



## Configure Hunt Pilots

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### Hunt Pilot Overview

A hunt pilot comprises a number or pattern and a set of associated digit manipulations that can route calls to a group of phones or directory numbers in a line group.

Hunt pilots work in conjunction with hunt lists, which are prioritized lists of eligible paths (line groups) for incoming calls. When a call is placed to a hunt pilot DN, the system offers the call to the first line group specified in the hunt list. If no one in the first line group answers the call, the system offers the call to the next line group specified in the hunt list. Line groups control the order in which the call is distributed to phones within the group. They point to specific extensions, which are typically IP phone extensions or voicemail ports. Line groups cannot point to Computer Telephony Integration (CTI) ports and CTI route points, so you cannot use hunt pilots to distribute calls to endpoints that are controlled through CTI applications such as Cisco Customer Response Solution (CRS) or IP Interactive Voice Response (IP IVR).

A hunt pilot can distribute calls to any of its assigned line groups, even if the line groups and the hunt pilot reside in different partitions. A call distributed by the hunt pilot overrides all the partitions and calling search space restrictions.

### Hunt Pilot Configuration Task Flow

Complete these tasks to configure hunt pilots for your system. Hunt pilots can be used to route calls to a group of phones or directory numbers in a line group.

#### Procedure

	Command or Action	Purpose
Step 1	<a href="#">Configure Line Groups, on page 2</a>	Create a line group to enable multiple phones to answer calls that are directed to a single directory number (DN).

	Command or Action	Purpose
<b>Step 2</b>	<a href="#">Configure Hunt Lists, on page 2</a>	Configure a hunt list with a prioritized order of line groups.
<b>Step 3</b>	<a href="#">Configure Hunt Pilots, on page 3</a>	Configure a hunt pilot number or pattern that the system uses to direct calls to a hunt list.

## Configure Line Groups

Line groups let multiple phones answer calls that are directed to a single directory number. The Distribution Algorithm controls the order in which an incoming call gets distributed to the phones in the group.

### Procedure

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- Step 1** From Cisco Unified CM Administration, choose **Call Routing > Route/Hunt > Line Group**.
- Step 2** Choose one of the following options:
- Click **Add New** to create a new line group.
  - Click **Find** and select an existing line group.
- Step 3** Enter a **Line Group Name**.
- Step 4** From the **Distribution Algorithm** field, select the type of algorithm that you want to use to distribute calls.
- Step 5** Configure the fields in the **Line Group Members to Add to Line Group** section to add directory numbers to the line group:
- a) Select a **Partition** where the directory numbers that you want to add reside.
  - b) Optional. Filter the search by completing the **Directory Number Contains** field.
  - c) Click **Find**. The list of Directory Numbers from the Partition appears in the box
  - d) In the **Available DN/Route Partition** list box, select each directory number that you want to add to the group and click **Add to Line Group**.
- Step 6** Configure the remaining fields in the **Line Group Configuration** window. See the online help for more information about the fields and their configuration options.
- Step 7** Click **Save**.
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## Configure Hunt Lists

A hunt list is a prioritized list of line groups. When the system routes a call through a hunt list, it uses the line groups in the order that you define in the hunt list.

### Procedure

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- Step 1** From Cisco Unified CM Administration, choose **Call Routing > Route/Hunt > Hunt List**.
- Step 2** Choose one of the following options:
- Click **Add New** to create a new list.

- Click **Find** and select an existing list.

- Step 3** Enter the **Name** for the Hunt List.
- Step 4** Select a **Cisco Unified Communications Manager Group** to which you want to register the Hunt List.
- Step 5** Check the **Enable this Hunt List** check box to enable the hunt list immediately when you click Save.
- Step 6** Check the **For Voice Mail Usage** check box if the hunt list is for voice mail.
- Step 7** Click **Save**.
- Step 8** Add line groups to your hunt list:
- a) Click **Add Line Group**.
  - b) From the **Line Group** drop-down, select a line group to add to the hunt list.
  - c) Click **Save**.
  - d) Repeat these steps to add additional line groups.
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## Configure Hunt Pilots

Configure a hunt pilot number or pattern that the system uses to route calls to a line group.



