



Selection of Routing Targets

- [Routing Targets, on page 1](#)
- [Routes, on page 2](#)
- [Translation Routes, on page 2](#)
- [Target Sets, on page 2](#)
- [Skill Targets, on page 3](#)
- [Agent Routing Nodes, on page 3](#)
- [Define Set of Skill Groups to Receive the Contact, on page 4](#)
- [Define a Set of Queue to Skill Groups to Receive the Contact, on page 8](#)
- [Define Set of Services to Receive the Contact, on page 10](#)
- [Define Set of Enterprise Skill Groups to Receive the Contact, on page 11](#)
- [Define Set of Enterprise Services to Receive the Contact, on page 13](#)
- [Network Targets, on page 14](#)
- [Route Call to an Announcement, on page 14](#)
- [Route Call to a Scheduled Target, on page 15](#)
- [Route Call to an Unanswered Ring, on page 17](#)
- [Route Call to a Busy Signal, on page 17](#)
- [Return Label to Routing Client, on page 18](#)
- [Return Multiple Labels to Routing Client, on page 20](#)
- [Selection of Targets by Rules, on page 21](#)
- [Distribute Contacts to Targets, on page 25](#)
- [Select Targets and Distribute Contacts with One Node, on page 26](#)
- [Transfer Calls from Agents to Agents, on page 29](#)
- [Send Contact to a Different Unified ICM System, on page 30](#)
- [Nodes Used to Stop Script Processing, on page 31](#)
- [Service Requested, on page 33](#)
- [Target Requery, on page 34](#)
- [Target checking, on page 37](#)

Routing Targets

After defining how a script is used to categorize contacts, you typically use the nodes available in Script Editor to specify how the contact is to be routed to a target. By selecting routing targets, you determine the destination for contacts.

A routing target is an entity to which the system can route a contact. The routing target receives the contact and processes it accordingly.

Peripheral-level skill targets include:

- Agents
- Skill groups

There are two types of routing targets: Skill targets and Network targets.

Routes

A value returned by a routing script that maps to a target at a peripheral, such as a service, skill group, agent, or translation route to a label.



Note You create routes through Unified ICM Configuration Manager before writing routing scripts. For more information, see the *Configuration Guide for Cisco Unified ICM/Contact Center Enterprise* at <https://www.cisco.com/c/en/us/support/customer-collaboration/unified-contact-center-enterprise/products-installation-and-configuration-guides-list.html>.

Translation Routes

A translation route is a target at a peripheral that does not map to a specific service, skill group, or agent. When a contact arrives with the trunk group and DNIS that correspond to a translation route, the Peripheral Gateway (PG) is responsible for determining the ultimate target.

When Unified ICM routes a call to a translation route, it sends a message to the PG. In this message the PG receives the call context from the Router, including the ultimate target and further instructions for the PG. This enables the PG to seamlessly pass information set or retrieved in the Routing script to the PIM/peripheral as well as to CTI clients. For example, the PG might be instructed to coordinate with a host computer so that the caller's account number appears on the teleset of the agent who picks up the call.



Note You create translation routes through Unified ICM Configuration Manager before writing routing scripts. For more information, see the *Configuration Guide for Cisco Unified ICM/Contact Center Enterprise* at <https://www.cisco.com/c/en/us/support/customer-collaboration/unified-contact-center-enterprise/products-installation-and-configuration-guides-list.html>.

Target Sets

A target set is a list of possible targets. During script processing, the actual target is chosen from the set by the preceding node on the script branch, a Select Node or Distribute Node.

Skill Targets

A skill target is an entity at a peripheral or in the enterprise to which Unified ICM can route a contact. There are two types of skill targets: **Peripheral-level skill targets** and **Enterprise-level skill targets**.

Peripheral-level skill targets include:

- Agents
- Skill groups
- Services

Enterprise-level skill targets include:

- Enterprise skill groups
- Enterprise services

Agent Routing Nodes

The following nodes available for agent routing:

1. Queue to Agent Node. For more information, see [Specify an Agent Directly](#)
2. Agent to Agent Node. For more information, see [Transfer Calls from Agents to Agents, on page 29](#)
3. Agent Node.

Define Agent Node Properties

You define a set of agents who can receive the contact by using the Agent node in the Targets tab of the Palette.



Note Do not use this node in Unified CCE environments. It is intended for use with ACDs.

