



Global Dial Plan Replication

This chapter provides information about how to configure the Global Dial Plan Replication feature. When Global Dial Plan Replication is enabled, the Intercluster Lookup Service (ILS) replicates local and learned directory URIs, enterprise alternate numbers, +E.164 alternate numbers, and number patterns throughout the ILS network. Global Dial Plan Replication allows you to create a global dial plan that spans the ILS network and which includes intercluster dialing of directory URIs and alternate numbers.

- [Set Up Global Dial Plan Replication, on page 1](#)
- [Global Dial Plan Data, on page 2](#)
- [Alternate Numbers, on page 3](#)
- [Advertised Patterns, on page 5](#)
- [PSTN Failover, on page 8](#)
- [Route Strings, on page 9](#)
- [Learned Global Dial Plan Data, on page 10](#)
- [About Imported Global Dial Plan Data, on page 15](#)

Set Up Global Dial Plan Replication

This procedure describes how to set up Global Dial Plan Replication in the ILS network. See the Related Topics for more detailed information on how to perform some of the high-level steps in this procedure.

Before you begin

Global Dial Plan Replication runs on an ILS network. Follow the procedure to set up an ILS network in the “Intercluster Lookup Service” chapter before you configure Global Dial Plan Replication.

Procedure

Step 1

Enable ILS support for Global Dial Plan Replication in the local cluster:

- a) Log in to the Unified Communications Manager publisher node.
- b) In Cisco Unified Communications Manager Administration, choose **Advanced Features > ILS Configuration**.
- c) Check the **Exchange Global Dial Plan Replication Data with Remote Clusters** check box.
- d) In the **Advertised Route String** text box, enter a route string for the local cluster.
- e) Click **Save**.

- Step 2** (Optional) If you want to be able to dial directory URIs across clusters, set up URI dialing in the local cluster. For details, see the “URI dialing” chapter.
- Step 3** (Optional) If you want to set up alternate numbers that you can dial between clusters, set up alternate number replication by doing the following:
- Assign enterprise alternate numbers or +E.164 alternate numbers to the directory numbers in your network.
 - For each alternate number, check the **Advertise Globally via ILS** check box.
- Step 4** (Optional) If you want to set up a PSTN failover number for specific directory URIs or alternate numbers, assign an alternate number as the PSTN failover number for all the directory URIs and alternate numbers that are associated to a specific directory number.
- Step 5** (Optional) If you want to summarize your alternate numbers with a pattern, set up an advertised pattern, and assign a PSTN failover rule for the pattern.
- Step 6** In the **Partitions for Learned Numbers and Patterns** configuration window, assign route partitions to the alternate numbers and patterns that the local cluster learns through ILS.
- Step 7** Set up SIP route patterns to route calls to the remote clusters in your ILS network by doing the following:
- Create SIP route patterns that match the route strings for the remote clusters in the ILS network.
 - Point those SIP route patterns to SIP trunks or route lists that route calls to the next-hop clusters in the ILS network.
- Step 8** If your network includes a Cisco Unified Border Element, do the following for the SIP profiles in your network:
- In Cisco Unified CM Administration, choose **Device > Device Settings > SIP Profile**.
 - Check the **Send ILS Learned Destination Route String** check box and click **Save**.
- Step 9** Set an upper limit for the number of learned objects that ILS can write to the local database by setting a value for the ILS Max Number of Learned Objects service parameter. The default value is 100,000.
- Step 10** Repeat the previous steps for each cluster in your ILS network.
- Step 11** (Optional) If you want your ILS network to interoperate with a Cisco TelePresence Video Communication Server or 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.
- Note** If the hub cluster fails, all the spokes connected to it will not have synced-up data until the hub is up. But, existing learn patterns will work.

Related Topics

[Set Up Alternate Number](#), on page 4

[Set Up an Advertised Pattern for Alternate Numbers](#), on page 7

[Set Up PSTN Failover for Directory URIs and Alternate Numbers](#), on page 9

Global Dial Plan Data

When Global Dial Plan Replication is enabled, each cluster in an ILS network advertises its global dial plan data, including global dial plan data that was configured locally and any data that was learned from other clusters, to the ILS network. Global dial plan data includes the following:

Directory URIs

ILS advertises the full catalog of locally configured directory URIs where the Advertise Globally via ILS option is selected. The URI dialing chapter in the *Cisco Unified Communications Manager Features and Services Guide* contains details on how to set up URI dialing. See [URI Dialing](#) for more information.

Alternate Numbers

ILS advertises locally configured enterprise alternate numbers and +E.164 alternate numbers to the ILS network where the Advertise globally via ILS option has been selected.

