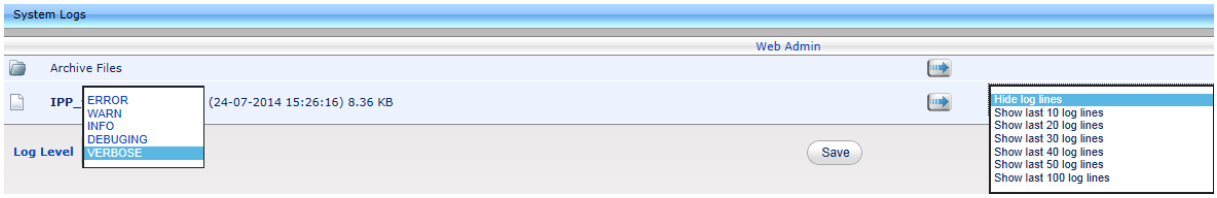
2. Click the **Web Admin** arrow or the **Activity** arrow link.

Note:
- The Web Admin log displays recent actions performed in the user interface
- The Activity log displays recent activities performed with the EMS server

➢ **To display Web Admin log files:**

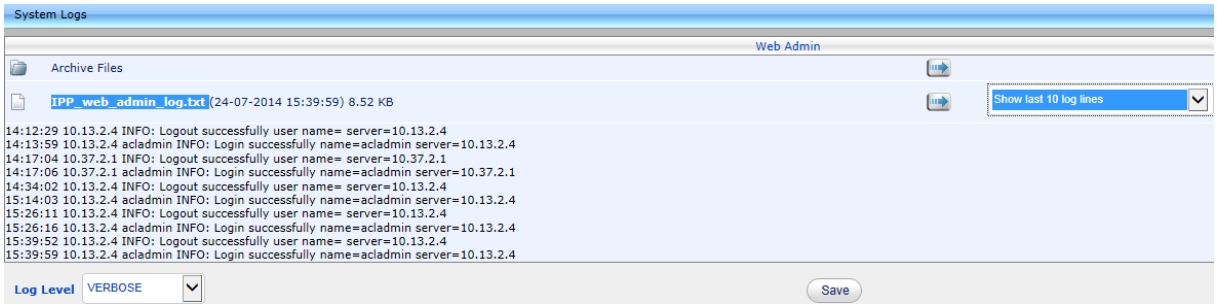
1. Click the **Web Admin** arrow link; the System Logs – Web Admin page opens:

Figure 4-2: System Logs – Web Admin Level Log



2. From the 'Log Level' dropdown select
   - ERROR
   - WARN
   - INFO
   - DEBUGGING
   - VERBOSE (default) – All Levels (Detailed)
3. From the 'Hide log lines' dropdown select
   - Hide log lines
   - Show last 10 log lines
   - Show last 20 log lines
   - Show last 30 log lines
   - Show last 40 log lines
   - Show last 50 log lines
   - Show last 100 log lines
4. View the generated IPP_web_admin_log.txt file.

Figure 4-3: System Logs – Web Admin Level txt Log File Displayed

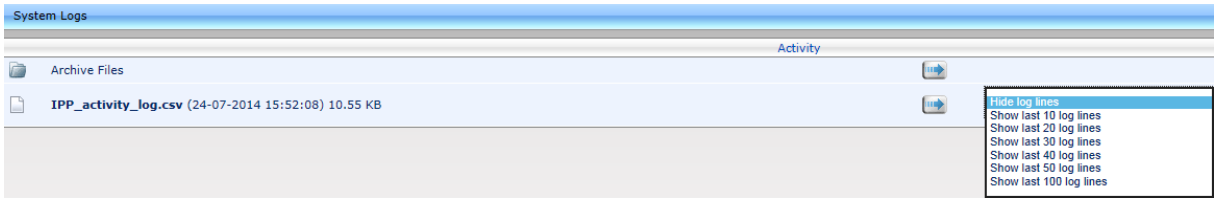


5. Click **Save** to save the file and share it with others.

➢ **To display Activity log files:**

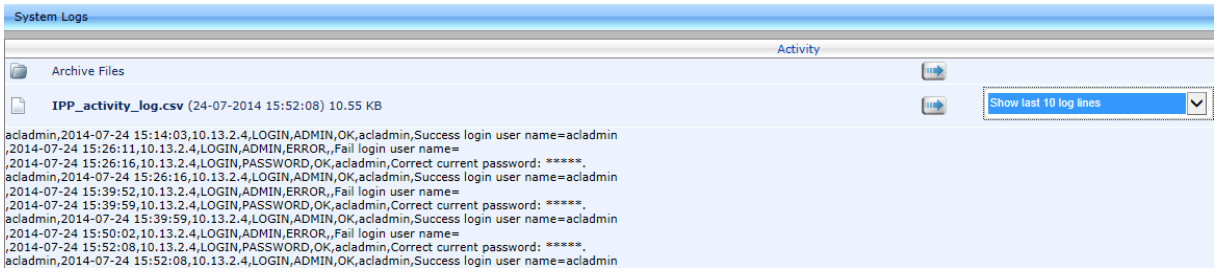
1. Click the **Activity** arrow; the System Logs – Activity page opens:

Figure 4-4: System Logs – Activity Log



2. From the 'Hide log lines' dropdown select
   - Hide log lines
   - Show last 10 log lines
   - Show last 20 log lines
   - Show last 30 log lines
   - Show last 40 log lines
   - Show last 50 log lines
   - Show last 100 log lines

Figure 4-5: System Logs – Activity Level txt Log File Displayed



A Importing Users into the Server

Note: Applies to non-Lync environments.

You can import up to 10000 users or phones, defined in a CSV file, into the IP Phone Management Server. Before you import the CSV file into the server, you need to make it.

A.1 Making a CSV File

This section shows how to make a CSV file. To make the CSV file:

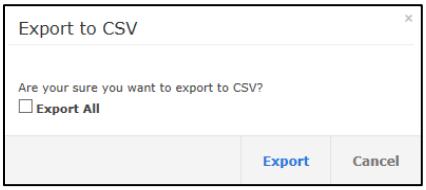
1. Configure a 'system user' (it can be any other user as well) (see Section 2.5)
2. Add a device to this user ('system user' or any other user)
3. Export the 'system user' to a CSV file (see Section A.1.1 below)
4. Define in Excel the other users in the enterprise (see Section A.1.2)
5. Import the new CSV into the server.

A.1.1 Export the 'System User' to a CSV File

This section shows how to export the 'system user' that you configured previously (as shown under Section 2.5), to a CSV file. You can export from either the Devices Status page or from the Import Users & Devices page.