Figure 1: The Agent Icon

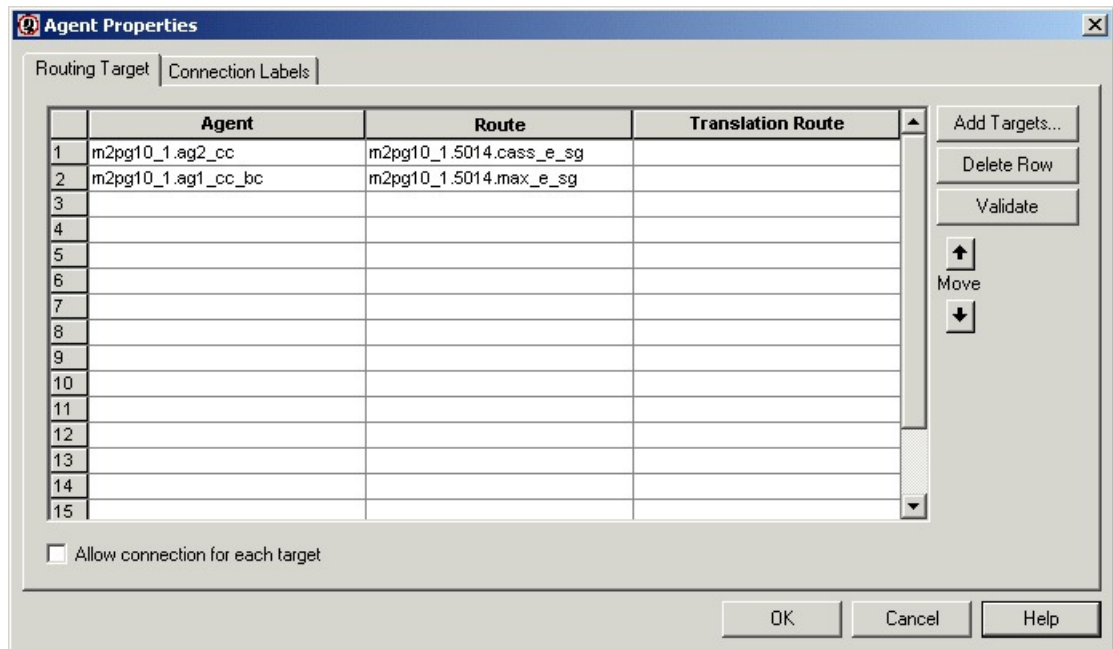


The script can determine the target agent from the set by one of the following methods:

- Selecting the target by rules (Select node)
- Distributing contacts to targets in the set (Distribute node)
- A combination of selecting the target and distributing contacts (Route Select node)

Following is the Properties dialog box of the Agent node:

Figure 2: Agent Properties - Routing Target Tab



Define Agent node properties as follows:

Procedure

-
- Step 1** For each agent in the target set the following:
- In the Agent column, for each row used, select the agent to which the contact can be routed. You can use the drop-down list for each table cell, or select multiple agents by clicking **Add Targets** and using the dialog box that opens to select multiple agents.
 - In the Route column, select the route that maps to a specific target at the peripheral.
 - Optionally, in the Translation Route column, select a translation route.
- Step 2** Optionally, check Allow connection for each target to have an output terminal appear to the right of each individual target defined in the node. Control passes through this terminal when the associated target is chosen. When the script terminates, the route for the selected agent is still used.
- Step 3** Click **Validate** to check whether the targets you defined are valid. Correct any errors that are flagged.
- Step 4** Optionally, add connection labels.
-

Define Set of Skill Groups to Receive the Contact

You define a set of skill groups that can receive the contact using the Skill Group node in the Targets tab of the Palette.

Figure 3: The Skill Group Icon



You can specify the skill groups in the set in two ways:

- Select **Explicit target references** to specify static skill group configurations, including the Skill Group, Route, and, optionally, a Translation Route. See [Define Skill Groups by Explicit Target Reference, on page 5](#).
- Select **Lookup target references by expression** to enter formulas that are resolved to skill group references at runtime. See [Define Skill Groups Using an Expression, on page 7](#).

From the defined set, your script can determine the target skill group by one of the following methods:

- Selecting the target by rules (Select node)
- Distributing contacts to targets in the set (Distribute node)
- A combination of selecting the target and distributing contacts (Route Select node)

Define Skill Groups by Explicit Target Reference

On the Skill Group node in the Targets tab of the Palette, select **Explicit target references** to specify the skill groups that can receive the contact:

Figure 4: Skill Group Properties - Explicit Target References

The screenshot shows the 'Skill Group Properties' dialog box with the 'Dynamic Route Target' tab selected. Under 'Target references', 'Explicit target references' is selected. Below this is a table with three columns: 'Skill Group', 'Route', and 'Translation Route'. The table contains two rows of data. To the right of the table are buttons for 'Add Targets...', 'Delete Row', 'Validate', and 'Formula Editor...'. Below these are 'Move' buttons (up and down arrows). At the bottom of the dialog is a checkbox 'Allow connection for each target' and 'OK', 'Cancel', and 'Help' buttons.

	Skill Group	Route	Translation Route
1	ACMI.AutoTestSG1	ACMI_AutoTestSG1	ACMI_TR
2	ACMI.AutoTestSG2	ACMI_AutoTestSG2	ACMI_TR
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			

Define Skill Group node properties as follows:

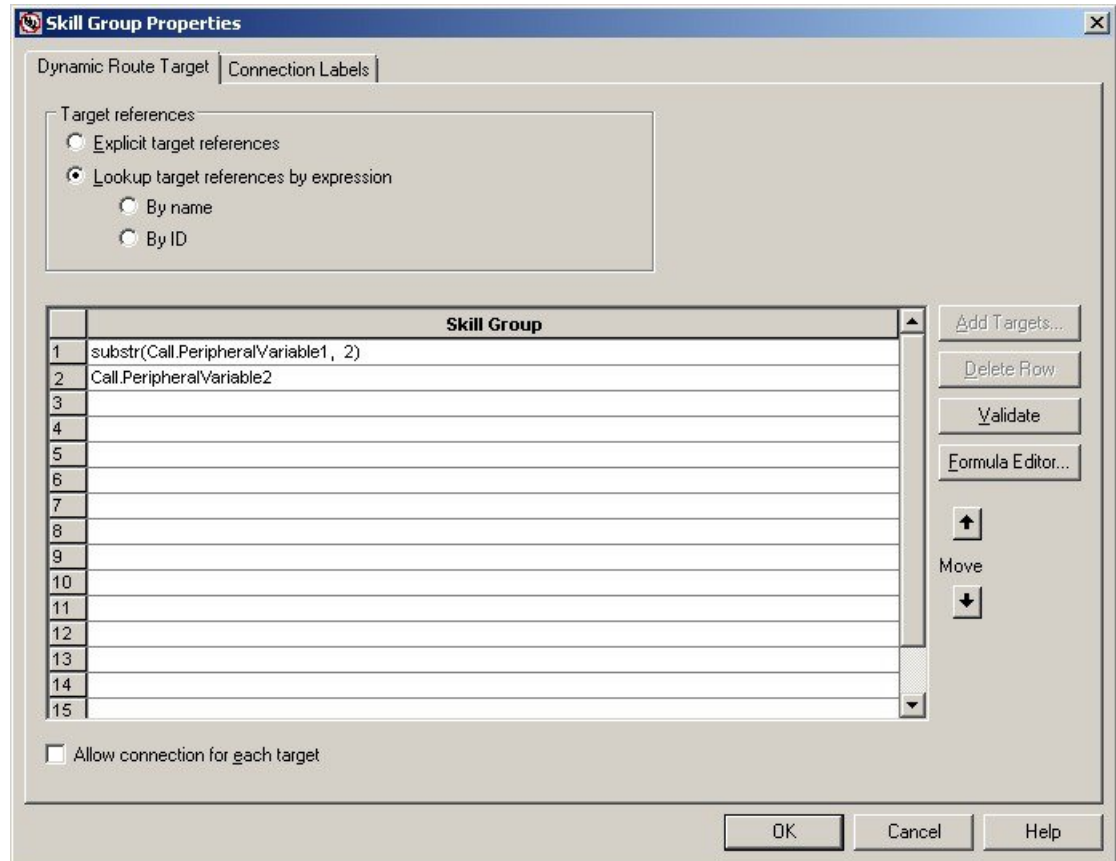
Procedure

-
- Step 1** For each skill group in the target set the following:
- In the Skill Group column, for each row used, select the skill group to which the contact can be routed. You can use the drop-down list for each table cell, or select multiple skill groups by clicking **Add Targets** and using the dialog box that opens to select multiple skill groups.
 - In the Route column, select the route that maps to a specific target at the peripheral.
 - Optionally, in the Translation Route column, select a translation route.
- Step 2** Optionally, check **Allow connection for each target** to have an output terminal appear to the right of each individual target defined in the node. Control passes through this terminal when the associated target is chosen. When the script terminates, the route for the selected skill group is still used.
- Step 3** Click **Validate** to check whether the targets you defined are valid. Correct any errors that are flagged.
- Step 4** Optionally, add connection labels.
-

Define Skill Groups Using an Expression

On the Skill Group node in the Targets tab of the Palette, select **Look up target references by expression** to enter expressions to select Skill Groups. The formulas are evaluated dynamically at run-time to determine the actual skill groups.

Figure 5: Skill Group Properties - Look up Target References by Expression



Procedure

- Step 1** Select **Look up target references by expression**
- Step 2** Select whether to select the skill groups by name or ID:
 - Select **By name** to select a skill group by the skill group enterprise name.
 - Select **By ID** to select the skill group by the skill group database ID.
- Step 3** Write your formulas to select skill groups on the Skill Group page.
Click **Formula Editor** for help building a formula.
- Step 4** Optionally, click **Validate** to check for errors in the expression.
- Step 5** Click **OK** to save and close the dialog.

When you save the dialog, the configured expressions are validated. If errors are found, the dialog displays a warning and highlights the rows with errors.

When you use a ScriptTarget node with dynamic skill group configuration as a target node for a ScriptSelect or ScriptDistribute node, the router evaluates all the targets of the ScriptTarget node and then returns only valid targets. If the skill group expression cannot be evaluated to a valid skill group object, the node continues on the failure branch and the router logs an error message.



Note **Look up Target References by Expression** only supports skill groups that target Unified CCE peripherals. Expressions that evaluate to skill groups on any other type of peripheral are not considered valid targets.

Define a Set of Queue to Skill Groups to Receive the Contact

You define a set of queue to skill groups that can receive the contact using the Queue node in the Queue tab of the Palette.

Figure 6: The Queue Icon



You can specify the queue to skill groups in the set in two ways:

- Select **Explicit target references** to specify static queue to skill group configurations, including the Skill Group, Consider If, Route, and, optionally, a Translation Route.
- Select **Lookup target references by expression** to enter formulas that are resolved to queue to skill group references at runtime.

Related Topics

[Define Queue to Skill Groups by Explicit Target Reference](#), on page 8

[Define Queue to Skill Groups Using an Expression](#), on page 9

Define Queue to Skill Groups by Explicit Target Reference

You can select explicit target references to specify the skill groups that can receive the contact.

Define Queue to Skill Group node properties as follows:

Procedure

- Step 1** From the **Queue** tab of the Palette, click **Queue** to create a **Queue to Skill Group** node.
- Step 2** From the node, right-click and select **Properties**.
- Step 3** Select the **Explicit target references** option.
- Step 4** For each skill group in the target, set the following:

- a) In the Skill Group column, for each row used, select the skill group to which the contact can be routed. You can use the drop-down list for each table cell, or select multiple skill groups by clicking **Add Targets** and using the dialog box that opens to select multiple skill groups.
- b) In the Consider If column, add an expression to one or more rows. If a Consider If expression returns True, the expression considers the skill group and queues there.
- c) In the Route column, select the route that maps to a specific target at the peripheral.
- d) Optionally, in the Translation Route column, select a translation route.

