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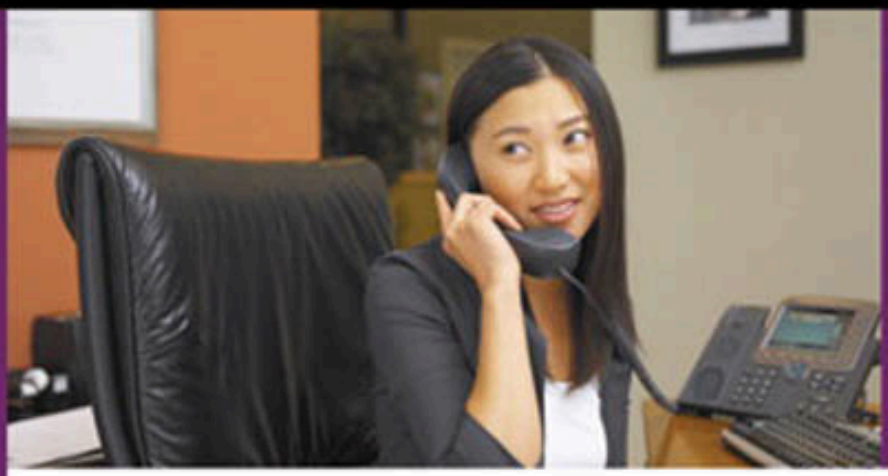

IP COMMUNICATIONS

Configuring CallManager and Unity:

A Step-by-Step Guide

An indispensable step-by-step configuration guide for IP Telephony professionals

ciscopress.com

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Step 4 From the drop-down box labeled Distribution Algorithm, choose how CallManager will distribute the calls. If you want CallManager to send the call to the first available gateway in the list, choose **Top Down**. When **Circular** is chosen, the call is routed to the gateway that is listed below the gateway to which that call was most recently extended. For example, using the list that is shown in Figure 4-3, if the last call was extended to the gateway labeled S0/DS1-0@SDA000C3134AD43, the next call would be sent to S0/DS1-0@SDA000C42847623, regardless of the availability of the other gateways.

Step 5 From the Available Devices box, highlight the gateway you want to add to this route group. If there are many gateways, you can limit the ones that appear in this box by entering search criteria in the Device Name contains field.

Step 6 Certain gateways allow you to choose which ports on the gateway you want to use for this route group. In the Port(s) field, select the ports on this gateway that should be added to this route group. If the gateway you are configuring does not allow the selection of ports, leave this field set to default.

Step 7 Click the **Add to Route Group** button. Repeat steps 5 through 7 for gateways you want to add to this group.

Step 8 After you have selected all of the desired gateways, they appear in the Selected Devices box. The order in which they appear in this box determines the order in which calls are distributed. To change the order, highlight the gateway you wish to move and click the up or down arrow to the right of the box.

Step 9 You may remove a gateway from the route group by highlighting the gateway and clicking the down arrow below the Selected Devices box. The gateway then appears in the Removed Devices box.

Step 10 Click the **Insert** button to complete the configuration of this route group.

After the route group is created, it must be added to a route list. As mentioned previously, digit manipulation can be done at the route group level, but is configured when route groups are added to a route list. The next section discusses how to create and configure route lists.

Creating Route a List

Before proceeding, ensure that you have created all required route groups. Because a route list points to route groups, the route groups must exist. The steps provided in this section guide you through the creation and configuration of a route list, in addition to configuring route group level digit manipulation.

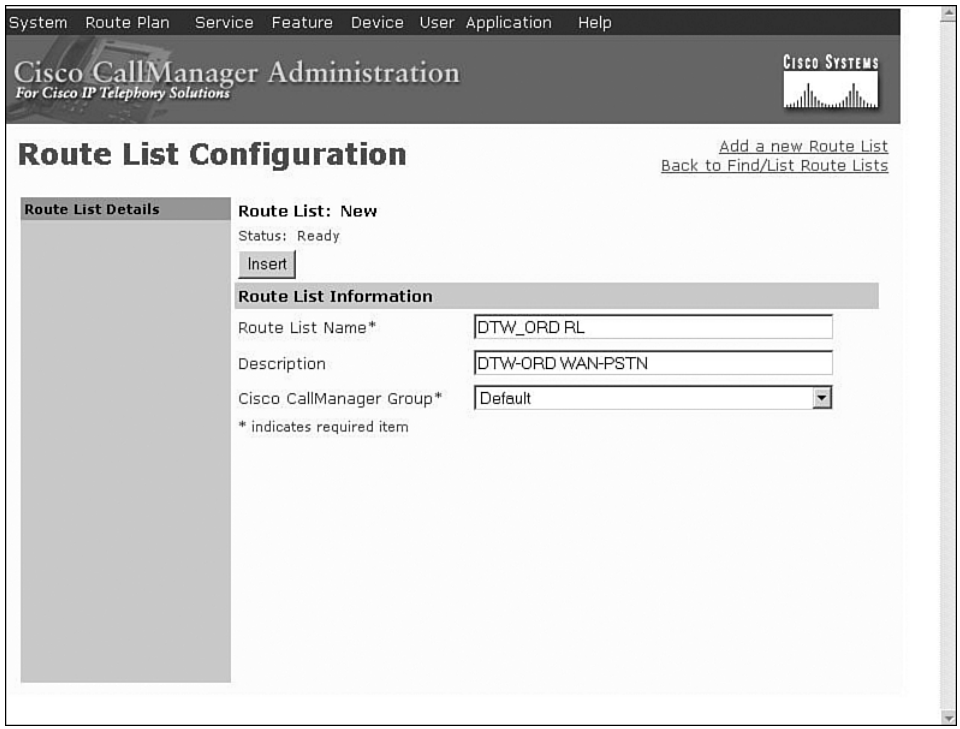
Step 1 From within CCMAdmin, select **Route Plan>Route/Hunt>Route List**.