➢ **To export the 'system user' to a CSV file from the Devices Status page:**

1. Access the Devices Status page (see Figure 2-8).
2. Select the 'system user', and then click the **Export** link in the top right corner:

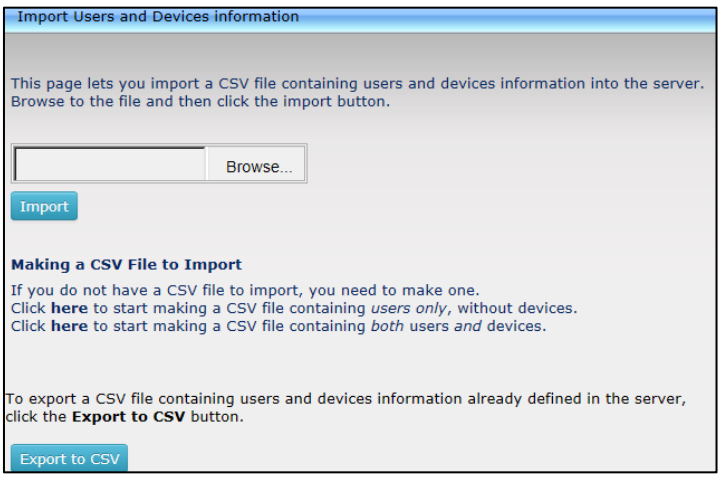


3. Click the **Export** button

➢ **To export the 'system user' to a CSV file from the Import Users & Devices page:**

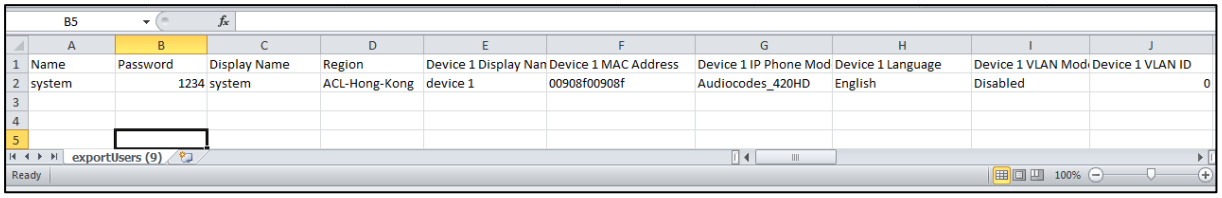
1. Access the Import Users and Devices page (**Users** > **Import Users & Devices**):

Figure A-1: Import Users – Export to CSV



2. Click the **Export to CSV** button and open the CSV in Excel; the 'system user' you configured previously is displayed:

Figure A-2: CSV File in Excel



	A	B	C	D	E	F	G	H	I	J
1	Name	Password	Display Name	Region	Device 1 Display Nan	Device 1 MAC Address	Device 1 IP Phone Mod	Device 1 Language	Device 1 VLAN Mod	Device 1 VLAN ID
2	system	1234	system	ACL-Hong-Kong	device 1	00908f00908f	Audiocodes_420HD	English	Disabled	0
3										
4										
5										

exportUsers (9) Ready 100%

Table A-1: CSV File

Name	Password	Display Name	Region	Device 1 Display Name	Device 1 MAC Address	Device 1 IP Phone Model
system	system	system	ACL-Hong Kong			

A.1.2 Defining Users in the CSV File

You need to define users in the CSV file.

Tip: To facilitate this task, you can export a CSV from your enterprise PBX and then edit it to conform to the 'system user' CSV row, shown in the figure above.

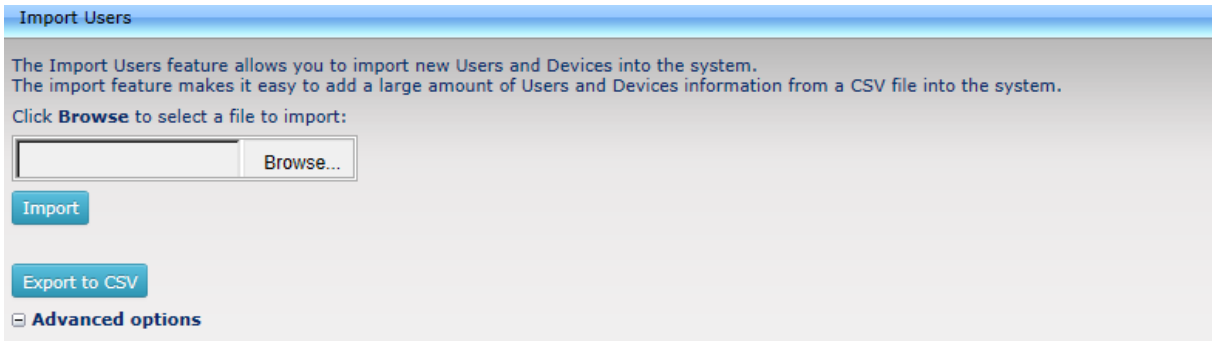
A.2 Importing the New CSV File into the Server

After making the CSV file, import the new CSV file into the IP Phone Management Server.

➢ **To import the new CSV file into the IP Phone Management Server:**

1. Access the Import Users page (**Users** > **Import Users & Devices**).

Figure A-3: Import Users



2. Click **Browse** and then navigate to and select the CSV file which you created and saved on your Desktop previously.
3. Click the **Import** button; the file is imported into the IP Phone Management Server.
4. Click the **Home** icon; verify that all enterprise users that you imported are displayed.
5. Plug in the phones; the cfg configuration file is automatically uploaded to the phones from the EMS provisioning server, which the DHCP server points them to.

B Preparing a Configuration File

You can prepare a configuration file from a template in the IP Phone Management Server UI. The template defines how a phone's configuration file will be generated. The phones pull the cfg from the EMS provisioning server.

Note: Before plugging phones into the network, define parameter placeholders values for criteria such as region and phone model, to maintain an automatic provisioning scheme.

B.1 Selecting a Configuration Template

Configuration templates are available

- per phone model
- per model for Microsoft Lync server phones
- per model for regular (non-Lync) third party server phones

Depending on the models and the server in the enterprise, select a template for:

- AudioCodes 420HD
- AudioCodes 430HD
- AudioCodes 440HD
- AudioCodes 420HD Lync
- AudioCodes 430HD Lync
- AudioCodes 440HD Lync

➢ **To select a configuration template:**

- In the navigation tree, access the IP Phones Configuration Templates page (**Phones Configuration** > **Templates**):

Figure B-1: IP Phone Models Configuration Templates

B.2 Editing a Configuration Template

You can edit a phone model's template but typically it's unnecessary to change it.

➢ **To edit a template:**

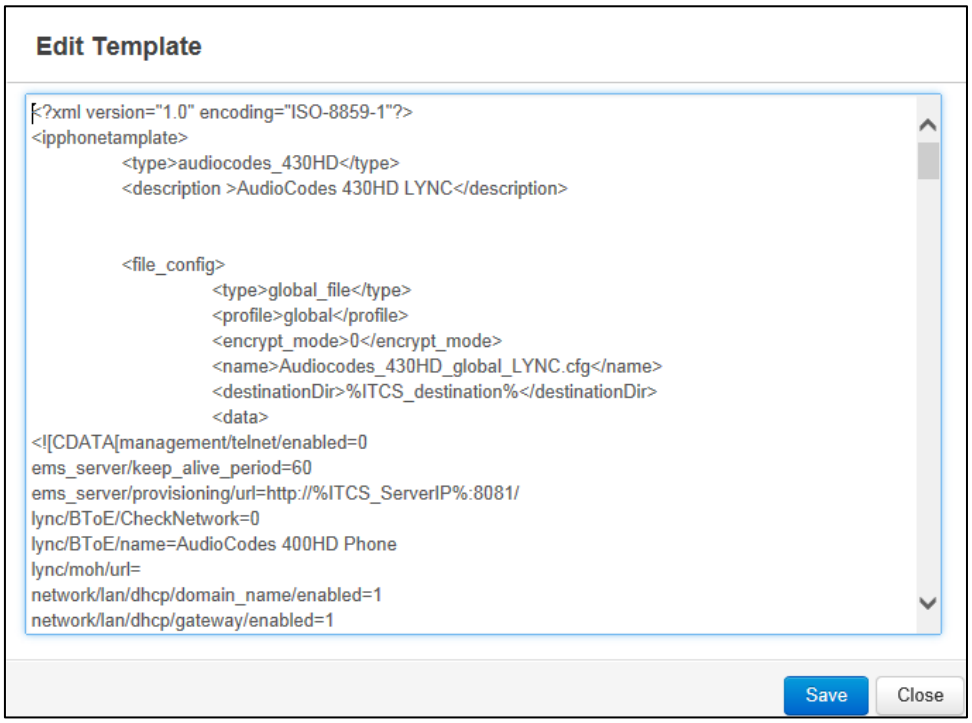
1. In the IP Phones Configuration Templates page, click the link of the IP phone model, or its **Edit** icon; this dialog is displayed:

Figure B-2: IP Phone Configuration Template

1 = generic templates can be modified and generated per phone model

2. Click the **Edit configuration template** button; the template opens in an integral editor:

Figure B-3: Edit Template



3. Edit the template and then click **Save**; the modified template is saved in its URL location on the server, for example, **http://10.59.0.200/ipp/admin/AudioCodes.php**

   See the phone's *Administrator's Manual* for parameter descriptions.
   See also Section B.2.8.