Step 5 Click **Validate** to check whether the targets you defined are valid. Correct any errors that are flagged.

Define Queue to Skill Groups Using an Expression

You can look up target references by expression to enter expressions to select Queue to Skill Groups. The formulas are evaluated dynamically at run-time to determine the actual skill groups.

Procedure

Step 1 From the **Queue** tab of the Palette, click **Queue** to create a **Queue to Skill Group** node.

Step 2 From the node, right-click and select **Properties**.

Step 3 Select **Lookup target references by expression**

Step 4 Select whether to choose the skill groups by name or ID:

- Select **By name** to choose a skill group by the skill group name.
- Select **By ID** to choose the skill group by the skill group database ID.

Step 5 Write your formulas to select skill groups on the Skill Group page.

Click **Formula Editor** for help building a formula.

Step 6 Optionally, click **Validate** to check for errors in the expression.

Step 7 Click **OK** to save and close the dialog.

When you save the dialog, the configured expressions are validated. If errors are found, the dialog displays a warning and highlights the rows with errors.

When you use a queue to skill group node with dynamic queue to skill group configuration as a target, the router evaluates all the targets of the queue to skill group node and then returns only valid targets. If the queue to skill group expression cannot be evaluated to a valid queue to skill group object, the node continues on the failure branch and the router logs an error message.



Note **Look up Target References by Expression** only supports skill groups that target Unified CCE peripherals. Expressions that evaluate to skill groups on any other type of peripheral are not considered valid targets.

Define Set of Services to Receive the Contact

You define a set of services that can receive the contact by using the Service node in the Targets tab of the Palette.

Figure 7: The Service Icon

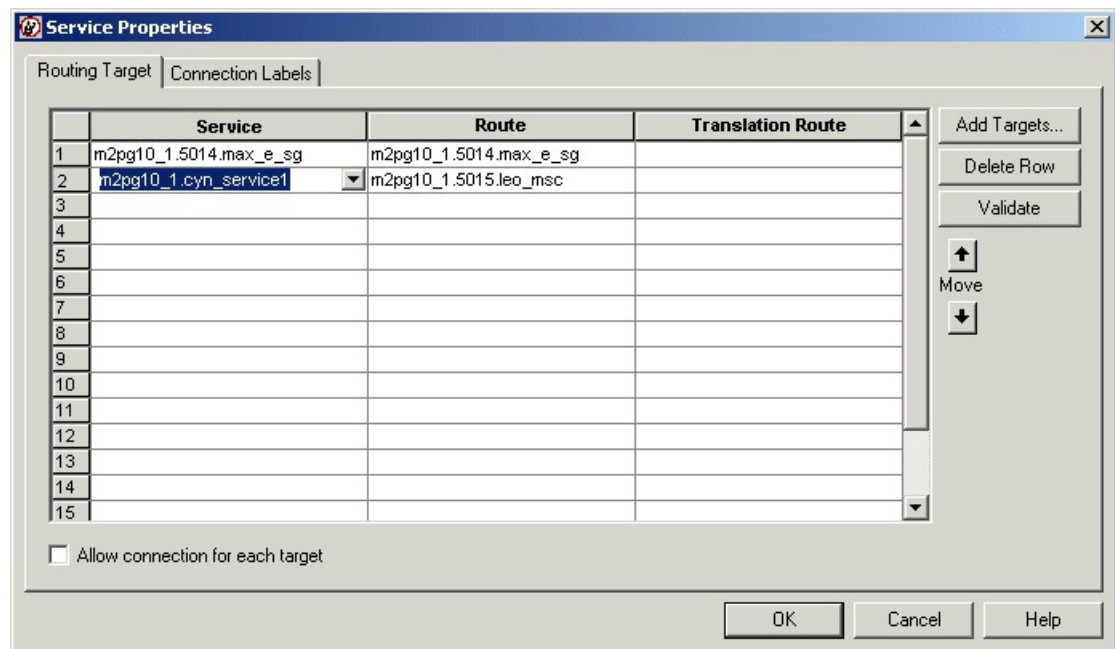


The script can determine the target service from the set by one of the following methods:

- Selecting the target by rules (Select node)
- Distributing contacts to targets in the set (Distribute node)
- A combination of selecting the target and distributing contacts (Route Select node)

Following is the Properties dialog box of the Service node:

Figure 8: Service Properties - Routing Target Tab



Define Service node properties as follows:

Procedure

Step 1

For each service in the target set the following:

- In the Service column, for each row used, select the service to which the contact can be routed. You can use the drop-down list for each table cell, or select multiple services by clicking **Add Targets** and using the dialog box that opens to select multiple services.

- b) In the Route column, select the route that maps to a specific target at the peripheral.
 - c) Optionally, in the Translation Route column, select a translation route.
- Step 2** Optionally, check **Allow connection for each target** to have an output terminal appear to the right of each individual target defined in the node. Control passes through this terminal when the associated target is chosen. When the script terminates, the route for the selected service is still used.
- Step 3** Click **Validate** to check whether the targets you defined are valid. Correct any errors that are flagged.
- Step 4** Optionally, add connection labels.

Related Topics

[Targets Tab](#)

Define Set of Enterprise Skill Groups to Receive the Contact

You define a set of enterprise skill groups that can receive the contact by using the Enterprise Skill Group node in the Targets tab of the Palette.