**Note** For information about wildcards and special characters that you can use for the hunt pilot, see [Wildcards and Special Characters in Hunt Pilots, on page 4](#).

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### Procedure

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- Step 1** From Cisco Unified CM Administration, choose **Call Routing > Route/Hunt > Hunt Pilot**.
- Step 2** Choose one of the following options:
- Click **Add New** to create a new hunt pilot.
  - Click **Find** and select an existing hunt pilot.
- Step 3** In the **Hunt Pilot** field, enter the number or pattern that you want to use to route calls.
- Step 4** From the **Hunt List** drop-down, select the hunt list to which you want to direct calls that match the hunt pilot number.
- Step 5** Complete the remaining fields in the **Hunt Pilot Configuration** window. For help with the fields and their settings, see the online help.
- Step 6** If you want to enable Call Queuing, check the **Queue Calls** check box and configure the fields in the **Queuing** section.
- Step 7** Assign any digit transformation patterns that you want to apply to calling, connected or called parties.
- Step 8** Click **Save**.
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## Wildcards and Special Characters in Hunt Pilots

Wildcards and special characters in hunt pilots allow a hunt pilot to match a range of numbers (addresses). Use these wildcards and special characters also to build instructions that enable the Cisco Unified Communications Manager to manipulate a number before sending it to an adjacent system.

The following table describes the wildcards and special characters that Cisco Unified Communications Manager supports.

**Table 1: Wildcards and Special Characters**

Character	Description	Examples
@	The at symbol (@) wildcard matches all National Numbering Plan numbers.  Each route pattern can have only one @ wildcard.	The route pattern 9.@ routes or blocks all numbers that the National Numbering Plan recognizes.  The following route patterns examples show National Numbering Plan numbers that the @ wildcard encompasses: <ul style="list-style-type: none"> <li>• 0</li> <li>• 1411</li> <li>• 19725551234</li> <li>• 101028819725551234</li> <li>• 01133123456789</li> </ul>
X	The X wildcard matches any single digit in the range 0 through 9.	The route pattern 9XXX routes or blocks all numbers in the range 9000 through 9999.
!	The exclamation point (!) wildcard matches one or more digits in the range 0 through 9.	The route pattern 91! routes or blocks all numbers in the range 910 through 91999999999999999999.
?	The question mark (?) wildcard matches zero or more occurrences of the preceding digit or wildcard value.  <b>Note</b> If the question mark (??) wildcard is used, the second question mark does not match the empty input. Example router pattern: *33X?*X?*X?#	The route pattern 91X? routes or blocks all numbers in the range 91 through 91999999999999999999.
+	The plus sign (+) wildcard matches one or more occurrences of the preceding digit or wildcard value.	The route pattern 91X+ routes or blocks all numbers in the range 910 through 91999999999999999999.

Character	Description	Examples
[ ]	The square bracket ([ ]) characters enclose a range of values.	The route pattern 813510[012345] routes or blocks all numbers in the range 8135100 through 8135105.
-	The hyphen (-) character, used with the square brackets, denotes a range of values.	The route pattern 813510[0-5] routes or blocks all numbers in the range 8135100 through 8135105.
^	The circumflex (^) character, used with the square brackets, negates a range of values. Ensure that it is the first character following the opening bracket ([).  Each route pattern can have only one ^ character.	The route pattern 813510[^0-5] routes or blocks all numbers in the range 8135106 through 8135109.
.	The dot (.) character, used as a delimiter, separates the Cisco Unified Communications Manager access code from the directory number.  Use this special character, with the discard digits instructions, to strip off the Cisco Unified Communications Manager access code before sending the number to an adjacent system.  Each route pattern can have only one dot (.) character.	The route pattern 9.@ identifies the initial 9 as the Cisco Unified Communications Manager access code in a National Numbering Plan call.
*	The asterisk (*) character can provide an extra digit for special dialed numbers.	You can configure the route pattern *411 to provide access to the internal operator for directory assistance.
#	The octothorpe (#) character generally identifies the end of the dialing sequence.  Ensure the # character is the last character in the pattern.	The route pattern 901181910555# routes or blocks an international number that is dialed from within the National Numbering Plan. The # character after the last 5 identifies this digit as the last digit in the sequence.
\+	A plus sign preceded by a backslash, that is, \+, indicates that you want to configure the international escape character +.	Using \+ means that the international escape character + is used as a dialable digit, not as a wildcard.