B.2.1 About the Template File

The template is an xml file. It defines how a phone's configuration file will be generated. The template shows two sections.

- The upper section defines the *global* parameters that will be in the *global* configuration file
- The lower section defines the *private user* parameters that will be in the *device* configuration file

B.2.2 Global Parameters

Global parameters apply to *all* phones in the enterprise network. The **ems_server/provisioning/url** parameter, for example, is a global parameter because all phones in the enterprise network point to the same provisioning server.

Only one file is generated for each template, so every change in the global file will automatically impact all the phones from this template.

B.2.3 User-Specific Parameters

Private user parameters apply to specific phones. They can pull global parameters using the template's 'include' function. The **network/lan/vlan/mode=%ITCS_VLANMode%** parameter, for example, is a user parameter because each user in an enterprise is defined in a user-specific VLAN.

This parameters will be store in the MAC.cfg file for each device.

B.2.4 Restoring a Template to the Default

You can restore a template to the factory default at any time.

➢ **To restore a template to the default:**

- Click the **Restore to default** button (displayed only if a change was made); the phone model and its description are displayed.

B.2.5 Downloading a Template

You can download a template, for example, in order to edit it in a PC-based editor.

➢ **To download a template:**

- Click the **Download configuration template** button and save the *xml* file in a folder on your PC.

B.2.6 Uploading an Edited Template

You can upload a template, for example, after editing it in a PC-based editor.

➢ **To upload an edited template:**

- Click the **Upload configuration template** button and browse to the *xml* template file on your PC. The file will be the new template for the phone model.

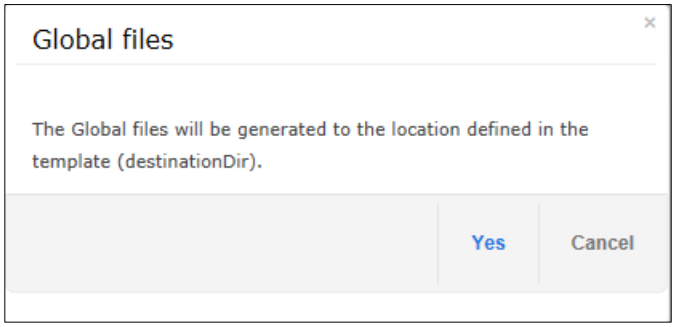
B.2.7 Generating an Edited Template

After editing a template if necessary, you must generate the edited template.

➢ **To generate an edited template:**

1. In the IP Phone Configuration Template page, click the **Generate Configuration Template** button; this prompt is displayed:

Figure B-4: Generate Configuration Template – 'Global files' Prompt



2. Click **Yes**; the generated template reflecting the edit/s is available in the IP Phone Models Configuration Templates page.

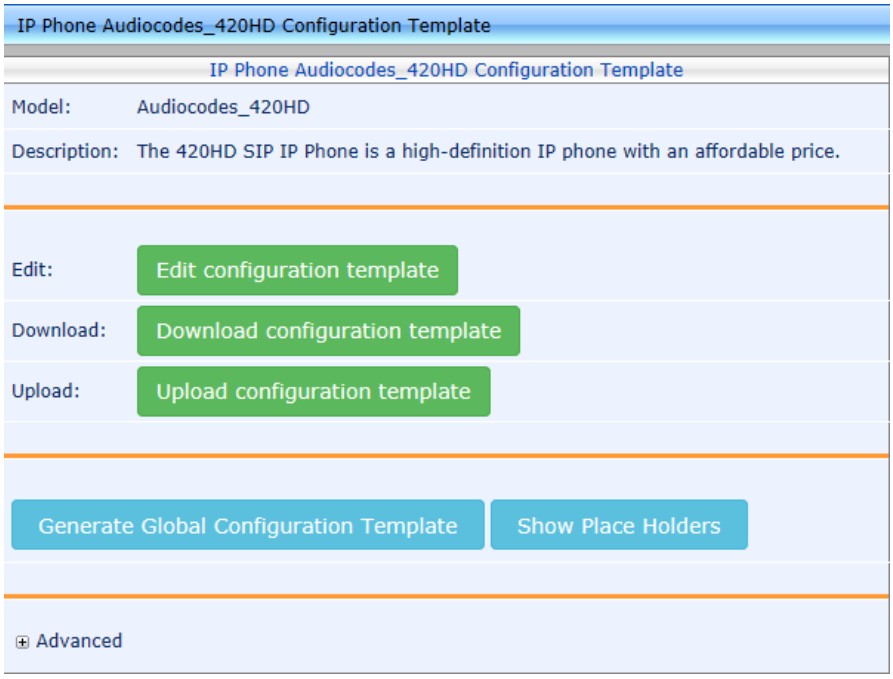
B.2.8 Defining Template Placeholders

Templates include *placeholders* whose values you can define. After defining values, the placeholders are automatically resolved when you generate the template, for example, the placeholder **%ITCS_TimeZoneLocation%** is replaced with the local time zone in a globally distributed enterprise's phones. Placeholders can be defined per system, region, IP phone model, and devices.

➢ **To show placeholders:**

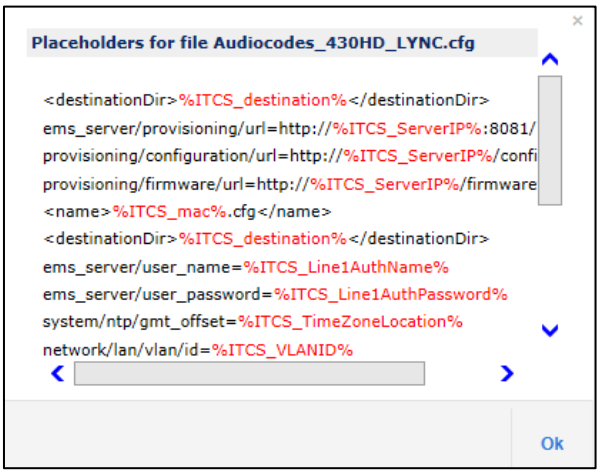
1. In the IP Phones Configuration Templates page (**Phones Configuration** > **Templates**), click the **Edit** button adjacent to the phone model; this screen opens:

Figure B-5: Configuration Template



2. Click **Advanced**, and then click the **Show Placeholders** button.

Figure B-6: Show Placeholders



The figure above shows placeholders currently defined in the xml Configuration Template file for the 430HD Lync phone model.

There are four kinds of placeholders: (1) System (2) Phone Model (3) Region (4) Devices.

- To manage an available placeholder, see Section B.2.8.1
- To add/edit/delete a phone model placeholder, see Section B.2.8.2
- To add/edit/delete a region placeholder, see Section B.2.8.3
- To add/edit/delete a device placeholder, see Section B.2.8.4

B.2.8.1 Default Placeholders Values

You can define placeholders. Before defining values for placeholders, you can view the default placeholders values defined.