Figure 9: The Enterprise Skill Group Icon



The script can determine the target enterprise skill group from the set by one of the following methods:

- Selecting the target by rules (Select node)
- Distributing contacts to targets in the set (Distribute node)
- A combination of selecting the target and distributing contacts (Route Select node)

Following is the Properties dialog box of the Enterprise Skill Group node:

Figure 10: Enterprise Skill Group Properties - Routing Tab

	Skill Group	Route	Translation Route
1	m2pg7_1.Cisco_Voice.damon		

Define Enterprise Skill Group node properties as follows:

Procedure

-
- Step 1** From the Business Entity drop-down list, select the business entity for the enterprise skill groups.
- Step 2** From the Enterprise target drop-down list, select the enterprise target for the enterprise skill groups.
- Step 3** For each enterprise skill group in the target set the following:
- In the Skill Group column, for each row used, select the enterprise skill group to which the contact can be routed.
 - In the Route column, select the route that maps to a specific target at the peripheral.
 - Optionally, in the Translation Route column, select a translation route.
- Step 4** Optionally, check **Allow connection for each target** to have an output terminal appear to the right of each individual target defined in the node. Control passes through this terminal when the associated target is chosen. When the script terminates, the route for the selected enterprise skill group is still used.
- Step 5** Click **Validate** to check whether the targets you defined are valid. Correct any errors that are flagged.
- Step 6** Optionally, add connection labels.
-

Define Set of Enterprise Services to Receive the Contact

You define a set of enterprise services that can receive the contact by using the Enterprise Service node in the Targets tab of the Palette.

Figure 11: The Enterprise Service Icon



The script can determine the target enterprise service from the set by one of the following methods:

- Selecting the target by rules (Select node)
- Distributing contacts to targets in the set (Distribute node)
- A combination of selecting the target and distributing contacts (Route Select node)

Following is the Properties dialog box of the Enterprise Service node:

Figure 12: Enterprise Service Properties - Routing Target tab

	Service	Route	Translation Route
1	m2pg7_1._serv	serv_route	

Define Enterprise Service node properties as follows:

Procedure

- Step 1** From the Business Entity drop-down list, select the business entity for the enterprise services.

- Step 2** Choose the enterprise target for the enterprise services from the Enterprise target drop-down list.
- Step 3** For each enterprise service in the target set the following:
- In the Service column, for each row used, select the enterprise service to which the contact can be routed.
 - In the Route column, select the route that maps to a specific target at the peripheral.
 - Optionally, in the Translation Route column, select a translation route.
- Step 4** Optionally, check **Allow connection for each target** to have an output terminal appear to the right of each individual target defined in the node. Control passes through this terminal when the associated target is chosen. When the script terminates, the route for the selected enterprise service is still used.
- Step 5** Click **Validate** to check whether the targets you defined are valid. Correct any errors that are flagged.
- Step 6** Optionally, add connection labels.
-

Network Targets

A network target is an end point on the network to which a script can send a contact. Following are the supported network targets:

- Announcement
- Scheduled Select
- Ring
- Busy
- Label
- Divert Label

Route Call to an Announcement

You can route a call to an announcement on the network by using the Announcement node in the Targets tab of the Palette.

Figure 13: Announcement Icon



When executing the Announcement Node, Unified ICM returns the label associated with the announcement to the routing client. The Announcement Node terminates the script.

You might use the Announcement Node to:

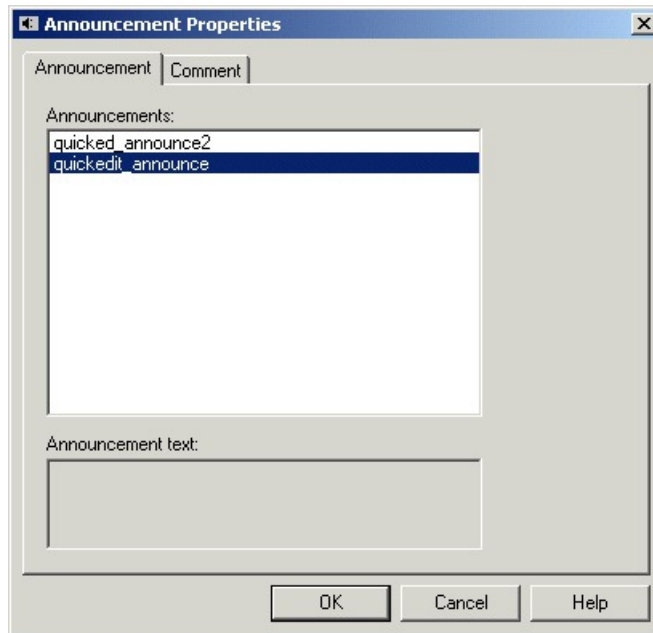
- Explain why the call cannot currently be handled.
- Direct the caller to another phone number or to another way of contacting the company.



Note You must configure Announcements and associate them with labels using Unified ICM Configuration Manager. For more information, see the *Configuration Guide for Cisco Unified ICM/Contact Center Enterprise*.

Following is the Properties dialog box of the Announcement node:

Figure 14: Announcement Properties - Announcement Tab



Define Announcement node properties as follows:

Procedure

-
- Step 1** Choose an announcement from the Announcements list.
 - Step 2** Optionally, add comments.
-

Route Call to a Scheduled Target

You can send a call to a target that is configured to handle a specific number of simultaneous contacts based on a periodic schedule by using the Scheduled Select node in the Targets tab of the Palette.