## Performance and Scalability for Hunt Pilots

The following performance and scalability restrictions apply:

- A single Unified CM Cluster supports a maximum of 15,000 hunt list devices.

- A single Unified CM Subscriber supports a maximum of 100 hunt pilots with call queuing enabled per node
- Hunt list devices may be a combination of 1500 hunt lists with ten IP phones in each hunt list, 750 hunt lists with twenty IP phones in each hunt list, or similar combinations




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**Note** When using the broadcast algorithm for call coverage, the number of hunt list devices is limited by the number of busy hour call attempts (BHCA). Note that a BHCA of 10 on a hunt pilot pointing to a hunt list or hunt group containing 10 phones and using the broadcast algorithm is equivalent to 10 phones with a BHCA of 10.

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- The maximum number of hunt pilots is 100 per Unified CM subscriber node with call queue enabled when configured with 32 callers which is allowed in the queue. The total number of queue slots per node (the value of "Maximum Number of Callers Allowed in Queue" for all Call Queuing Enabled Hunt Pilots on the node combined) is limited to 3200. The maximum number of simultaneous callers in a queue for each hunt pilot is 100, meaning 100 callers per hunt pilot is allowed in a queue and the maximum number of hunt pilots is reduced to 32. The maximum number of members across all hunt lists does not change when call queuing is enabled.
- The maximum wait time in queue for each hunt pilot that you can configure ranges from 0 to 3600 seconds (default 900). An increase in the number of hunt lists can require you to increase the dial plan initialization timer that is specified in the Unified Communications Manager service parameters. We recommend that you set the dial plan initialization timer to 600 seconds if you have 1500 hunt lists configured.
- We recommend having no more than 35 directory numbers for a single line group when using broadcast algorithms with call queuing. Additionally, the number of broadcast line groups depends on the busy hour call completion rate (BHCC). If there are multiple broadcast line groups in a Unified CM system, the number of maximum directory numbers in a line group must be less than 35. The number of busy hour call attempts (BHCA) for all the broadcast line groups should not exceed 35 calls set up per second.

## Hunt Pilot Interactions and Restrictions

Feature	Interactions and Restrictions
Single Number Reach with Hunt Groups	<p>If you have a hunt group configured and one or more of the directory numbers that the hunt group points toward also has Single Number Reach (SNR) enabled, the call does not extend to the SNR remote destinations unless all devices in the hunt group are logged in.</p> <p>For each device within the hunt group, the <b>Logged Into Hunt Group</b> check box must be checked within the <b>Phone Configuration</b> window for that device.</p>

Feature	Interactions and Restrictions
Call Queuing	<p>Call Queuing is a subfeature of hunt pilots. When call queuing is enabled and the incoming call requirement to a particular hunt pilot exceeds the number of hunt members whom are available to answer a call, the system queues incoming calls until a hunt member is available to answer them. You can configure announcements and music on hold to play to callers while they are waiting.</p> <p>For additional configuration details, see the 'Configure Call Queuing' chapter of the <a href="#">Feature Configuration Guide for Cisco Unified Communications Manager</a>.</p>
Unified Mobility	We don't recommend configuring Unified Mobility devices in Hunt pilot.

## Calls Not Being Distributed

*Table 2: Calls are not being distributed with circular algorithm*

Restriction	Description
Calls are not being distributed correctly in Circular algorithm for a line group with BOT and TCT devices.	When a call is extended to an agent who is in a logged off state and the call is rejected with a different reject type other than the " <b>Huntlogout</b> " type. Then the index will not get incremented and the call will go to the same agent who had answered the previous call.
Calls are not distributed correctly in Circular algorithm for a line group.	<p>While distributing the calls in a circular algorithm, when an agent is busy, the call is extended to the next available agent (i.e. the next agent will answer the call on behalf of the busy agent).</p> <p><b>Note</b> In the case of multiple calls at the same time, the next available agent answers the call.</p>