➢ **To view default placeholders values defined:**

- Access the Default Placeholders Values page (**Phones Configuration** > **Default Placeholders Values**):

Figure B-7: Default Placeholders Values

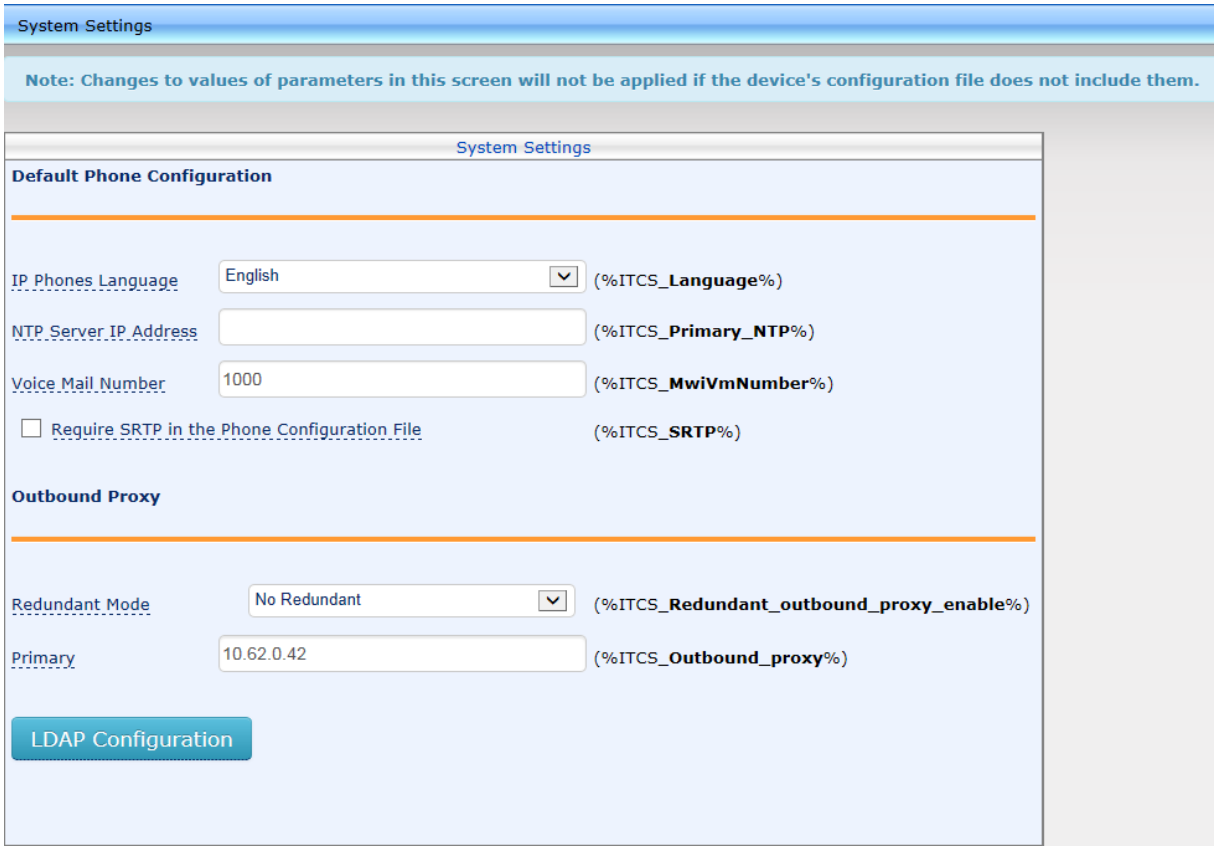
Default Placeholders Values

Placeholder	Value	Description
%ITCS_ServerIP%	10.21.8.30	
%ITCS_TimeZoneName%	UTC	The IP SPS TimeZone/Country name
%ITCS_TimeZoneLocation%	+00:00	The IP SPS TimeZone offset format is +/-xx:xx
%ITCS_DayLightSwitch%	0	
%ITCS_MwiVmNumber%	1000	The Voice Mail number
%ITCS_Version%	1421074579	
%ITCS_Language%	English	Determines IPP display user interface language: English, Spanish or Russian
%ITCS_SRTP%	0	
%ITCS_IPPhoneUsername%	admin	The IPPhone administration user name
%ITCS_IPPhonePassword%	1234	The IPPhone administration password
%ITCS_destination%	/data/NBIF/ippmanager/generate/	configuration files location on the disk

➢ **To define a placeholder value:**

1. Access the System Settings page (**Phones Configuration** > **System Settings**).

Figure B-8: System Settings



Note: The screen above only applies to enterprises whose environments are *non Lync* (except for the 'IP Phones Language' parameter).

2. Define values for available placeholders according to your enterprise IP phone configuration requirements, and then click the **Submit** button. Use the table below as reference. Except for the 'IP Phones Language' parameter, all parameters are only applicable to enterprises whose environments are *non Lync*.

Table B-1: System Settings

Parameter	Description
IP Phones Language	From the dropdown select the language you want displayed in the phones' LCD screens: **English** (default), **French**, **German**, **Hebrew**, **Italian**, **Polish**, **Portuguese**, **Russian**, **Spanish** or **Ukraine**.
NTP Server IP Address	Enter the IP address of the Network Time Protocol (NTP) server from which the phones can get the time.
Voice Mail Number	Enter the number of the enterprise's exchange. Configuration depends on the enterprise environment, specifically, on which exchange the enterprise has. If the enterprise has a Lync environment, ignore this parameter. Default=1000.
Require SRTP in the Phone Configuration File	Select this option for *Secure* RTP. Real-time Transport Protocol (**RTP**) is the standard packet format for delivering voice over IP.

Parameter	Description
Redundant Mode	From the dropdown select **No Redundant** (default) or **Primary/Backup**. Allows the administrator to set the primary PBX / Lync server to which the phone registers and the fallback option if the server is unavailable. Primary/Backup, or 'outbound proxy', is a feature that enables the phone to operate with a primary or backup PBX/Lync server. If the primary falls, the other backs it up.
Primary	Enter the IP address of the primary PBX/Lync server, i.e., the outbound proxy.
Backup	Displayed only if you select the **Primary/Backup** option for the 'Redundant Mode' parameter (see above).
LDAP Configuration	Lightweight Directory Access Protocol lets you provide distributed directory information services to users in the enterprise. Not applicable in a Microsoft Lync environment. See Section B.2.8.1.1 below.

3. View newly defined placeholder values in the IP Phone Placeholders page (**Phones Configuration** > **System Placeholders**).