Figure 15: Schedule Select Icon



Unified ICM keeps track of the schedule and the number of calls sent to the target. The routing client informs Unified ICM when a call at the target ends, so it always knows how many calls are currently in progress at the target and whether it can handle an additional call.

When Unified ICM runs the Scheduled Select Node, it searches the list of selected targets for one that is capable of handling the contact, based on its current schedule. If a target is found, the routing script ends and returns a label associated with the target to the routing client. The routing client then translates the label to a peripheral target.

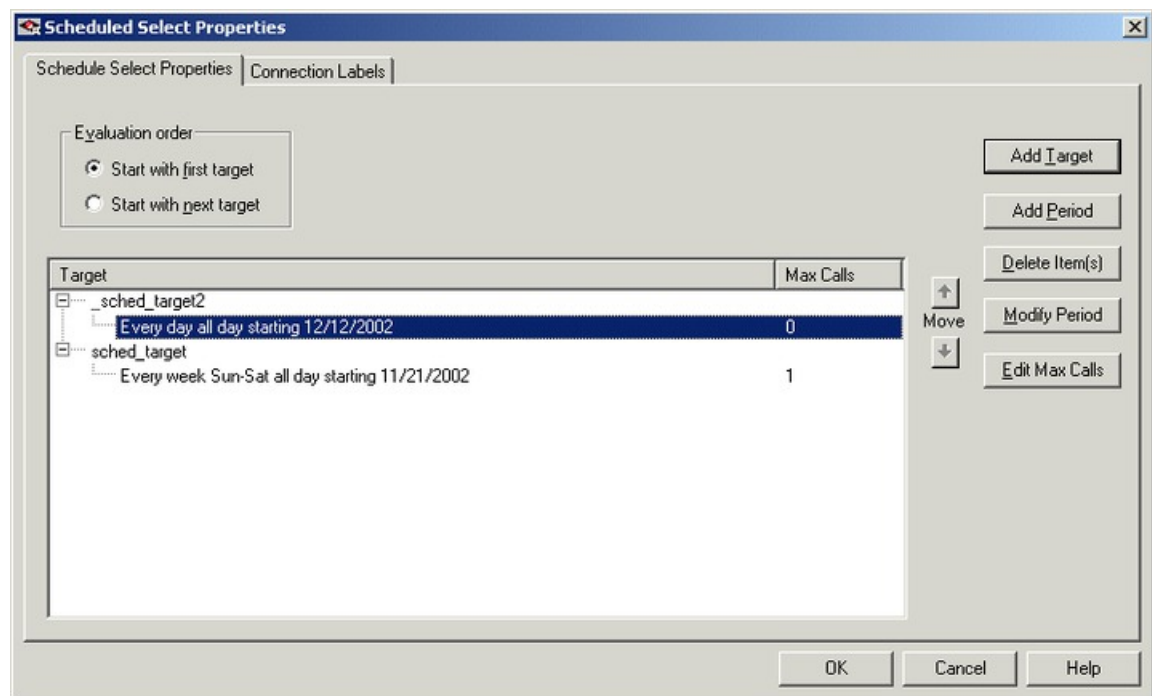


Note You must configure Scheduled targets and associated them with labels using Unified ICM Configuration Manager. For more information, see the *Configuration Guide for Cisco Unified ICM/Contact Center Enterprise*.

Not all routing clients support the Scheduled Select node.

Following is the Properties dialog box of the Announcement node:

Figure 16: Schedule Select Properties



Define Scheduled Select node properties as follows:

Procedure

Step 1

In the Evaluation Order field select:

- a) **Start with first target** to have Unified ICM always start the search from the first target in the list.
- b) **Start with next target** to have Unified ICM start the search from the first target after the last chosen target.

- Step 2** Click **Add Target** to add a new scheduled target. In the Add Schedule Targets dialog box, select targets to add from the Available targets list, and click **Add>** to move them to the Add targets list. When finished, click **OK**. The targets are added to the list.
- Step 3** To add a time period for the scheduled target, select the target and click **Add Period**. The Add Periodic Schedule dialog box opens. Define the time period and click **OK**.
- Step 4** To modify a time period for the scheduled target, select the time period and click **Modify Period**. The Modify Periodic Schedule dialog box opens. Modify the time period and click **OK**.
- Step 5** To edit Max Calls for a time period, select the time period and click **Edit Max Calls**. The number in the Max Calls column is now editable. Modify the value as needed.
- Step 6** Optionally, add connection labels.
-

Route Call to an Unanswered Ring

You can route a call to an unanswered ring by using the Ring node in the Targets tab of the Palette.

Figure 17: Ring Icon



When Unified ICM runs a Ring node, it returns the first Ring label associated with the routing client; the routing client then plays an unanswered ring for the caller.

Note: You must define a Ring label using Unified ICM Configuration Manager. For more information, see the *Configuration Guide for Cisco Unified ICM/Contact Center Enterprise*.

Note: Not all routing clients support the Ring Node.

To define the Ring node properties, you simply add comments to the node.

Route Call to a Busy Signal

You can route a call to a busy signal by using the Busy node in the Targets tab of the Palette.

Figure 18: Busy Icon



When Unified ICM runs a Busy node, it returns the first Busy label associated with the routing client; the routing client then plays a busy signal for the caller.

