CHAPTER 32

Route Filter Configuration

Route filters, along with route patterns/hunt pilots, use dialed-digit strings to determine how a call is handled. Route filters only apply when you configure a pattern that contains the at (@) wildcard. When the route pattern/hunt pilot contains the @ wildcard, Cisco CallManager routes calls according to the numbering plan that is specified in the Numbering Plan drop-down list box. The route filter window that Cisco CallManager displays varies according to the numbering plan that you select.

Route filters allow you to determine which route patterns/hunt pilots your users can dial; for example, whether your users can manually choose a long-distance carrier (by dialing 101 plus a carrier access code).

Refer to "Understanding Route Plans" in the *Cisco CallManager System Guide* for more information.

Tip Always add and define the route filter first and then add the route filter to the route pattern/hunt pilot.

Use the following topics to add, update, copy, or delete a route filter:

Finding a Route Filter

Because you might have several route filters in your network, Cisco CallManager lets you locate specific route filters on the basis of specific criteria. Use the following procedure to locate route filters.

Note During your work in a browser session, Cisco CallManager Administration retains your route filter search preferences. If you navigate to other menu items and return to this menu item, Cisco CallManager Administration retains your route filter search preferences until you modify your search or close the browser.

Procedure

Step 1 Choose **Call Routing > Route Filter**.

The Find and List Route Filters window displays.

Step 2 From the drop-down list box, choose one of the following criteria:

- begins with
- contains
- is exactly
- ends with
- is empty
- is not empty

Step 3 Specify the appropriate search text, if applicable, and click **Find**. You can also specify how many items per page to display.

Note To find all route filters that are registered in the database, click **Find** without entering any search text.

A list of discovered route filters displays by

- Name
- Numbering Plan
- Clause

Note You can delete multiple route filters from the Find and List Route Filters window by checking the check boxes next to the appropriate route filters and clicking **Delete Selected**. You can choose all the route filters in the window by clicking **Select All** and clicking **Delete Selected**.

Step 4 From the list of records, click the route filter that matches your search criteria.

The window displays the route filter that you choose.

Additional Information

See the "Related Topics" section on page 32-9.

Configuring a Route Filter

The following procedure describes how to configure a route filter.

Procedure

Step 1 From Cisco CallManager Administration, choose **Call Routing > Route Filter**.

Step 2 Perform one of the following tasks:

- To copy an existing route filter, locate the appropriate route filter as described in the "Finding a Route Filter" section on page 32-1, click the **Copy** button next to the route filter that you want to copy, and continue with Step 3.
- To add a new route filter, click the **Add New** button and continue with Step 3.
- To update an existing route filter, locate the appropriate route filter as described in the "Finding a Route Filter" section on page 32-1, and continue with Step 3.

Step 3 In the Route Filter Configuration window that displays, enter the appropriate settings as described in Table 32-1.

Step 4 Click **Next**.

Step 5 Choose the route filter tags and operators and enter data, where appropriate, to create a clause for this route filter.

Note For help with entering data for route filter tags and operators, see the "Route Filter Tag Descriptions" section on page 32-6.

Step 6 Click **Save** to add the route filter.

Step 7 If you are updating a route filter, click **Reset Devices**. Resetting the devices that are associated with the route filter causes calls on affected gateways to drop.

Additional Information

See the "Related Topics" section on page 32-9.

Route Filter Configuration Settings

Table 32-1 describes the route filter configuration settings.

Table 32-1 Route Filter Configuration Settings

Field	Description
Numbering Plan	From the drop-down list, choose a dial plan; for example, North American Numbering Plan.
Route Filter Name	Enter a name in the Route Filter Name field. The name can contain up to 50 alphanumeric characters and can contain any combination of spaces, periods (.), hyphens (-), and underscore characters (_). Ensure each route filter name is unique to the route plan. **Note** Use concise and descriptive names for your route filters. The CompanynameLocationCalltype format usually provides a sufficient level of detail and is short enough to enable you to quickly and easily identify a route filter. For example, CiscoDallasMetro identifies a route filter for tollfree, inter-local access and transport area (LATA) calls from the Cisco office in Dallas.

Additional Information

See the "Related Topics" section on page 32-9.

Adding Route Filter Clauses

Adding route filter clauses allows you to expand upon an existing route filter by incorporating additional operators and entries for existing tags by using a logical OR. You can add route filter clauses either when initially adding a new route filter or when updating an existing route filter. This procedure describes adding a route filter clause to an existing route filter.

Procedure

Step 1 From Cisco CallManager Administration, choose **Call Routing > Route Filter**.

Step 2 Locate the route filter to which you want to add route filter clauses. See the "Finding a Route Filter" section on page 32-1.

Step 3 Click **Add Clause** to display a new Route Filter Clause Configuration data entry window. All the operator fields for this new clause display NOT-SELECTED.