B.2.8.1.1 Configuring the LDAP Directory

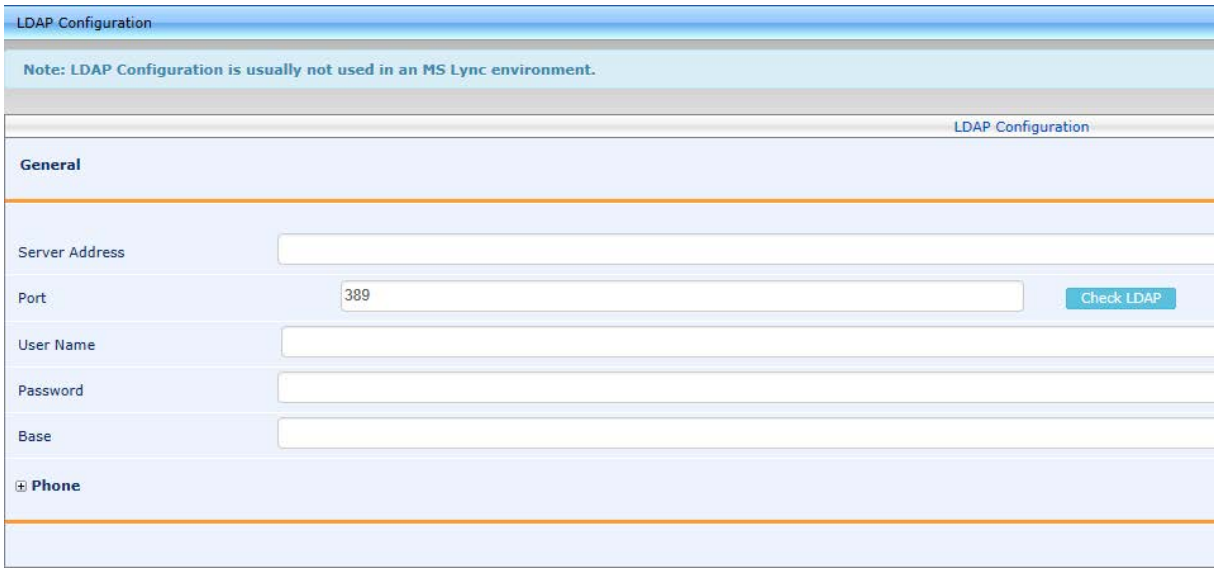
The IP Phone Management Server lets you configure an enterprise's LDAP directory.

Note: When in a Microsoft Lync environment, this section is inapplicable because Lync uses its own Active Directory server.

➢ **To access the LDAP directory:**

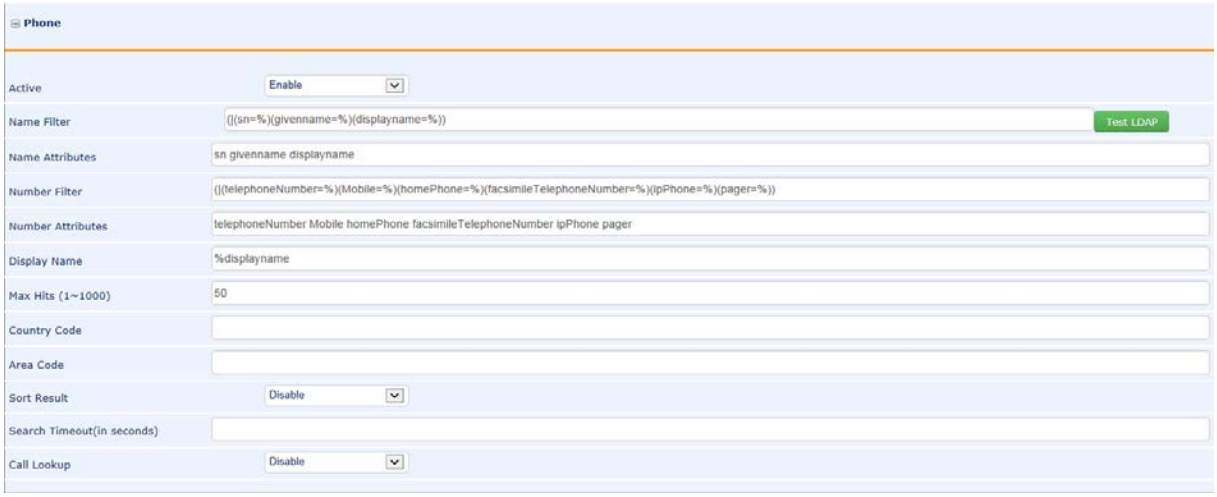
1. Access the System Settings page (**Phones Configuration** > **System Settings**).
2. Click the **LDAP Configuration** button; the LDAP Configuration page opens.

Figure B-9: LDAP Configuration



3. Click **+Phone**; the screen expands to display the 'Active' parameter.
4. From the 'Active' parameter dropdown, select **Enable**; the figure shown below is displayed.

Figure B-10: LDAP Configuration - Phone



5. Configure the parameters using the table below as reference.

Table B-2: LDAP Configuration

Parameter	Description
Server address	Enter the IP address, or URL, of the LDAP server.
Port	Enter the LDAP service port.
User Name	Enter the user name used for the LDAP search request.
Password	Enter the password of the search requester.
Base	Enter the access point on the LDAP tree.
Active	From the dropdown, select **Disable** LDAP (default) or **Enable** LDAP. If **Enable** is selected, the parameters below are displayed.
Name Filter	Specify your search pattern for name look ups. For example, when you type in the *(&(telephoneNumber=*)(sn=%))* field, the search result includes all LDAP records which have the 'telephoneNumber' field set, and the '("sn"-->surname)' field starting with the entered prefix. When you type in the *(|(cn=%)(sn=%))* field, the search result includes all LDAP records which have the '("cn"-->CommonName)' OR the '("sn"-->Surname)' field starting with the entered prefix. When you type in the *(!(cn=%))* field, the search result includes all LDAP records which "do not" have the 'cn' field starting with the entered prefix.
Name Attributes	Specifies the LDAP name attributes setting, which can be used to specify the "name" attributes of each record which is returned in the LDAP search results. When you type in the following field, for example, *cn sn displayName*", this requires you to specify 'cn-->commonName'. This is the Full name of the user, sn-->Surname, last name or family name and "displayName" fields for each LDAP record.
Number Filter	Specifies your search pattern for number look ups. When you type in the following field, for example, *(|(telephoneNumber=%)(Mobile=%)(ipPhone=%))*, the search result is all LDAP records which have the "telephoneNumber" OR "Mobile" OR "ipPhone"field match the number being searched. When you type in the *(&(telephoneNumber=%)(sn=*))* field, the search result is all LDAP records which have the 'sn' field set and the "telephoneNumber" match the number being searched.

Parameter	Description
Number Attributes	Specifies the LDAP number attributes setting, which can be used to specify the “number” attributes of each record which is returned in the LDAP search results. When you type in the following field, for example, *Mobile telephoneNumber ipPhone*, you must specify ‘Mobile’, ‘telephoneNumber’ and ‘ipPhone’ fields for each LDAP record.
Display Name	Specifies the format in which the “name, e.g. “Mike Black” of each returned search result is displayed on the IPPHONE. When you type in the following field, for example, %sn, %givenName, the displayed result returned should be “Black, Mike”.
Max Hits (1~1000)	Specifies the maximum number of entries expected to be sent by the LDAP server (this parameter is sent to the LDAP server).
Country Code	Defines the country code prefix added for number search.
Area Code	Defines the area code prefix added for number search.
Sort Result	Sorts the search result by display name on the client side.
Search Timeout (in seconds)	The time out value for LDAP search (this parameter is sent to the LDAP server).
Call Lookup	Defines the user name used for the LDAP search request.

6. Click **Submit**.

B.2.8.2 Phone Model Placeholders

You can edit the values defined for an existing phone model placeholder and/or you can add a new model placeholder.