Note: You must define a Busy label using Unified ICM Configuration Manager. For more information, see the *Configuration Guide for Cisco Unified ICM/Contact Center Enterprise*.

Note: Not all routing clients support the Busy node.

To define the Busy node properties, you simply add comments to the node.

Return Label to Routing Client

You can return a label to a routing client by using the Label node in the Targets tab of the Palette.

Figure 19: Label Icon



When Unified ICM runs a Label node, it returns the first valid label for the routing client.

This differs from the Divert Label node, which returns all the values in the Selected Labels list to the routing client.

If Unified ICM finds no valid label, it returns the default label for the Dialed Number. In either case, the Label node terminates execution of the script

When you define a Label Node, you can select Configured Labels and Dynamic Labels. Configured labels are static, defined through the Unified ICM Configuration Manager. Dynamic Labels are expressions the CallRouter processes in real time, converting an expression into a character string that is then returned to the routing client as a label. You use formulas to create a Dynamic Label.

The following registry setting in the router controls where to send the dynamic labels for network transferred calls. This registry setting controls ALL of the network transferred calls:

```
HKLM\Cisco Systems, Inc\ICM\<inst>
\Router<side>\Router\CurrentVersion\Configuration
\Global\NetworkXferDynLabelDestination
<setting>
```

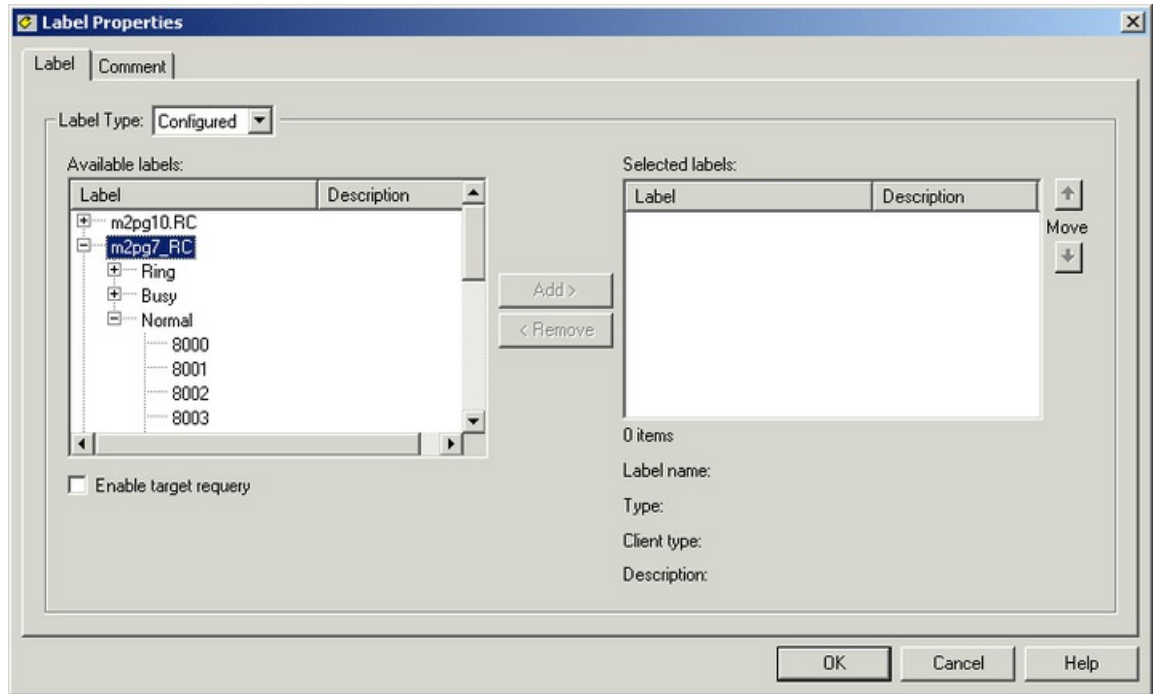
If <setting> =	Then the label is sent to
0	The network transfer routing client
1	The network routing client
2	Either the network transfer routing client or the network routing client, based on the NetworkTransferPreferred setting of the network routing client



Note The Label node supports Target Requery.

Following is the Properties dialog box of the Label node:

Figure 20: Label Properties - Label Tab



Define Label node properties as follows:

Procedure

- Step 1** Choose the one of the following from Label Type:
- Configured, to select from a list of configured labels.
 - Dynamic, to define an expression that is to be returned as a label.

Warning The incorrect use of dynamic labels in scripts can result in call surges. The router does not do extrapolation for dynamic labels. So if many calls come in at the same time, the router may send these calls to the same label, and the Available and LongestAvailable will not be extrapolated. To avoid a site becoming flooded with calls, use static labels assigned to skill groups and services rather than dynamic labels. The router does extrapolation for labels assigned to skill groups and services.

- Step 2** If you select Configured, select labels from the Available labels list and click **Add >** to add them to the Selected labels list.
- Step 3** If you select Dynamic, enter a Label Expression, optionally using the **Formula Editor**.
- Step 4** Optionally, check **Enable target query**.
- Step 5** Optionally, add comments.

Related Topics

[Target Requery](#), on page 34

Return Multiple Labels to Routing Client

You can return multiple labels to a routing client by using the Divert Label node in the Targets tab of the Palette.

Figure 21: Divert Label Icon



When Unified ICM runs a Divert Label node, it returns all the values in the Selected Labels list to the routing client.

This differs from the Label node, which returns the first valid label for the current routing client.