Step 4 Choose the route filter tags and operators and enter data, where appropriate, to create an additional clause for this route filter.

Note For help with entering data for route filter tags and operators for the North American Numbering Plan, see the "Route Filter Tag Descriptions" section on page 32-6.

Step 5 To add the clause, click **Save and Close**.

The new clause displays below the existing clauses in the window. (Scroll down, if necessary, to view the new information.)

Step 6 Click **Save** to add the new route filter clauses to the route filter.

Additional Information

See the "Related Topics" section on page 32-9.

Removing Route Filter Clauses

You can remove route filter clauses either when setting up a new route filter or when updating an existing route filter. This procedure describes removing a route filter clause from an existing route filter.

Procedure

Step 1 From Cisco CallManager Administration, choose **Call Routing > Route Filter**.

Step 2 Locate the route filter from which you want to remove route filter clauses.

Step 3 Scroll down to the top of the clause that you want to remove and click **Remove Clause**.

A dialog box appears that warns you that you cannot undo the removal of this route filter clause.

Caution Each **Remove Clause** button applies to the clause immediately below the button. Check carefully to ensure that you are removing the correct clause before initiating this action. If you accidentally remove a clause, you cannot retrieve it, and you must rebuild it.

Step 4 To remove the clause, click **OK** or to cancel the action, click **Cancel**. If you click **OK**, Cisco CallManager removes the clause from the route filter.

Additional Information

See the "Related Topics" section on page 32-9.

Deleting a Route Filter

The following procedure describes how to delete a route filter.

Before You Begin

You cannot delete a route filter that route patterns/hunt pilots, translation patterns, or other items use. To find out which route patterns/hunt pilots, translation patterns, or other items are using the route filter, in the Route Filter Configuration window, choose **Dependency Records** from the Related Links drop-down list box and click **Go**. If the dependency records are not enabled for the system, the Dependency Records Summary window displays a message. For more information about dependency

records, see the "Accessing Dependency Records" section on page A-2. If you try to delete a route filter that is in use, Cisco CallManager displays an error message. Before deleting a route filter that is currently in use, you must perform either or both of the following tasks:

- Assign a different route filter to any route patterns/hunt pilots, translation patterns, or other items that are using the route filter that you want to delete. See the "Configuring a Route Pattern" section on page 35-3 and the "Configuring a Translation Pattern" section on page 46-3.
- Delete the route patterns/hunt pilots, translation patterns, or other items that are using the route filter that you want to delete. See the "Deleting a Route Pattern" section on page 35-10 and the "Deleting a Translation Pattern" section on page 46-9.

Procedure

Step 1 From Cisco CallManager Administration, choose **Call Routing > Route Filter**.

Step 2 Locate the route filter that you want to delete. See the "Finding a Route Filter" section on page 32-1.

Step 3 Check the check box of the route filter that you want to delete and click **Delete Selected**.

A message displays that states that you cannot undo this action.

Caution Check carefully to ensure that you are deleting the correct route filter before initiating this action. You cannot retrieve deleted route filters. If a route filter is accidentally deleted, you must rebuild it.

Step 4 To delete the route filter, click **OK** or to cancel the deletion, click **Cancel**.

Tip You can also delete a route filter by locating and displaying the route filter that you want to delete and clicking **Delete**.

Additional Information

See the "Related Topics" section on page 32-9.

Route Filter Tag Descriptions

The tag serves as the core component of a route filter. A tag applies a name to a subset of the dialed-digit string. For example, the NANP number 972-555-1234 comprises LOCAL-AREA-CODE (972), OFFICE-CODE (555), and SUBSCRIBER (1234) route filter tags.

Route filter tags require operators and can require additional values to decide which calls are filtered.

The values for route filter tag fields can contain the wildcard characters X, *, #, [,], -, ^, and the numbers 0 through 9. (See Table 17-3 in the "Special Characters and Settings" section of the *Cisco CallManager System Guide* for definitions of wildcard characters.) The descriptions in Table 32-2 use the notations [2-9] and XXXX to represent actual digits. In this notation, [2-9] represents any single digit in the range 2 through 9, and X represents any single digit in the range 0 through 9. Therefore, the description "The three-digit area code in the form [2-9]XX" means that you can enter the actual digits 200 through 999, or all wildcards, or any mixture of actual digits and wildcards that results in a pattern with that range.

Route filter tags vary depending on the numbering plan that you choose from the Numbering Plan drop-down list box on the Route Filter Configuration window. Table 32-2 describes the route filter tags for the North American Numbering Plan.