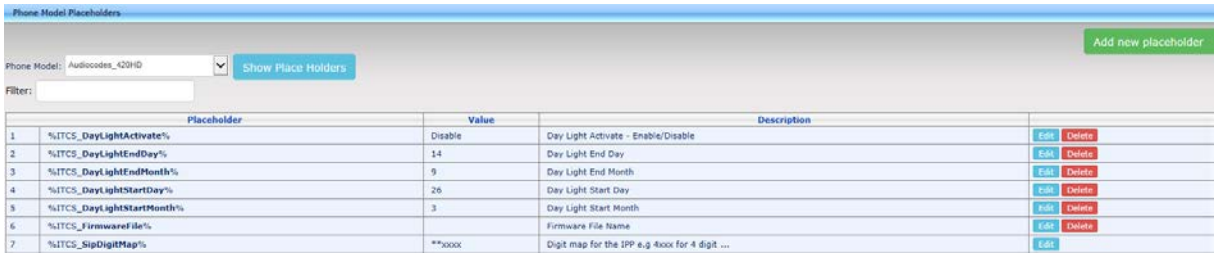
B.2.8.2.1 Editing Phone Model Placeholders

You can edit the values for existing phone model placeholders.

➢ **To edit values for existing phone model placeholders:**

1. Access the Phone Model Placeholders page (**Phones Configuration** > **Phone Model Placeholders**):

Figure B-11: Phone Model Placeholders

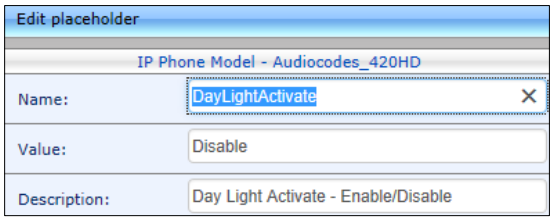


The page shows the placeholders and their values defined for a phone model.

➢ **To edit a value of an existing phone model placeholder:**

1. Click the **Edit** button; the 'Edit placeholder' screen is displayed:

Figure B-12: Edit Phone Model Placeholder



2. In the 'Name' field, you can edit the name of the placeholder.
3. In the 'Value' field, you can edit the value of the placeholder.
4. In the 'Description' field, you can edit the placeholder description.
5. Click **Submit**; the edited placeholder is added to the table.

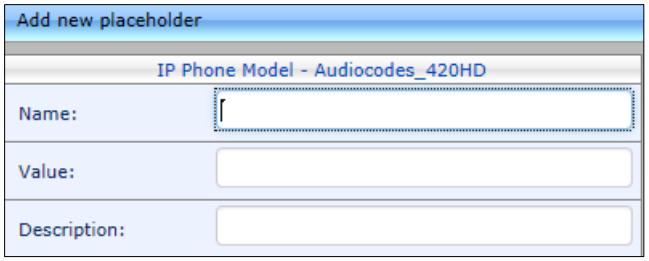
B.2.8.2.2 Adding a New Phone Model Placeholder

You can add a new phone model placeholder. A new placeholder can be added and assigned with a new value.

➢ **To add a new phone model placeholder:**

1. Access the Phone Model Placeholders page (**Phones Configuration** > **Phone Model Placeholders**):
2. From the **IP Phone Model** dropdown in the Phone Model Placeholders page, select the model, e.g., IP Phone Model – Audiocodes_420HD.
3. Click the **Add new placeholder** button.

Figure B-13: Add New Phone Model Placeholder



4. In the 'Name' field, enter the name of the new placeholder.
5. In the 'Value' field, enter the value of the new placeholder.
6. In the 'Description' field, enter a short description for the new placeholder.
7. Click **Submit**; the new placeholder is added to the table.

B.2.8.3 Region Placeholders

You can edit values for existing region placeholders and/or you can add new region placeholders.

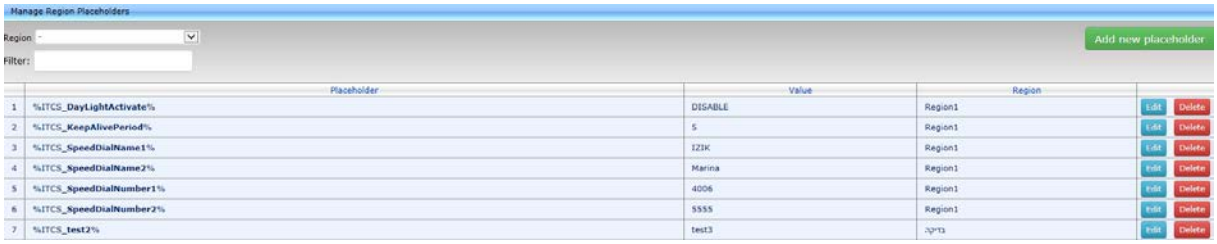
B.2.8.3.1 Editing Region Placeholders

You can edit the values for existing region placeholders.

➢ **To edit values for existing region placeholders:**

1. Access the Manage Region Placeholders page (**Phones Configuration** > **Region Placeholders**):

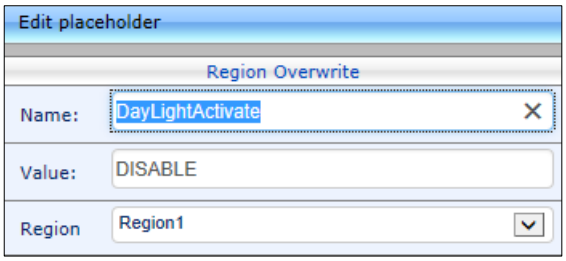
Figure B-14: Manage Region Placeholders



➢ **To edit a value of an existing region placeholder:**

1. Click the **Edit** button; the 'Edit placeholder' screen is displayed:

Figure B-15: Edit Region Placeholder



2. In the 'Name' field, you can edit the name of the placeholder.
3. In the 'Value' field, you can edit the value of the placeholder.
4. From the 'Region' dropdown, you can select another region.
5. Click **Submit**; the edited placeholder is added to the table.

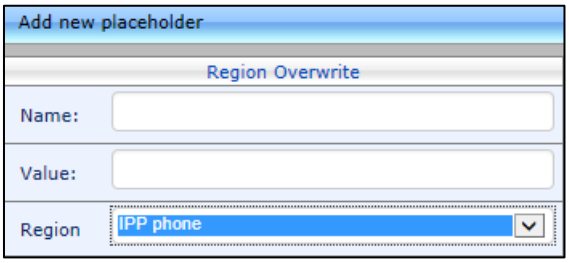
B.2.8.3.2 Adding a New Region Placeholder

You can add a new region placeholder.

➢ **To add a new region placeholder:**

1. Access the Manage Region Placeholders page (**Phones Configuration** > **Region Placeholders**):
2. From the **Region** dropdown, select a region, and then click the **Add new placeholder** button.

Figure B-16: Add New Region Placeholder



3. In the 'Name' field, enter the name of the new placeholder.
4. In the 'Value' field, enter the value of the new placeholder.
5. From the 'Region' dropdown, select a new region.
6. Click **Submit**; the new placeholder is added to the table.

B.2.8.4 Devices Placeholders

You can change placeholders values for specific phones, for example, you can change placeholders values for the CEO's phone. You can also edit a phone's placeholders values.

B.2.8.4.1 Changing a Device Placeholder Value

➢ **To change a device placeholder value:**

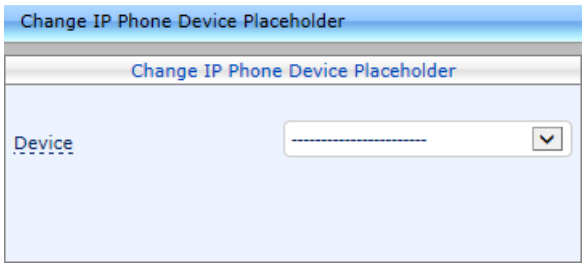
1. Access the Manage Devices Placeholders page (**Phones Configuration** > **Devices Placeholders**):

Figure B-17: Manage Devices Placeholders

Tip: Use the 'Filter' field to quickly find a specific device if many are listed. You can search for a device by its name or by its extension.