Advertised Patterns

ILS advertises locally configured alternate number patterns to the ILS network.

PSTN Failover

ILS advertises locally configured PSTN failover information for alternate numbers, directory URIs, and advertised patterns.

Route String

ILS advertises the local route string to the ILS network. Each global dial plan data element associates to a route string that identifies the home cluster for that element. Remote clusters use the route string in combination with a SIP route pattern in order to route to the various clusters in an ILS network.

Learned Global Dial Plan Data

In addition to locally configured global dial plan data, ILS advertises all global dial plan data that the local cluster has learned from other clusters in the ILS network. This ensures that all advertised data reaches each cluster in the ILS network. Learned global dial plan data includes learned directory URIs, learned alternate numbers, learned patterns, learned PSTN failover rules, and learned route strings.

Imported Global Dial Plan Data

ILS advertises imported global dial plan data throughout the ILS network. Imported global dial plan data includes directory URIs, +E.164 patterns, and PSTN failover rules that were imported manually from a CSV file for a Cisco TelePresence Video Communication Server or a third-party call control system.

Related Topics

- [Alternate Numbers](#), on page 3
- [Advertised Patterns](#), on page 5
- [PSTN Failover](#), on page 8
- [Route Strings](#), on page 9
- [Learned Global Dial Plan Data](#), on page 10
- [Imported Global Dial Plan Catalog Settings](#), on page 15

Alternate Numbers

Alternate numbers can be configured as aliases of directory numbers. Alternate numbers allow you to configure globally routable numbers that can be dialed from anywhere within an ILS network. Cisco Unified Communications Manager allows you to create two types of alternate numbers:

- Enterprise alternate numbers
- +E.164 alternate numbers

Set Up Alternate Number

In Cisco Unified Communications Manager Administration, you can create an enterprise alternate number or +E.164 alternate number and associate the alternate number to a directory number. When you associate an alternate number to a directory number, the alternate number can act as an alias of that directory number so that when you dial the alternate number, the phone that is registered to the associated directory number rings.

Each alternate number that you set up must associate to a single directory number. However, that directory number can associate to both an enterprise alternate number and a +E.164 alternate number at the same time. You can also choose one of the alternate numbers as the PSTN failover number for all alternate numbers and directory URIs that are associated to that directory number. See [PSTN Failover, on page 8](#) for more information.

Local Routing with Alternate Numbers

To configure local routing for alternate numbers, you must assign the alternate number to a local route partition that is configured in a calling search space. In Directory Number Configuration, under the alternate number, check the Assign to a local route partition check box and choose a route partition that is in a local calling search space.

Intercluster Routing with Alternate Numbers

For intercluster routing of alternate numbers, Cisco Unified Communications Manager uses ILS to advertise alternate numbers and patterns to the ILS network. For each alternate number that you assign to a directory number, you have the option to include that alternate number in the advertised global dial plan data. If this option is chosen, ILS includes the alternate number along with the local route string and advertises that data to the ILS network. Remote clusters use the route string, in combination with a SIP route pattern, to route calls to that alternate number.

As an alternative, you can configure a pattern that summarizes a range of alternate numbers, and advertise that pattern to the ILS network. The advertised pattern saves you from having to configure replication for each alternate number on an individual basis. For details on advertised patterns, see [Advertised Patterns, on page 5](#).

Related Topics

[Set Up Alternate Number, on page 4](#)

[Advertised Patterns, on page 5](#)

[PSTN Failover, on page 8](#)

Set Up Alternate Number

This procedure describes how to assign an enterprise alternate number or +E.164 alternate number to an existing directory number and configure that alternate number for local or intercluster calls.

Procedure

-
- Step 1** In Cisco Unified Communications Manager Administration, choose **Call Routing > Directory Number**.
 - Step 2** Find and select the directory number to which you want to associate the alternate number.
 - Step 3** Click either **Add Enterprise Alternate Number** or **Add +E.164 Alternate Number** depending on which type of alternate number you want to assign.

- Step 4** In the **Number Mask** field, enter the number mask that you want to apply to the directory number. The **Alternate Number** field displays how the alternate number appears after Cisco Unified Communications Manager applies the number mask.
- Step 5** (Optional) If you want to enable local routing for the alternate number, do the following:
- Check the **Add to Local Route Partition** check box.
 - From the **Route Partition** drop-down list box, choose a route partition that is assigned to a local calling search space.
- Step 6** (Optional) If you want to use a number pattern to set up intercluster routing for this alternate number, click **Save** and end the procedure. See the Related Topics section for a procedure on how to advertise an alternate number pattern to the ILS network.
- Step 7** (Optional) If you want to set up intercluster routing for this alternate number, check the **Advertise Globally via ILS** check box for this alternate number.
- Step 8** (Optional) If you want to assign a PSTN failover number to this alternate number, from the **PSTN failover** drop-down list box, assign a number as the PSTN failover.
- Step 9** Click **Save**.
-

What to do next

If you want to enable intercluster routing for the alternate number you must also set up Global Dial Plan Replication within your ILS network. ILS will not advertise the alternate number unless Global Dial Plan Replication is enabled.