Note	In earlier versions of CallManager, the path to reach route groups is slightly different, such as Route Plan>Route List.

Step 2 Click the **Add a New Route List** link.

Step 3 A screen similar to that shown in Figure 4-4 displays. Enter a descriptive name in the field labeled Route List Name.

Figure 4-4 *Route List Configuration*



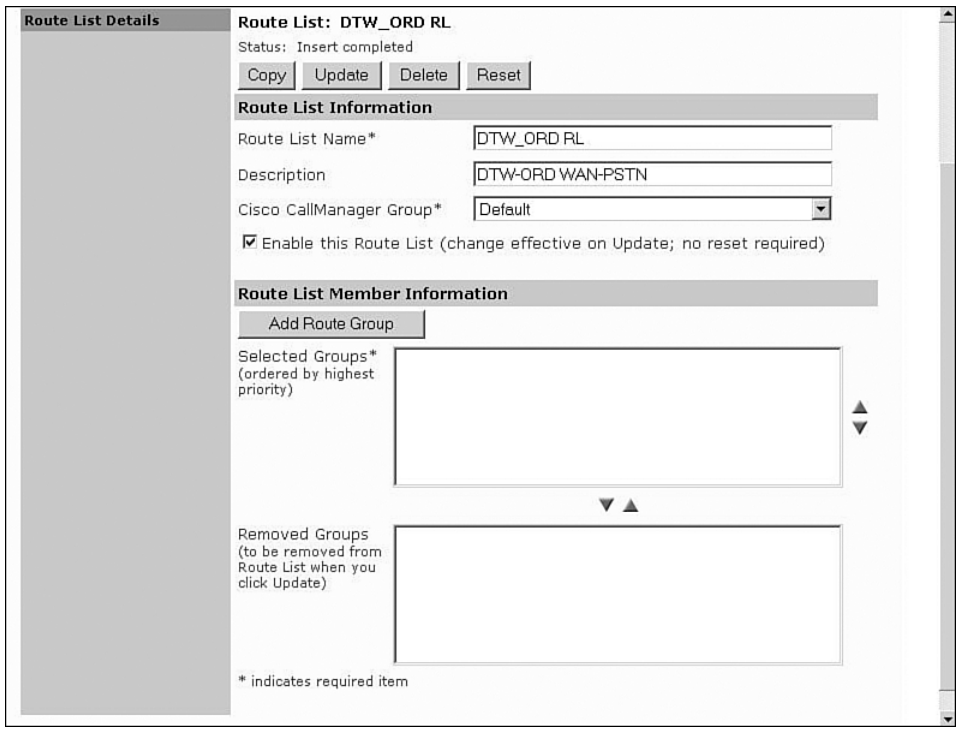
Step 4 In the Description field, enter a description that helps to easily identify this route list.

Step 5 From the drop-down list labeled Cisco CallManager Group, select the CallManager group that will be used to determine to which CallManager this route list will register.

Step 6 Click the **Insert** button. An informational window informs you that you must add at least one route group to this route list. Click **OK**.

Step 7 A screen similar to that shown in Figure 4-5 displays. Notice that below the CallManager group is a check box labeled Enable this Route List. By default this is checked, which means that the route group is active. If during testing or troubleshooting you need to disable this route group, uncheck this box. For now leave it at default.

Figure 4-5 *Route List Configuration—Adding Route Groups*



Step 8 To add a route group to this list, click the **Add Route Group** button.

Step 9 A screen similar to that shown in Figure 4-6 displays. From the Route Group drop-down menu, select the desired route group.