2. Click the **Change placeholder value** button; the Change IP Phone Device Placeholder screen opens.

Figure B-18: Change IP Phone Device Placeholder



3. From the **Device** dropdown, select the device.

Figure B-19: Change IP Phone Device Placeholder – Selecting the Device

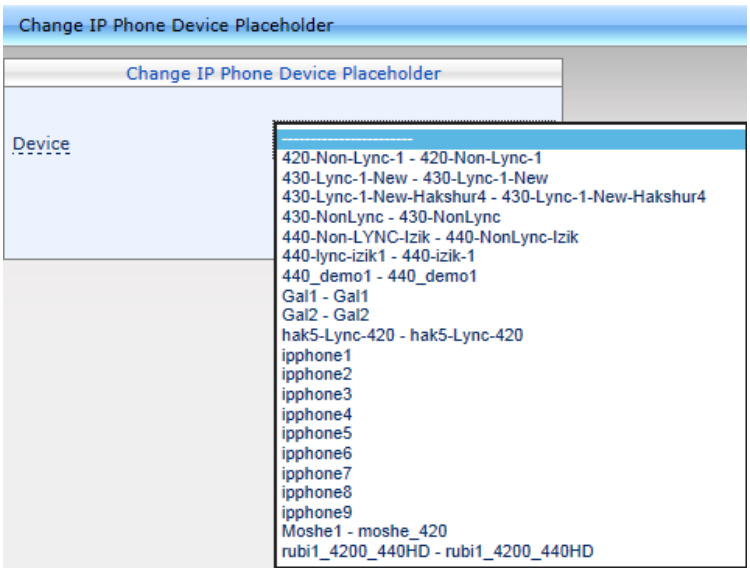


Figure B-20: Edit IP Phone Device Placeholder

4. From the **Key** dropdown, choose the phone configuration key.
5. Enter the device's overwrite value in the 'Overwrite Value' field, and then click the **Submit** button.

B.2.8.4.2 Editing a Device Placeholder Value

You can edit a device placeholder value.

➢ **To edit a device placeholder value:**

1. Access the Manage Devices Placeholders page (**Phones Configuration** > **Devices Placeholders**).
2. Click the **Edit** button; the 'Edit placeholder' screen is displayed, as shown above.
3. In the 'Overwrite Value' field, you enter a new value.
4. Click **Submit**; the edited device placeholder is added to the table.

Note: The new overwrite value is not automatically generated in the device IP phone configuration file. To generate the new device in the IP phone configuration template file, click the **Generate Configuration Template** button in the Templates page (**Phones Configuration** > **Templates**).

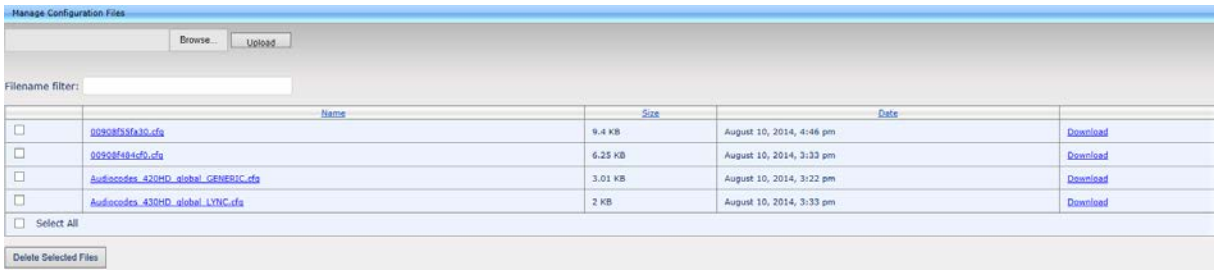
B.3 Managing Configuration Files

You can manage IP phones configuration files. All cfg files are created and located on the EMS server. You can view and manage storage and upload and delete files from storage. To avoid network congestion, a delay feature enables an interval between each installation.

➢ **To manage IP phone configuration files:**

- Access the Manage Configuration Files page (**Phones Configuration** > **Phone Configuration Files**).

Figure B-21: Manage Configuration Files



The page lets you

- Filter by filename the .cfg configuration files listed
- Browse to a location on your PC and upload a .cfg configuration file
- Select and delete any or all of the .cfg configuration files listed
- Open any of the .cfg configuration files listed in an editor
- Save any of the .cfg configuration files listed
- Download any of the .cfg configuration files listed
- View all configuration files currently located on the server (global configuration files, company directory configuration files, and IP phone configuration files)

B.4 Managing Phone Firmware Files

You can manage the phones' .img firmware files.

➢ **To manage the .img firmware files:**

- Access the Phone Firmware Files page (**Phones Configuration** > **Phone Firmware Files**).

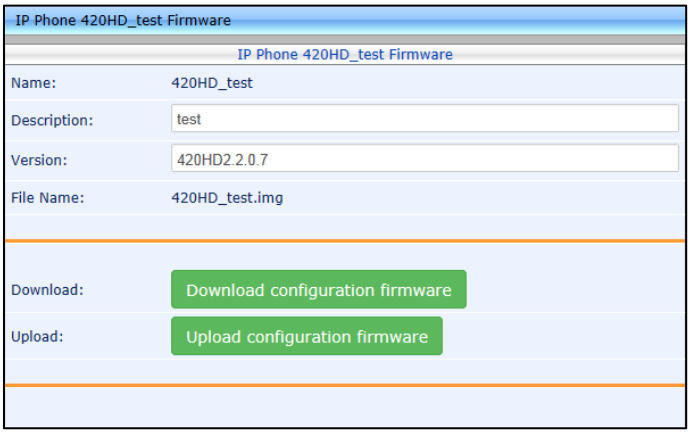
Figure B-22: Phone Firmware Files

In this page you can

- View all .img firmware files currently located on the server
- Add a new IP phone firmware file. Note that if default names are used (e.g., 420HD.img), all devices of this type will automatically use it.
- Filter by filename the .img firmware files listed

- Determine from the phone's name if it does not have firmware – it will be **red**-coded. If so, you must upload the phone's .img firmware file that you obtained from AudioCodes, to the EMS Provisioning Server:
  a. Click the name of the phone; this screen opens:

Figure B-23: .img Firmware File Download/Upload

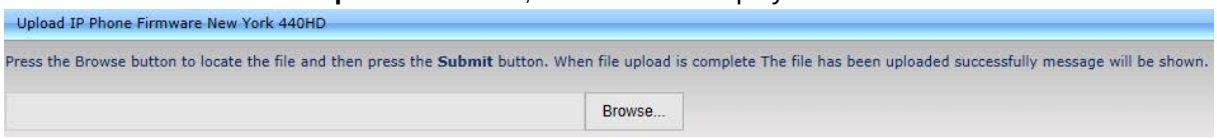


  b. Click the **Upload firmware** button, and then navigate to the .img file you received from AudioCodes and put on the EMS Provisioning Server. You can perform this part of the installation procedure before or after configuring your enterprise's DHCP Server with DHCP Option 160 (see also Section 2.2).

- Download a phone's .img firmware file to the pc. Click the phone's Name; the screen shown in Figure B-23 opens. Click the **Download firmware** button.
- Edit a phone's .img firmware file. Click the name or click the **Edit** button in the row.
- Delete any.img firmware file listed. Click the **Delete** button in the row.
- Manage .img firmware files by grouping them.
  a. Click the **Add new IP Phone firmware** button.

  b. Define an intuitive 'Name' and 'Description' to facilitate easy identification. You can leave the 'Version' field empty, and then click the **Submit** button; this screen is displayed:

  c. Click **Upload firmware**; this screen is displayed:



  d. Click **Browse**, navigate to the .img file, and then click the **Submit** button; the 'Version' field is populated and the .img file is uploaded to the phone.