Related Topics

[Set Up an Advertised Pattern for Alternate Numbers](#), on page 7

Advertised Patterns

Advertised patterns allow you to create summarized routing instructions for a range of enterprise alternate numbers or +E.164 alternate numbers and replicate that pattern throughout an ILS network such that all clusters within the ILS network know the pattern. Advertised patterns prevent you from having to configure routing information for each alternate number on an individual basis. Advertised patterns are never used by the local cluster on which they are configured—they are only used by remote clusters that learn the pattern through ILS.

For example, if Cluster A has a range of enterprise alternate numbers between 80001 and 89999 and you want to replicate those alternate numbers throughout the ILS network, you can create a pattern of 8XXXX and advertise that pattern to the ILS network. When a remote cluster receives an outgoing call for which the dial string matches the learned pattern (for example, 82211), the remote cluster uses the route string that is associated with the pattern to route the call.

You can also configure PSTN failover information for patterns that are advertised by ILS. See [PSTN Failover](#), on page 8 for more information.

Related Topics

[Advertised Patterns Settings](#), on page 6

[Set Up an Advertised Pattern for Alternate Numbers](#), on page 7

[PSTN Failover](#), on page 8

Advertised Patterns Settings

In Cisco Unified CM Administration, use the **Call Routing > Global Dial Plan Replication > Advertised Patterns** menu path to create alternate number patterns that ILS advertises to remote clusters in the ILS network.

In the **Advertised Patterns Configuration** window, you can create a number pattern that summarizes a range of alternate enterprise or +E.164 numbers. If Global Dial Plan Replication is enabled, ILS advertises the number pattern to remote clusters in the ILS network.

The following table describes the field settings for the Advertised Patterns Configuration window.

Field	Field Description
Description	
Description	In the text box, enter a description of the number pattern.
Advertised Pattern	
Pattern	<p>In the text box, enter the number pattern that you want Cisco Unified Communications Manager to match against incoming calls.</p> <p>The number pattern must consist of an optional + followed by one or more dialable digits (0-9, A-D, *, #), digit ranges in regular expression format (example: [6-9] or [^6-9]), or single-digit wildcards (X). The pattern may end with an optional % or !.</p> <p>If Global Dial Plan Replication is configured, ILS advertises this pattern to remote clusters in the ILS network. When a remote cluster receives an incoming call that matches this pattern, the remote cluster applies this pattern to the incoming call and tries to route the call to this cluster.</p>
Pattern Type	<p>Choose the type of pattern that applies to this number pattern. When an outgoing call arrives for which the destination dial string matches this number pattern, Cisco Unified Communications Manager assigns the route partition that applies for this pattern type. Click one of the following radio buttons:</p> <ul style="list-style-type: none"> • Enterprise Number Pattern—choose this option if the number pattern is used for enterprise alternate numbers. • +E.164 Number Pattern—choose this option if the number pattern is used for +E.164 alternate numbers.
Don't use PSTN Failover	Click this radio button if you do not want to configure a PSTN failover for calls that match this pattern. If Cisco Unified Communications Manager is unable to route a call to this pattern over a SIP trunk, the call will not be rerouted to the PSTN.
Use Pattern as PSTN Failover	Click this radio button if you want to use the dial string as the PSTN failover for calls that match this pattern. If Cisco Unified Communications Manager is unable to route the call over a SIP trunk, Cisco Unified Communications Manager uses the calling party AAR CSS to reroute the call to a PSTN gateway.

Field	Field Description
Apply Strip Digits and Prepend Digits to Pattern and Use for PSTN Failover	Click this radio button to use the PSTN Failover Strip Digits and PSTN Failover Prepend Digits fields as the PSTN failover for calls that match this pattern. If Cisco Unified Communications Manager is unable to route the call over a SIP trunk, Cisco Unified Communications Manager applies the PSTN Failover Strip Digits and PSTN Failover Prepend Digits fields to the dial string and uses the calling party AAR CSS to reroute the call to a PSTN gateway.
PSTN Failover Strip Digits	In the text box, enter the number of digits that you want Cisco Unified Communications Manager to strip from the beginning of the dial string for incoming dial strings that match this pattern. You can enter up to 16 digits.
PSTN Failover Prepend Digits	In the text box, enter the digits that you want Cisco Unified Communications Manager to attach to the beginning of the dial string for incoming calls that match this pattern. The allowed characters are 0-9 with an optional leading +.

