Configure URI Dialing

URI Dialing Overview

Unified Communications Manager supports dialing using directory URIs for call addressing. A directory URI is a uniform resource identifier, a string of characters that can be used to identify a directory number. Directory URIs look like email addresses and follow the username@host format where the host portion is an IPv4 address or a fully qualified domain name. If that directory number is assigned to a phone, Unified Communications Manager can route calls to that phone using the directory URI. URI dialing is available for SIP and SCCP endpoints that support directory URIs.

Directory URI Format

Directory URIs are alphanumeric strings that consist of a user and a host address separated by the @ symbol.

Cisco Unified Communications Manager supports the following formats for directory URIs:

- user@domain (for example, joe@cisco.com)

- user@ip_address (for example, joe@10.10.10.1)

The system supports the following formats in the user portion of a directory URI (the portion before the @ symbol):

- Accepted characters are a-z, A-Z, 0-9, !, $, %, &, *, _, +, ~, -, =, , ?, , ', ,, ., /, (and) .

- The user portion has a maximum length of 47 characters.

- Cisco Unified Communications Manager automatically applies percent encoding to the following characters when the directory URI is saved in the database:

  # % ^ ` { } | \ : " < > [ ] \ ' and spaces.

> ✎
>
> **Note**   The user portion of a directory URI is case sensitive by default. You can edit the user portion to be case insensitive by editing the **URI Lookup Policy** enterprise parameter.
>
> When you apply percent encoding, the digit length of the directory URI increases. For example, if you input joe smith#@cisco.com (20 characters) as a directory URI, Unified Communications Managerstores the directory URI in the database as joe%20smith%23@cisco.com (24 characters). Due to database restrictions, the **Directory URI** field has a maximum length of 254 characters.

Cisco Unified Communications Manager supports the following formats in the host portion of a directory URI (the portion after the @ symbol):

- Supports IPv4 addresses or fully qualified domain names.

- Accepted characters are alphanumeric characters, hyphens (-), and dots (.).

- The host portion cannot start or end with a hyphen (-).

- The host portion cannot have two dots in a row.

- The host portion has a minimum length of two characters.

- The host portion is not case sensitive.

> ✎
>
> **Note**   Within **Cisco Unified Communications Manager Administration**, when you use Bulk Administration to import a CSV file that contains directory URIs with embedded double quotes and commas, you must enclose the entire directory URI in double quotes (").

Call Forward to URI

- Call-forwarding to URIs won't be possible from physical phones.

- Call-forward to a URI can only be configured through applications if that URI is already in the Unified Communications Manager database. If the URI is not in the database, then the application will error out "Call Forward Setting Failed /n Failed to forward calls to: New Number" while trying to configure call-forward.

- Call-forward can be configured for any URI, whether the URI exists in the database or not through the Unified Communications Manager Administration page.

- You can configure call-forwards on the **Cisco Unified Communications Self Care Portal** > **End User** Page to any URI, regardless of whether it exists in the database. The 'Percent Encoding' must be used when entering these characters **# % ^ ` { } | \ : ? < > [ ] \ '** . For example, **%3A** is used for mentioning **:** and **%20** is used for mentioning space.

- You must provide "**mobile%3A%2012345@cisco.com**" under the Call-Forward section of the **Cisco Unified Communications Self Care Portal** > **End User** page, if you need to forward calls to the URI "mobile: 12345@cisco.com".

URI Dialing Prerequisites

Before you configure the URI dialing, you must set up an ILS network and enable Global Dial Plan Replication in the ILS network. Refer the following sections to complete this task:

- Global Dial Plan Replication Task Flow

- ILS Configuration Task Flow

URI Dialing Configuration Task Flow

Procedure

	Command or Action	Purpose
Step 1	Assign directory URIs to the local cluster in the network: • Assign Directory URI to Users, on page 4 • Associate Directory URI with Directory Numbers, on page 4	Provision end users into your system and assign directory URI to those end users. Also, configure a directory number and associate a directory URI with that directory number. **Note** For both end user configuration and directory number configuration, you can also use Bulk Administration to import end users, directory URIs, directory numbers, and phones into Cisco Unified Communications Manager. For more information, see the *Bulk Administration Guide for Cisco Unified Communications Manager* http://www.cisco.com/c/en/us/support/ unified-communications/ unified-communications-manager-callmanager/ products-maintenance-guides-list.html.
Step 2	Assign Default Directory URI Partition, on page 5	Assign the default directory URI partition to an existing partition that is located in a calling search space.
Step 3	Configure SIP Profiles for URI Dialing, on page 5	Configure the SIP profiles to configure intercluster URI dialing in your network.
Step 4	Configure SIP Trunks for URI Dialing, on page 6	Configure whether Cisco Unified Communications Manager inserts a directory number, a directory URI, or a blended address for outgoing SIP messages.
Step 5	Configure SIP Route Patterns, on page 7	Configure SIP route patterns to route intercluster directory URI calls.
Step 6	Repeat step 1 to step 5 for all the clusters in your ILS network.	Perform this step if you have multiple clusters in your ILS network.