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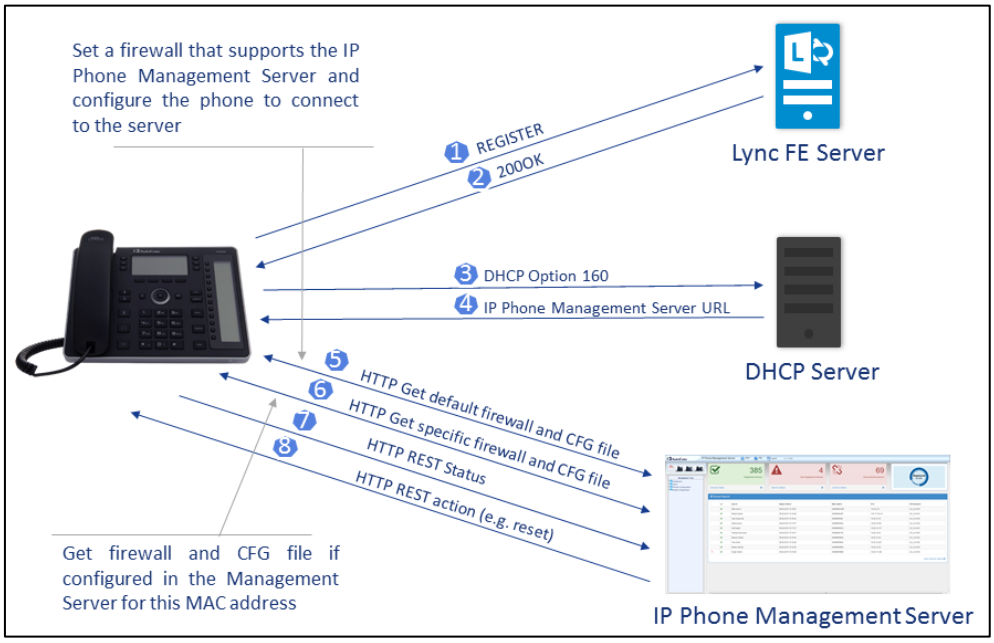
C Provisioning Flows

This appendix illustrates the provisioning flows between phones and IP Phone Management server.

C.1 Lync Phones

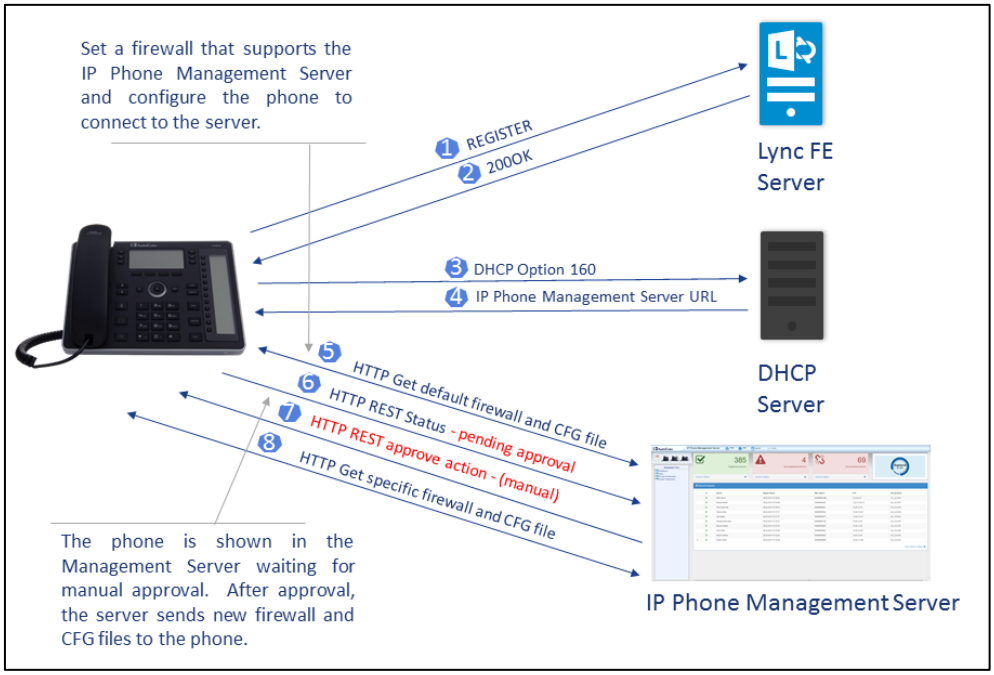
The figure below shows the provisioning flow between the Lync phone and the IP Phone Management server when the MAC address is known.

Figure C-1: Lync Phone > IP Phone Management Server Flow when MAC is Known



The figure below shows the provisioning flow between the Lync phone and the EMS server when the MAC address is unknown.

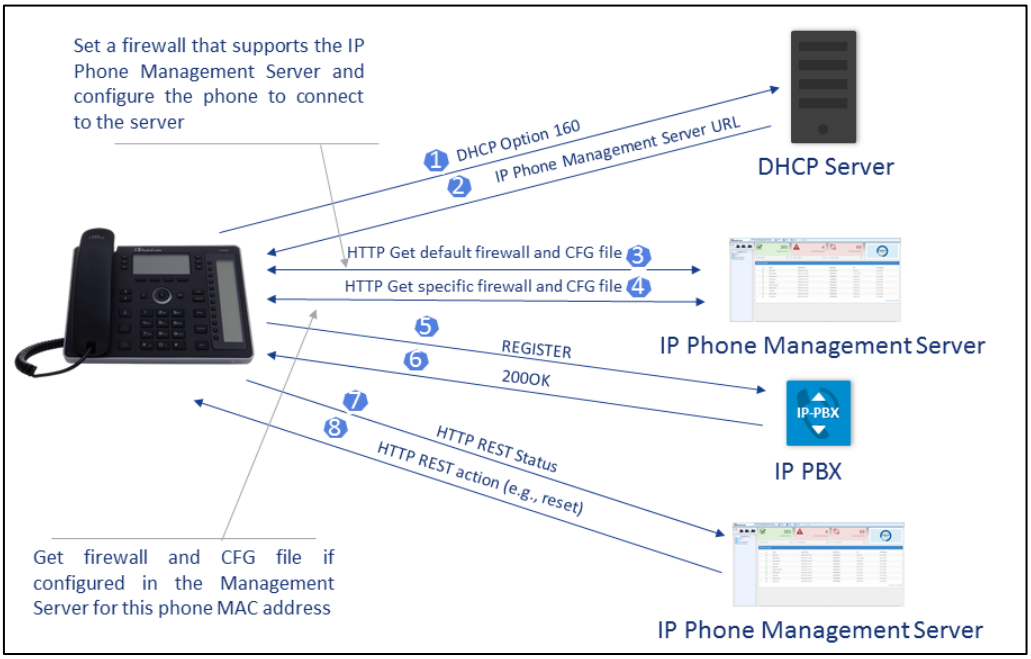
Figure C-2: Lync Phone > IP Phone Management Server Flow when MAC is Unknown



C.2 Other Phones

The figure below shows the provisioning flow between other (non-Lync) phones and the IP Phone Management server when the MAC address is known.

Figure C-3: Generic Phone > IP Phone Management Server Flow when MAC is Known



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AudioCodes

Administrator's Manual

www.audiocodes.com