Set Up an Advertised Pattern for Alternate Numbers

Follow this procedure to create a pattern that summarizes a range of alternate numbers and advertise the pattern to the ILS network.

Procedure

- Step 1** From Cisco Unified Communications Manager Administration, choose **Call Routing > Global Dial Plan Replication > Advertised Patterns**.
- Step 2** In the **Description** field, enter a description for the pattern.
- Step 3** In the **Pattern** field, enter the pattern that you want to advertise to the ILS network.
- Step 4** Use the **Pattern Type** radio buttons to choose whether you want to apply the pattern to a range of enterprise alternate numbers or +E.164 alternate numbers.
- Step 5** Complete the remaining fields in the **Advertised Patterns Configuration** window to configure a PSTN failover rule for the pattern.
- Step 6** Click **Save**.

If Global Dial Plan Replication is enabled, ILS advertises the pattern to remote clusters in the ILS network.

What to do next

For remote clusters to be able to route calls to the PSTN failover number, in the remote cluster you must set up AAR and create route patterns that route the PSTN failover digits to a PSTN gateway.

PSTN Failover

When Global Dial Plan Replication is enabled, ILS can be configured to replicate a PSTN failover rule for learned directory URIs, learned numbers, and learned patterns. If the dial string for an outgoing call matches a learned pattern, learned alternate number, or learned directory URI, and Cisco Unified Communications Manager is unable to route the call over a SIP trunk, Cisco Unified Communications Manager uses the calling party's AAR CSS to reroute the call to the associated PSTN failover number.

Cisco Unified Communications Manager uses the PSTN failover to reroute calls only for calls placed to patterns, alternate numbers, or directory URIs that were learned through ILS. Cisco Unified Communications Manager does not reroute calls to the PSTN failover number for calls that are placed to locally configured patterns, alternate numbers, and directory URIs.

You can use two different methods to assign a PSTN failover rule:

- In the **Advertised Pattern Configuration** window, you can assign PSTN failover Strip Digits and Prepend Digits instructions for an ILA-advertised pattern that summarizes a range of alternate numbers. ILS advertises the pattern and PSTN failover instructions to remote clusters in the ILS network.
- In the **Directory Number Configuration** window, you can configure an alternate number as the PSTN failover for all ILS-advertised alternate numbers and directory URIs that associate to that directory number.

PSTN Failover for Advertised Pattern Example

Company ABC has clusters in New York and Los Angeles in an ILS network and advertises an enterprise alternate number pattern of 8XXXX to represent the range of New York extensions. The pattern includes PSTN failover instructions to strip the first digit and prepend +1718555 to the dial string.

If a Los Angeles employee dials 86301 to reach a New York employee and Cisco Unified Communications Manager is unable to route the call over a SIP trunk, the call is rerouted to a PSTN gateway with +17185556301 as the dial string.

PSTN Failover for Directory URI Example

At Company ABC, Alice's Los Angeles extension is 2100. Alice also has an enterprise alternate number of 72100, a +E.164 alternate number of +13105552100, and a directory URI of alice@abc.com, all of which are associated to her extension. Alice's +E.164 alternate number is configured as the PSTN failover.

If a New York employee dials alice@abc.com and Cisco Unified Communications Manager is unable to route the call over a SIP trunk, Cisco Unified Communications Manager reroutes the call to the PSTN failover of +13105552100 and sends the call to a PSTN gateway.



Note

For the PSTN failover to be used by remote clusters, you must set up Automated Alternate Routing in your remote clusters and create route patterns that route the PSTN failover number to a PSTN gateway.

Set Up PSTN Failover for Directory URIs and Alternate Numbers

This procedure describes how to assign a PSTN failover number for directory URIs or alternate numbers and advertise that PSTN failover number to the ILS network. Remote clusters can use the PSTN failover number for calls to learned directory URIs or learned alternate numbers.

**Note**

For alternate numbers, you can also assign a PSTN failover rule to an advertised pattern that summarizes a range of alternate numbers. To assign a PSTN failover rule to an advertised pattern, see [Set Up an Advertised Pattern for Alternate Numbers, on page 7](#).