Table 32-2 Route Filter Tags

Tag	Description
AREA-CODE	This three-digit area code in the form [2-9]XX identifies the area code for long-distance calls.
COUNTRY CODE	These one-, two-, or three-digit codes specify the destination country for international calls.
END-OF-DIALING	This single character identifies the end of the dialed-digit string. The # character serves as the end-of-dialing signal for international numbers that are dialed within the NANP.
INTERNATIONAL-ACCESS	This two-digit access code specifies international dialing. Calls that originate in the U.S. use 01 for this code.
INTERNATIONAL-DIRECT-DIAL	This one-digit code identifies a direct-dialed international call. Calls that originate in the U.S. use 1 for this code.
INTERNATIONAL-OPERATOR	This one-digit code identifies an operator-assisted international call. This code specifies 0 for calls that originate in the U.S.
LOCAL-AREA-CODE	This three-digit local area code in the form [2-9]XX identifies the local area code for 10-digit local calls.
LOCAL-DIRECT-DIAL	This one-digit code identifies a direct-dialed local call. NANP calls use 1 for this code.
LOCAL-OPERATOR	This one-digit code identifies an operator-assisted local call. NANP calls use 0 for this code.
LONG-DISTANCE-DIRECT-DIAL	This one-digit code identifies a direct-dialed, long-distance call. NANP calls use 1 for this code.
LONG-DISTANCE-OPERATOR	These one- or two-digit codes identify an operator-assisted, long-distance call within the NANP. Operator-assisted calls use 0 for this code, and operator access uses 00.
NATIONAL-NUMBER	This tag specifies the nation-specific part of the digit string for an international call.
OFFICE-CODE	This tag designates the first three digits of a seven-digit directory number in the form [2-9]XX.
SATELLITE-SERVICE	This one-digit code provides access to satellite connections for international calls.
SERVICE	This three-digit code designates services such as 911 for emergency, 611 for repair, and 411 for information.
SUBSCRIBER	This tag specifies the last four digits of a seven-digit directory number in the form XXXX.

Table 32-2 Route Filter Tags (continued)

Tag	Description
TRANSIT-NETWORK	This four-digit value identifies a long-distance carrier. Do not include the leading 101 carrier access code prefix in the TRANSIT-NETWORK value. Refer to TRANSIT-NETWORK-ESCAPE for more information.
TRANSIT-NETWORK-ESCAPE	This three-digit value precedes the long-distance carrier identifier. The value for this field specifies 101. Do not include the four-digit carrier identification code in the TRANSIT-NETWORK-ESCAPE value. Refer to TRANSIT-NETWORK for more information.

Route filter tag operators determine whether a call is filtered based on the existence, and sometimes the contents, of the dialed-digit string that is associated with that tag. The operators EXISTS and DOES-NOT-EXIST simply check for the existence of that part of the dialed-digit string. The operator == matches the actual dialed digits with the specified value or pattern. Table 32-3 describes the operators that can be used with route filter tags.

Table 32-3 Route Filter Operators

Operator	Description
NOT-SELECTED	Specifies do not filter calls based on the dialed-digit string that is associated with this tag. **Note** The presence or absence of the tag with which the operator is associated does not prevent Cisco CallManager from routing the call.
EXISTS	Specifies filter calls when the dialed-digit string that is associated with this tag is found. **Note** Cisco CallManager routes or blocks the call only if the dialed-digit string contains a sequence of digits that are associated with the tag.
DOES-NOT-EXIST	Specifies filter calls when the dialed-digit string that is associated with this tag is not found. **Note** Cisco CallManager routes or blocks the call only if the dialed-digit string does not contain a sequence of digits that are associated with the tag.
==	Specifies filter calls when the dialed-digit string that is associated with this tag matches the specified value. **Note** Cisco CallManager routes or blocks the call only if the dialed-digit string contains a sequence of digits that are associated with the tag and within the numbering range that is specified in the attached field.

Caution Do not enter route filter tag values for tags that are using the operators EXISTS, DOES-NOT-EXIST, or NOT-SELECTED.

Examples

Example 1: A route filter that uses AREA-CODE and the operator DOES-NOT-EXIST selects all dialed-digit strings that do not include an area code.

Example 2: A route filter that uses AREA-CODE, the operator ==, and the entry 515 selects all dialed-digit strings that include the 515 area code.

Example 3: A route filter that uses AREA-CODE, the operator ==, and the entry 5[2-9]X selects all dialed-digit strings that include area codes in the range of 520 through 599.

Example 4: A route filter that uses TRANSIT-NETWORK, the operator ==, and the entry 0288 selects all dialed-digit strings with the carrier access code 1010288.

Additional Information

See the "Related Topics" section on page 32-9.

Related Topics

- Finding a Route Filter, page 32-1
- Configuring a Route Filter, page 32-3
- Route Filter Configuration Settings, page 32-4
- Adding Route Filter Clauses, page 32-4
- Removing Route Filter Clauses, page 32-5
- Deleting a Route Filter, page 32-5
- Route Filter Tag Descriptions, page 32-6
- Understanding Route Plans, *Cisco CallManager System Guide*