Step 10 This is the point at which you can configure digit manipulation. If you wish to affect caller ID information, configure the three fields found under the Calling Party Transformations heading. These fields are discussed earlier in this chapter. The first field is labeled Use Calling Party's External Phone Number Mask. This field determines if the mask configured on the directory number is used for calls that are routed through this route group.

Step 11 In the Calling Party Transform Mask field, enter any mask you want to affect the caller ID.

Figure 4-6 *Adding Route Groups to Route List*

Step 12 In the Prefix Digits (Outgoing Calls) field, enter any digits that you want added to the front of the caller ID.

Step 13 The fields under the Called Party Transformations heading affect the dialed number. This is where you can manipulate the number that is sent to the gateway. An example of how this might be used was shown in Figure 4-2. When the call goes across the WAN, only five digits are needed, but if the WAN cannot handle the call and it is sent to the PSTN, 11 digits are needed in order for the PSTN to properly route the call. The first field in this category is Dial Plan. Currently there is no choice other than the default.

Step 14 From the drop-down list labeled Discard Digits, select the digit discard instructions that should apply to calls that are sent out this gateway. A discard instruction determines which digits are removed from the dialed digits before the call is sent out the gateway. There are more than 30 different discard instructions for this field. However, most of them are combinations of one another. Table 4.1 lists of the seven core discard instructions.

Note Some of the discard instructions depend on the pattern that is matched when the number is dialed. The following examples make reference to these patterns, and the next section explains these patterns in more detail. So, if you are unfamiliar with patterns shown in these examples, fear not—you will find explanations for them very soon.

Table 4-1 *Digit Discard Instructions*

Discard Instruction	Description	Example
10-10-Dialing	Removes 1010 and the carrier code	1010-321-585-555-5555 becomes 585-555-5555
11/10D->7D	Changes 11 and 10 digits to 7	1-246-555-1212 or 246-555-1212 becomes 555-1212
11D->10D	Changes 11 digits to 10	1-246-555-1212 becomes 246-555-1212
Intl TollBypass	Removes international access and country codes	011-64-3214322 becomes 3214322
PreAt	Removes all numbers before the @ in the matching pattern	When 912485551212 matches the pattern 9@, the 9 is stripped resulting in 12485551212
PreDot	Removes all digits before the dot (.) in the matching pattern	When 912485551212 matches the pattern 9.@, the 9 is stripped resulting in 12485551212
Trailing-#	Removes the # from the end of the dialed digits	12465551212# becomes 12465551212

These instruction are combined to create the more than 30 instructions you find in the list. Let's look at an example. The discard instruction PreDot 10-10-Dialing removes any number before the dot in the pattern, the 10-10 and carrier code. So when the number 910103215835551212 is dialed and matches the 9.@ pattern, the 9 is removed, because of the PreDot portion of the instruction, and the 10-10 and carrier code of 321 are removed because of the 10-10 Dialing instruction, which results in 5835551212. Applying what you learned here, you can quite easily determine what effect the other discard instruction will have on a dialed number.

NOTE If the @ wildcard is not used, the only valid discard digit instructions are PreDot or None.

Step 15 In the Called Party Transform Mask field, enter the mask you want to use for calls going out this gateway.

Step 16 In the Prefix Digits (Outgoing Calls) field, enter any digits that you want added to the front of the dialed number before the call is sent out the gateway.

> **Note** Because a number of transformations can be applied, it is important to understand the order in which the transformations take place. The order for calling party transforms is external phone mask first, followed by calling party transform mask, and finally prefix digits. The order for called party transforms is discard instructions first, followed by called party transform mask, and finally prefix digits.

Step 17 Click the **Insert** button.

Step 18 An informational window displays stating that the route group has been added and that the route list must be reset for the changes to take effect. Click **OK**.

Step 19 The page shown in Figure 4-5 redisplays with the addition of the route group you just added. Repeat steps 7 through 16 for any additional route groups you wish to enter.

Step 20 After all route groups are added, they display in the Selected Groups box. The order in which they display in this box determines the order in which calls are distributed. To change the order, highlight the route group you wish to move and click the up or down arrow to the right of the box.

Step 21 You may remove a route group from the route list by highlighting the route group and clicking the down arrow below the Selected Groups box. This route group displays in the Removed Groups box.

Step 22 Click the **Update** button to complete the configuration of this route list.

Step 23 Depending on the version of CallManager, the route list may need to be reset before the change takes effect. Later versions of CallManager include a note that states "change effective on Update; no reset required." Click the "Reset" button if required.

Step 24 An informational window displays stating that you are about to reset the route list. Click **OK**.

Step 25 An informational window displays stating the route list is being reset. Click **OK**.