Procedure

- Step 1** In Cisco Unified Communications Manager Administration, choose **Call Routing > Directory Number**.
- Step 2** Find and select the directory number that is associated to the directory URI or alternate number for which you want to assign a PSTN failover number.
- Step 3** If the alternate number that you want to use as the PSTN failover does not exist, create either an enterprise alternate number or a +E.164 alternate number for the directory number.
- Step 4** In the PSTN Failover drop-down list box, choose the alternate number that you want to use as the PSTN failover.
- Step 5** Click **Save**.

Cisco Unified Communications Manager associates that PSTN failover number to that directory number. Global Dial Plan Replication advertises that number to the ILS network as the PSTN failover number for all the directory URIs and alternate numbers that are associated to that directory number.

What to do next

In order for a remote cluster to route calls to the PSTN failover number, you must set up the AAR CSS and configure route patterns in the remote cluster that route the PSTN failover number to a PSTN gateway.

Route Strings

To configure Global Dial Plan Replication, you must assign a distinct route string for each cluster in the ILS network. Route String must contain only alphanumeric characters (A-Z,a-z,0-9), dots (.) or dashes (-), not more than 64 characters in length. Although route strings are used with domain-based routing, route strings do not have to match a specific domain—you can assign whatever route strings you want.

When you assign a route string to a cluster, ILS associates that route string to all the global dial plan data that is local to that cluster (including locally configured directory URIs, alternate numbers, advertised patterns, and PSTN failover information). If Global Dial Plan Replication is enabled, ILS advertises the local route string and the rest of the global dial plan data to the ILS network.

To configure remote Cisco Unified Communications Manager clusters to route to the route string, for each cluster in the ILS network, you must configure SIP route patterns that match the route strings in the ILS

network and route calls that are destined for those route strings to SIP trunks that lead to the next-hop clusters in your ILS network.

When a user in a remote cluster dials a directory URI or alternate number that was learned through ILS, Cisco Unified Communications Manager matches the associated route string to a SIP route pattern, and routes the call to the trunk that is specified by the SIP route pattern.

You can assign a route string to the local cluster in the ILS Configuration window.

Route String Example

Company ABC has an ILS network with clusters in San Jose and Paris. ABC assigns *ABC.SanJose.USA* and *ABC.Paris.France* as route strings. In the San Jose cluster, ABC configures a domain-based SIP route pattern that routes calls that are destined for *ABC.Paris.France* to an outbound trunk that leads to the Paris cluster. When a user in San Jose dials an alternate number or directory that was configured in Paris, Cisco Unified Communications Manager matches the alternate number to the Paris route string and sends the call to the outbound trunk that is specified by the SIP route pattern.

Learned Global Dial Plan Data

Global dial plan data that Cisco Unified Communications Manager learns through ILS is stored in the local database. In addition to replicating locally configured data, ILS also replicates learned global dial plan data to the rest of the ILS network so that all data that is learned by one cluster is learned by all clusters in the ILS network.



Note Cisco Unified Communications Manager pauses the recording of learned ILS patterns until replication of the cluster is successfully established.

In Cisco Unified CM Administration, you can view the following types of learned global dial plan data:

Learned Alternate Numbers

To display a list of all the alternate enterprise and +E.164 numbers that Cisco Unified Communications Manager learned through ILS, in Cisco Unified CM Administration, choose **Call Routing > Global Dial Plan Replication > Learned Numbers** and click **Find**.

Learned Enterprise and +E.164 Patterns

To display a list of all the enterprise and +E.164 number patterns that Cisco Unified Communications Manager learned through ILS, in Cisco Unified CM Administration, choose **Call Routing > Global Dial Plan Replication > Learned Patterns** and click **Find**.

Learned Directory URIs

To display a list of all the directory URIs that Cisco Unified Communications Manager learned through ILS, in Cisco Unified CM Administration, choose **Call Routing > Global Dial Plan Replication > Learned Directory URIs** and click **Find**.

For any learned alternate number, learned pattern, or learned directory URI, you can click the number, pattern, or directory URI to open that item in the Learned Object window, where you can view additional details, such as the PSTN failover number.

Partitions for Learned Patterns Settings

In Cisco Unified CM Administration, use the **Call Routing > Global Dial Plan Replication > Partitions for Learned Patterns** menu path to assign route partitions to the alternate numbers and patterns that Cisco Unified Communications Manager learns through the Global Dial Plan Replication feature with ILS.

You must assign learned numbers and learned patterns to a partition. You cannot assign a learned number or learned pattern to a NULL partition. You can define your own partitions or use the predefined default partitions. Cisco Unified Communications Manager comes installed with the following predefined partitions for learned alternate numbers and number patterns:

- Global Learned Enterprise Numbers
- Global Learned E.164 Numbers
- Global Learned Enterprise Patterns
- Global Learned E.164 Patterns

The following table describes the field settings for the **Partitions for Learned Alternate Numbers and Patterns Configuration** window.