	Command or Action	Purpose
Step 7	Import Directory URI Catalogs, on page 7	(Optional) If you want to place directory URI calls to a Cisco TelePresence Video Communications Server, or a third-party call control system, import directory URI catalogs from a CSV file for the other system into any hub cluster in the ILS network.

Assign Directory URI to Users

Perform the following steps to assign a directory URI to an end user.

Procedure

Step 1 In Cisco Unified CM Administration, choose **User Management** > **End User**.

Step 2 In the **Find and List Users** window, specify the search criteria and click **Find**.

Step 3 Choose a user from the resulting list. The **End User Configuration** window appears.

Step 4 In the **Directory URI** field, enter a directory URI that you want to associate to this end user. A directory URI looks like an email address and follows the user@host format.

> **Note**   If you enter a directory URI and also enter a directory number in the **Primary Extension** field, this directory URI automatically becomes the primary directory URI that is associated to that directory number.

Step 5 Click **Save**.

Associate Directory URI with Directory Numbers

Perform the following procedure to associate a directory URI with a directory number. If that directory number is assigned to a phone, Cisco Unified Communications Manager allows you to dial that phone using the directory URI.

Before you begin

Assign Directory URI to Users, on page 4

Procedure

Step 1 In Cisco Unified CM Administration, choose **Device** > **Phone**. The **Find and List Phones** window appears.

Step 2 Specify the filter criteria and click **Find**.

Step 3 Click on the device for which you want to associate the directory number. The **Phone Configuration** window appears.

Step 4 In the **Association** pane:

- Click on an existing directory number.
- Click on **Add a new DN** if no directory numbers are configured.

Step 5   In the **Directory Number Configuration** window, enter the directory URI address in the **URI** text box.

Step 6   From the **Partition** drop-down list, choose the partition to which the directory URI belongs.

Ensure that the directory URI that you enter is unique within the partition that you choose. If you do not want to restrict access to the URI, choose **None** for the partition.

Step 7   Click **Save**.

What to do next

Assign Default Directory URI Partition

Perform the following procedure to assign a default directory URI partition.

Before you begin

Procedure

Step 1   In Cisco Unified CM Administration, choose **System** > **Enterprise Parameters**. The **Enterprise Parameters Configuration** window appears.

Step 2   For the **Directory URI Alias Partition** in the **End User Parameters** area, choose an existing partition that is in an existing calling search space.

Step 3   Click **Save**.

What to do next

Configure SIP Profiles for URI Dialing

Before you begin

Procedure

Step 1   In Cisco Unified CM Administration, choose **Device** > **Device Settings** > **SIP Profile**. The **Find and List SIP Profiles** window appears.

Step 2   Enter the appropriate search criteria and click **Find**. A list of existing SIP profiles appear.

Step 3   Select the SIP profile that you want to view. The **SIP Profile Configuration** window appears.

Step 4   From the **Dial String Interpretation** drop-down list, choose one of the following options:

- **Always treat all dial strings as URI addresses**—Select this option to treat the address of incoming calls as URI addresses.
- **Phone number consists of characters 0–9, A–D, *, and + (others treated as URI addresses)**—Select this option to treat the incoming call as a directory number if all the characters in the user portion of the SIP identity header fall within this range. If the user portion of the address uses any characters that do not fall within this range, the address is treated as a URI.
- **Phone number consists of characters 0-9, *, and + (others treated as URI addresses**—Select this option to treat the incoming call as a directory number if all the characters in the user portion of the SIP identity header fall within this range. If the user portion of the address uses any characters that do not fall within this range, the address is treated as a URI.

Step 5   Check the **Use Fully Qualified Domain Name in SIP Requests** check box for all the SIP profiles in your network.

Step 6   Click **Apply Config**.

What to do next

Configure SIP Trunks for URI Dialing

If you are deploying URI dialing, configure the contact header addressing policy for the SIP trunks in your network. Cisco Unified Communications Manager can insert a directory number, directory URI, or a blended address that includes both the directory number and directory URI in the SIP identity headers for outgoing SIP messages.

