CHAPTER 14

Route Filter Configuration

Route filters, along with route patterns, use dialed-digit strings to determine how a call is handled.

You can only use route filters with North American Numbering Plan (NANP) route patterns; that is, route patterns that use an at symbol (@) wildcard. Route filters allow you to determine which route patterns your users can dial; for example, whether your users can manually select 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.

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

- Finding a Route Filter, page 14-2
- Adding a Route Filter, page 14-4
- Updating a Route Filter, page 14-5
- Copying a Route Filter, page 14-6
- Adding Route Filter Clauses, page 14-8
- Removing Route Filter Clauses, page 14-9
- Deleting a Route Filter, page 14-10

- Route Filter Tag Descriptions, page 14-11
- Route Filter Configuration Settings, page 14-7

Finding a Route Filter

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

Procedure

Step 1 Choose **Route Plan > 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
- ends with
- is exactly

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 registered in the database, click **Find** without entering any search text.

A list of discovered route filters displays by:

- Route filter name
- 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 of the route filters in the window by checking the check box in the matching records title bar and clicking **Delete Selected**.

Step 4 Click the route filter from the list of records that matches your search criteria.

The window displays the route filter you choose.

Related Topics

- Adding a Route Filter, page 14-4
- Updating a Route Filter, page 14-5
- Copying a Route Filter, page 14-6
- Adding Route Filter Clauses, page 14-8
- Removing Route Filter Clauses, page 14-9
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- Route Filter Tag Descriptions, page 14-11
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Adding a Route Filter

The following procedure describes how to add a route filter.

Procedure

Step 1 Choose **Route Plan > Route Filter** in the menu bar.

Step 2 Click **Add a New Route Filter**.

Step 3 Enter the appropriate settings as described in Table 14-1.

Step 4 Click **Continue**.

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 14-11.

Step 6 Click **Insert** to add the filter.

The message "Status: Insert completed" displays.

Related Topics

- Finding a Route Filter, page 14-2
- Updating a Route Filter, page 14-5
- Route Filter Tag Descriptions, page 14-11
- Understanding Route Plans, *Cisco CallManager System Guide*

Updating a Route Filter

The following procedure describes how to update a route filter.

Procedure

Step 1 Choose **Route Plan > Route Filter** in the menu bar.

Step 2 Locate the route filter you want to update. See the "Finding a Route Filter" section on page 14-2.

Step 3 In the Dial Plan drop-down list box, choose North American Numbering Plan.

Step 4 Update the appropriate settings as described in Table 14-1.

Step 5 Click **Update**.

Step 6 Click **Reset Devices**. Resetting the devices associated with the route filter causes calls on affected gateways to drop.

Related Topics

- Finding a Route Filter, page 14-2
- Adding a Route Filter, page 14-4
- Adding Route Filter Clauses, page 14-8
- Copying a Route Filter, page 14-6
- Route Filter Tag Descriptions, page 14-11
- Route Filter Configuration Settings, page 14-7
- Understanding Route Plans, *Cisco CallManager System Guide*

Copying a Route Filter

The following procedure describes how to copy a route filter.

Procedure

Step 1 Choose **Route Plan > Route Filter** in the menu bar.

Step 2 Locate the route pattern you want to copy. See the "Finding a Route Filter" section on page 14-2.

Step 3 Check the check box next to the route filter you want to copy.

Step 4 Click the **Copy** icon of that route filter.

The window displays the copy of the route filter.

Step 5 In the Route Filter Name field, enter the name for this route filter.

Step 6 Update the appropriate settings as described in Table 14-1.

Note For help with entering data for route filter tags and operators, see the "Route Filter Tag Descriptions" section on page 14-11.

Step 7 Click **Insert** to add the new route filter.

Tip You can also copy a route filter by locating and displaying the route filter you want to copy and clicking **Copy**. Then, follow the instructions in Step 5 through Step 6.

Related Topics

- Finding a Route Filter, page 14-2
- Adding a Route Filter, page 14-4
- Adding Route Filter Clauses, page 14-8
- Removing Route Filter Clauses, page 14-9
- Route Filter Tag Descriptions, page 14-11

- Route Filter Configuration Settings, page 14-7
- Understanding Route Plans, *Cisco CallManager System Guide*

Route Filter Configuration Settings

Table 14-1 describes the route filter configuration settings.

Table 14-1 Route Filter Configuration Settings

Field	Description
Dial Plan	Choose North American Numbering Plan from the drop-down list.
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 toll-free inter- local access and transport area (LATA) calls from the Cisco office in Dallas.

Related Topics

- Adding a Route Filter, page 14-4
- Updating a Route Filter, page 14-5

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 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 Choose **Route Plan > Route Filter** in the menu bar.

Step 2 Locate the route filter to which you want to add route filter clauses. See the "Finding a Route Filter" section on page 14-2.

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

Step 4 Select 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, see the "Route Filter Tag Descriptions" section on page 14-11.

Step 5 Click **Insert** to add the clause.

The message "Status: Insert completed" displays. The new clause displays below the existing clauses in the window. (Scroll down, if necessary, to view the new information.)

Related Topics

- Finding a Route Filter, page 14-2
- Adding a Route Filter, page 14-4
- Removing Route Filter Clauses, page 14-9
- Route Filter Tag Descriptions, page 14-11
- Understanding Route Plans, *Cisco CallManager System Guide*

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 Choose **Route Plan > Route Filter** in the menu bar.

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 you want to remove and click **Remove Clause**.

A dialog box appears warning you that you cannot undo removing 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 Click **OK** to remove the clause or click **Cancel** to cancel the action. If you click **OK**, the Cisco CallManager removes the clause from the route filter, and the message "Status: Ready" displays.

Related Topics

- Finding a Route Filter, page 14-2
- Adding a Route Filter, page 14-4
- Deleting a Route Filter, page 14-10
- Understanding Route Plans, *Cisco CallManager System Guide*

Deleting a Route Filter

The following procedure describes how to delete a route filter.

Note You cannot delete route filters that are being used in route patterns or translation patterns.

Procedure

Step 1 Choose **Route Plan > Route Filter** in the menu bar.

Step 2 Locate the route pattern that you want to delete. See the "Finding a Route Filter" section on page 14-2.

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

A message displays stating 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 Click **OK** to delete the route filter or **Cancel** to cancel the deletion.

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

Related Topics

- Finding a Route Filter, page 14-2
- Adding a Route Filter, page 14-4
- Adding Route Filter Clauses, page 14-8
- Removing Route Filter Clauses, page 14-9
- Understanding Route Plans, *Cisco CallManager System Guide*

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. The descriptions in Table 14-2 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 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.

Table 14-2 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.

Table 14-2 Route Filter Tags (continued)

Tag	Description
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 dialed within the NANP.
INTERNATIONAL-ACCESS	This two-digit access code specifies international dialing. Calls originating in the U.S. use 01 for this code.
INTERNATIONAL-DIRECT-DIAL	This one-digit code identifies a direct-dialed international call. Calls originating in the U.S. use 1 for this code.
INTERNATIONAL-OPERATOR	This one-digit code identifies an operator-assisted international call. This code is 0 for calls originating 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.

Table 14-2 Route Filter Tags (continued)

Tag	Description
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.
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 is 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 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 14-3 describes the operators that can be used with route filter tags.

Table 14-3 Route Filter Operators

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

Caution Do not enter route filter tag values for tags 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, along with TRANSIT-NETWORK-ESCAPE, the operator ==, and the entry 101, selects all dialed-digit strings with the carrier access code 1010288.