Table 1: Partitions for Learned Patterns Settings

Field	Description
Associated Partitions for Learned Alternate Numbers and Patterns	
Partition for Enterprise Alternate Numbers	<p>From the drop-down list box, choose a partition on which to apply enterprise alternate numbers that Cisco Unified Communications Manager learns from remote clusters in the ILS network.</p> <p>If the dial plan contains overlapping route patterns, by default, Cisco Unified Communications Manager does not route the call until the interdigit timer expires (even if a possible route exists for the dialed digits). This setting guards against learned numbers that overlap with statically configured directory numbers and number patterns by allowing Cisco Unified Communications Manager to choose the best match of all available routes for the dial string.</p> <p>Check the Mark Learned Number as Urgent Priority check box to configure Cisco Unified Communications Manager to route the call after it finds a match between the dialed digits and an available route, without waiting for the interdigit timer to expire (for example, the T302 Timer service parameter).</p>

Partitions for Learned Patterns Settings

Field	Description
Partition for +E.164 Alternate Numbers	<p>From the drop-down list box, choose a partition on which to apply +E.164 alternate numbers that Cisco Unified Communications Manager learns from remote clusters in the ILS network.</p> <p>If the dial plan contains overlapping route patterns, by default, Cisco Unified Communications Manager does not route the call until the interdigit timer expires (even if a possible route exists for the dialed digits). This setting guards against learned numbers that overlap with statically configured directory numbers and number patterns by allowing Cisco Unified Communications Manager to choose the best match of all available routes for the dial string.</p> <p>Check the Mark Learned Number as Urgent Priority check box to configure Cisco Unified Communications Manager to route the call after it finds a match between the dialed digits and an available route, without waiting for the interdigit timer to expire (for example, the T302 Timer service parameter).</p>
Partition for Enterprise Patterns	<p>From the drop-down list box, choose a partition on which to apply enterprise alternate number patterns that are learned from remote clusters in the ILS network.</p> <p>If the dial plan contains overlapping route patterns, by default, Cisco Unified Communications Manager waits for the interdigit timeout (for example, the T302 Timer service parameter) to expire before attempting to route calls (even if a match exists). This setting guards against learned patterns that overlap with statically configured directory numbers and patterns by allowing Cisco Unified Communications Manager to choose the best match of all available routes for the dial string.</p> <p>To configure Cisco Unified Communications Manager to ignore the interdigit timeout and route the call after it finds a possible route, check either or both of the following check boxes:</p> <ul style="list-style-type: none"> • Mark Fixed Length Patterns as Urgent—When this check box is checked, Cisco Unified Communications Manager immediately routes calls as soon it receives a match with an advertised pattern of fixed length. • Mark Variable Length Patterns as Urgent—When this check box is checked, Cisco Unified Communications Manager immediately routes calls as soon as it receives a match with an advertised pattern of variable length.

Field	Description
Partition for +E.164 Patterns	<p>From the drop-down list box, choose a partition on which to apply +E.164 alternate number patterns that are learned from remote clusters in the ILS network.</p> <p>If the dial plan contains overlapping route patterns, by default, Cisco Unified Communications Manager waits for the interdigit timeout (for example, the T302 Timer service parameter) to expire before attempting to route calls (even if a match exists). This setting guards against learned patterns that overlap with statically configured directory numbers and patterns by allowing Cisco Unified Communications Manager to choose the best match of all available routes for the dial string.</p> <p>To configure Cisco Unified Communications Manager to ignore the interdigit timeout and route the call after it finds a possible route, check either or both of the following check boxes:</p> <ul style="list-style-type: none"> • Mark Fixed Length Patterns as Urgent—When this check box is checked, Cisco Unified Communications Manager immediately routes calls as soon as it receives a match with an advertised pattern of fixed length. • Mark Variable Length Patterns as Urgent—When this check box is checked, Cisco Unified Communications Manager immediately routes calls as soon as it receives a match with an advertised pattern of variable length.

Block a Learned Pattern

If you want to prevent a local Cisco Unified Communications Manager cluster from routing calls to a learned alternate number or learned alternate number pattern, you can configure a local blocking rule on that cluster. Before routing a call to a learned number or learned pattern, ILS checks to see if a local blocking rule matches the dial string. If the blocking rule matches, Cisco Unified Communications Manager does not route the call.