Procedure

Step 1   From Cisco Unified CM Administration, choose **Device** > **Trunk**.

Step 2   Click **Find** and select an existing SIP trunk.

Step 3   In the **Outbound Calls** area, select one of the following from the **Calling and Connected Party Info Format** drop-down list:

- **Deliver DN only in connected party**—In outgoing SIP messages, Unified Communications Manager inserts the calling party's directory number in the SIP contact header information. This is the default setting.
- **Deliver URI only in connected party, if available**—In outgoing SIP messages, Unified Communications Manager inserts the sending party's directory URI in the SIP contact header. If a directory URI is not available, Unified Communications Manager inserts the directory number instead.
- **Deliver URI and DN in connected party, if available**—In outgoing SIP messages, Unified Communications Manager inserts a blended address that includes the calling party's directory URI and directory number in the SIP contact headers. If a directory URI is not available, Unified Communications Manager includes the directory number only.

Step 4   Click **Save**.

Configure SIP Route Patterns

You must configure SIP route patterns to route intercluster directory URI calls.

Follow these steps to configure SIP route patterns.

Before you begin

Procedure

Step 1   In Cisco Unified CM Administration, choose **Call Routing** > **SIP Route Pattern**.

Step 2   Choose one of the following options:

- To add a new SIP route pattern, click the **Add New** button.
- To modify the settings for an existing SIP route pattern, enter the search criteria, click **Find**, and choose a SIP route pattern from the resulting list.

Step 3   Configure the fields in the **SIP Route Pattern Configuration** window. See the online help for more information about the fields and their configuration options.

Step 4   Click **Save**.

What to do next

(Optional)

Import Directory URI Catalogs

Cisco Unified Communications Manager allows you to import global dial plan data from a CSV file into any hub cluster in an ILS network and ILS replicates the imported global dial plan data throughout the ILS network allowing you to interoperate Cisco Unified Communications Manager with a Cisco TelePresence Video Communications Server or a third-party call control system.

(Optional) To import directory URI catalogs, follow this procedure:

Procedure

Step 1   From Cisco Unified CM Administration, choose **Call Routing** > **Global Dial Plan Replication** > **Imported Global Dial Plan Catalog**.

Step 2   From the **Find and List Imported Global Dial Plan Catalogs** window, perform one of the following tasks:

- Click **Find** and select an existing catalog from the resulting list.
- Click **Add New** to add a new catalog.

Step 3	From the **Imported Global Dial Plan Catalog Settings** window, in the **Name** field, enter a unique name to identify the catalog that you want to import.
Step 4	(Optional) In the **Description** field, enter a description of the catalog.
Step 5	In the **Route String** field, create a route string for the system from which you are importing the catalog.

> **Note** Route strings can be up to 250 alphanumeric characters long and can include dots and dashes.

Step 6	Click **Save**.
Step 7	From Cisco Unified CM Administration, choose **Bulk Administration** > **Upload/Download Files**.

- Click **Add New**.
- Click **Browse** and select the CSV file for the catalog that you want to import.

> **Note** Ensure that the CSV file that you use for the import is compatible with the version of Cisco Unified Communications Manager. For example, a CSV file that is compatible to import into Version 9.0(1) is not compatible with Version 10.0(1).

Step 8	In the **Select the Target** drop-down list, select **Imported Directory URIs and Patterns**.
Step 9	In the **Select Transaction Type** drop-down list, select **Insert Imported Directory URIs and Patterns**.
Step 10	Click **Save**.
Step 11	From Cisco Unified CM Administration, choose **Bulk Administration** > **Directory URIs and Patterns** > **Insert Imported Directory URIs and Patterns**.
Step 12	In the **File Name** drop-down list, choose the CSV file that contains the catalog that you want to import.
Step 13	In the **Imported Directory URI Catalog** drop-down list, choose the catalog that you named in the **Imported Global Dial Plan Catalog** window.
Step 14	In the **Job Description** text box, enter a name for the job that you are about to run.
Step 15	Perform one of the following steps:

- If you want to run the job now, select the **Run Immediately** option, and click **Submit**.
- If you want to schedule the job to run at a specified time, select the **Run Later** radio button and click **Submit**.

> **Note** If you choose the **Run Later** option, you must use the Bulk Administration Job Scheduler to schedule when the job runs.

Cisco Unified Communications Manager saves all imported +E.164 patterns to the Global Learned +E.164 Patterns partition.