Some additional characteristics of blocking rules:

- Blocking rules are applied only on the local cluster on which you configure them—ILS does not advertise blocking rules.
- Blocking rules are applied only to learned alternate numbers and learned patterns—Cisco Unified Communications Manager does not apply blocking rules to locally configured numbers or route patterns.

To set up a blocking rule for a learned alternate number or learned alternate number pattern, perform the following steps:

Procedure

-
- | | |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Step 1 | In Cisco Unified Communications Manager Administration, choose Call Routing > Global Dial Plan Replication > Block Learned Numbers and Patterns . |
| Step 2 | Enter a description for the blocking rule. |
| Step 3 | In the Blocked Pattern section, complete the fields that you want to use as conditions for the blocking rule. If you do not want to use a specific field as a blocking condition, you can leave that field blank. For example: <ul style="list-style-type: none"> • If you want to block all calls to ABC_cluster1 regardless of the other call parameters, enter ABC_cluster1 in the Cluster ID field, click the Any radio button, and leave the remaining fields empty. |

Blocked Learned Patterns Settings

- If you want to block all +E.164 calls to Cluster_3 that use a prefix of 683, enter “Cluster_3” in the Cluster ID field, enter “683” in the Prefix field, click the **+E.164 Pattern** radio button, and leave the remaining fields empty.
- If you want to block a specific enterprise pattern, enter the pattern in the Pattern field and click the **Enterprise Pattern** radio button.

- Step 4** In the Pattern type field, choose whether you want to apply the blocking rule to Enterprise patterns, +E.164 patterns, or both.
- Step 5** Click **Save**.
-

Blocked Learned Patterns Settings

In Cisco Unified CM Administration, use the **Call Routing > Global Dial Plan Replication > Block Learned Numbers and Patterns** menu path to create blocking rules that prevent the local cluster from routing calls to specific enterprise and +E.164 alternate numbers or number patterns that were learned through the Intercluster Lookup Service (ILS).

The following table describes the field settings for the **Blocked Learned Pattern** window. In the Blocked Pattern section, complete only the fields that you want to use that are relevant as blocking conditions.

Field	Field Description
Description	
Description	In the text box, enter a description of the number or pattern that you want to block.
Blocked Pattern	
Pattern	<p>If you want to use a number pattern to identify the calls that you want to block, in this text box, enter the number pattern, including numbers and wildcards (do not use spaces). For example, a number pattern of 206XXXXXXX could be used to block calls that are placed to either 2065551212 or 2063331234.</p> <p>If you do not want to use a number pattern as part of your blocking rule, leave this field empty.</p> <p>If your blocking number pattern has a fewer matching digits than the ILS-learned number pattern, Cisco Unified Communications Manager will still route the call. For example, if you have a call placed to 2065551212 for which there is an ILS-advertised matching number pattern of 206555XXXX as well as a blocked pattern of 206XXXXXXX, the call will still be routed, because the matching pattern has more matching digits than the blocking pattern.</p>
Prefix	<p>If you want to block patterns based on the dial string prefix, enter the prefix digits for which you want Cisco Unified Communications Manager to block calls.</p> <p>If you do not want to use a prefix as part of your blocking rule, leave this field empty.</p>

Field	Field Description
Cluster ID	If you want to block all calls from being sent to a specific cluster, enter the cluster ID for the remote cluster that you want to block calls from reaching. Otherwise, leave this field empty.
Pattern Type	Choose one of the following three options depending on the number pattern type to which you want to apply the blocking rule: <ul style="list-style-type: none"> • Any—Choose this option if the blocking rule applies to both enterprise number patterns and +E.164 patterns. • Enterprise Pattern—Choose this option if the blocking rule applies to enterprise number patterns only. • +E.164 Pattern—Choose this option if the blocking rule applies to +E.164 number patterns only.

About Imported Global Dial Plan Data

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.

You can import directory URIs, +E.164 patterns, and associated PSTN failover rules into Cisco Unified Communications Manager. You can view the global dial plan data that has been imported into the local cluster by doing the following:

- Imported Directory URIs—To view a list of directory URIs and associated PSTN failover numbers that have been imported into the local cluster, choose **Call Routing > Global Dial Plan Replication > Imported Directory URIs** and click the **Find** button.
- Imported Patterns—To view a list of +E.164 patterns and PSTN failover rules that have been imported into the local cluster, choose **Call Routing > Global Dial Plan Replication > Imported Patterns** and click the **Find** button.



Note Imported data includes only global dial plan data that is imported manually into Cisco Unified Communications Manager. Imported global dial plan data does not include data that was learned through ILS.

Imported Global Dial Plan Catalog Settings

In Cisco Unified CM Administration, use the **Call Routing > Global Dial Plan Replication > Imported Global Dial Plan Catalog** path to import manually directory URIs, +E.164 patterns and PSTN failover rules from a CSV file for a call control system that is not running ILS, such as a Cisco TelePresence Video Communication Server or a third-party call control system.

Import Directory URIs and Patterns From a Non-ILS System

Configure the settings on the **Imported Global Dial Plan Catalog** window to create an empty catalog with a route string for the remote call control system. After you configure the settings, you must use Bulk Administration to insert directory URIs and patterns from the CSV file into the newly created catalog.



Note The local cluster must be part of an existing ILS network. For more information about ILS networks, see the “Intercluster Lookup Service” chapter of the *Cisco Unified Communications Manager Features and Services Guide*.

The following table contains field descriptions for the Imported Global Dial Plan Catalog window.

Field	Description
Name	Enter a unique name to identify the catalog that you want to import.
Description	Enter a description for the catalog that you want to import.
Route String	<p>Enter a route string for the remote call control system. Route strings can be up to 250 alphanumeric characters long and can include dots and dashes.</p> <p>Cisco Unified Communications Manager uses route strings in conjunction with SIP route patterns to route calls to directory URIs that are configured in remote clusters. When a call from the local cluster is placed to a directory URI in this remote catalog, Cisco Unified Communications Manager matches the directory URI with the route string and then uses a SIP route pattern to match that route string to an outbound trunk that routes to that directory URI.</p> <p>Note After you create the route string, create a SIP route pattern that routes this route string to an outbound trunk. See the SIP route pattern setup chapter of the <i>Cisco Unified Communications Manager Administration Guide</i> for more information about SIP route patterns.</p>

Import Directory URIs and Patterns From a Non-ILS System

Follow this procedure if you are running the Intercluster Lookup Service (ILS) on your local cluster and you want to import a global dial plan catalog, including directory URIs, +E.164 number patterns, or PSTN failover rules from a CSV file for a call control system that is not running ILS, such as a Cisco TelePresence Video Communication Server (VCS) or a third-party call control system.

To perform this procedure, the Cisco Bulk Provisioning Service must be running on the local cluster, which must be configured as a hub cluster in an ILS network. After you import the catalog into Cisco Unified Communications Manager, ILS replicates the imported catalog to the other clusters in the ILS network.



Note Make sure that the CSV file that you use for the import is compatible with your 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). To view a sample CSV file for your release, in Cisco Unified CM Administration, choose **Bulk Administration > Directory URIs and Patterns > Insert Directory URIs and Patterns** and click **View Sample File**.

**Note**

Within Cisco Unified CM Administration, you can enter directory URIs with embedded double quotation marks or commas. However, when you use Bulk Administration to import a CSV file that contains directory URIs with embedded double quotation marks and commas, you must enclose the entire directory URI in double quotation marks and escape the embedded double quotation marks with a double quotation mark. For example, a directory URI of Jared, "Jerry",Smith@test.com must be input as "Jared", "“Jerry”", "Smith@test.com" in the CSV file.

Procedure

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

Step 2 In the **Name** field, enter a name for the catalog.

Step 3 In the **Description** field, enter a description of the catalog.

Step 4 In the **Route String** field, create a route string for the system from which you are importing the catalog.

Step 5 Click **Save**.

Step 6 In Cisco Unified CM Administration, choose **Bulk Administration > Upload/Download Files**.

Step 7 Click **Add New**.

Step 8 Click **Browse** and select the CSV file for the catalog that you want to import.

Step 9 In the **Select the Target** drop-down list box, choose **Imported Directory URIs and Patterns**.

Step 10 In the **Select Transaction Type** drop-down list box, choose **Insert Imported Directory URIs and Patterns**.

Step 11 Click **Save**.

Step 12 In Cisco Unified CM Administration, choose **Bulk Administration > Directory URIs and Patterns > Insert Imported Directory URIs and Patterns**.

Step 13 In the **File Name** drop-down list box, choose the CSV file that contains the catalog that you want to import.

Step 14 In the **Imported Directory URI Catalog** drop-down list box, choose the catalog that you named in the Imported Global Dial Plan Catalog window.

Step 15 In the **Job Description** text box, enter a name for the job that you are about to run.

Step 16 Select when you want to run the job.

- If you want to run the job now, click the **Run Immediately** radio button, and click **Submit**.
- If you want to schedule the job to run at a specified time, check the **Run Later** radio button and click **Submit**. If you choose this option, you must use the Bulk Administration Job Scheduler to schedule when the job runs.

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

Import Directory URLs and Patterns From a Non-ILS System