Unified ICM then tries each label until it finds one that does not produce a Busy or Ring Tone No Response.

In most cases, you can specify up to ten labels in the Divert Label node. The exception is in NAM/CICM configurations, where you can specify up to nine labels; you must reserve one label for use by the NAM.

When you define a Divert Label node, you can select Configured Labels and Dynamic Labels. Configured labels are static, defined through the Unified ICM Configuration Manager. Dynamic Labels are expressions the CallRouter processes in real time, converting an expression into a character string that is then returned to the routing client as a label. You use formulas to create a Dynamic Label.

Notes:

- With the Divert Label Node, you can only select labels for routing clients with client types that support DivertOnBusy. Unified Contact Center client type does not support DivertOnBusy. The following client types do support DivertOnBusy: CRSP, AUCS INAP NIC, SS7IN NIC, NTL NIC and MCI NIC.
- When using a Divert Label node, arrange the labels so that a label defined with a type Busy or Ring the last label in the Divert Label Selected labels list. The reason for this is that a Busy or Ring label terminates the call; any label appearing after Ring or Busy is never used. Also, never use a Divert Label node when only one label exists in the list; use the Label node, instead.
- Never use a Divert Label node when only one label exists in the list; use the Label node instead.

Define Divert Label node properties as follows:

Procedure

-
- Step 1** Select the Label Type:
- Configured, to select from a list of configured labels.
 - Dynamic, to define an expression that is to be returned as a label.
- Step 2** If you select Configured, select labels from the Available labels list and click **Add>** to add them to the Selected labels list.
- Step 3** If you select Dynamic, enter a Label Expression, optionally using the Formula Editor.
- Step 4** Optionally, add comments.
-

Selection of Targets by Rules

You can create a script to select a specific target from set of targets based on the rule you select or define.

For example, you can create a script that selects as a target the skill group with longest available agent (LAA) from a set of skill groups.

When defining scripts to select targets by rules, you must be aware of the following:

- [Types of Target Searches](#)
- [Standard Selection Rules](#)
- [Custom Selection Rules](#)

Types of Target Searches

When you use a Select node, you specify if the script is to search for the target that matches the criteria you define starting with the first target in the list, or the next target after the previously chosen target:

Start with first target - Also referred to as a homing search, this option has the script search for the target that meets the criteria you define starting with the first item in the list. For example, you can define a script to select the longest available agent from either the Technical Support skill group (the first skill group in the list) or the backup skill group (the second, and last, item in the list). When you choose this option, whenever the script can find an available agent in the Technical support skill group, the contact is routed to that agent. Agents from the Backup skill group are only selected as targets when the script fails to find an available agent in the Technical support skill group. When you select this option, targets towards the top of the list typically receive a higher percentage of the contacts.

Start with next target - Also referred to as a rotary search, this option has the script search for the target that meets the criteria you define starting with the item in the list after the target previously selected. For example, you can define a script to select the longest available agent from one of three separate technical support skill groups. When you select this option, after a script selects an agent from the first skill group, for the next contact, the script starts looking for an agent in the second skill group. When you select this option, contacts are distributed more evenly among the potential targets.

Standard Selection Rules

When you use the Select node, you can choose from one of the following standard selection rules:

Table 1: Select Node Standard Selection Rules

Selection Rule	Applicable Targets	Formula	Description
Always Select	Any target		Selects the first target that passes the specified acceptance rule.

Selection Rule	Applicable Targets	Formula	Description
Longest Available Agent (LAA)	Skill Groups and Enterprise Skill Groups	Consider if: *.AgentsAvail > 0 Evaluate: MAX (* .LongestAvailable)	Selects the target with the agent who has been available for the longest time. This selection rule helps to ensure that all agents in the skill group set are kept equally busy. It does not ensure that a particular agent is assigned the contact. If the target set includes a skill group that has subgroups (.pri, .sec, etc.), only agents logged in to the base group are considered. Because agents do not usually log in to the base group, specify the base groups you want to consider.
Next Available Agent (NAA)	Skill Groups and Enterprise Skill Groups	Consider if: *.AgentsAvail > 0 Evaluate: MAX (* .AgentsAvail/* .AgentsSignedOn)	Selects the target with the highest percentage of available agents.
Minimum Average Speed Answer (Min ASA)	Services and Enterprise Services	Evaluate: MIN (* .AvgSpeedAnswerTo5)	Selects the target in the set that is, on average, answering contacts most quickly. Because this selection rule evaluates the historical average, it does not select a target based on the current or expected future state of the contact center. Therefore, unexpected load imbalances may occur when you use this rule. To avoid this potential problem, you can use the Minimum Expected Delay selection rule instead.
Minimum Calls in Queue Per Position (Min C/Q)	Services and Enterprise Services	Evaluate: MIN (* .CallsQNow/* .AgentsReady)	Selects the target in the set with the lowest ratio of calls waiting and staffed stations. If agents are equally efficient at each target in the set, this rule tends to lead to the shortest average hold times. However, if agents are not equally efficient, some customers might wait longer than necessary at the less efficient target. To avoid this potential problem, you can use the Minimum Expected Delay selection rule instead.
Minimum Average Queue Delay (Min AvgQD)	Services and Enterprise Services	Evaluate: MIN (* .AvgDelayQTo5)	Selects the target in the set with shortest average hold times, assuming that agents at each target are equally efficient. Because this selection rule evaluates the historical average, it does not select a target based on the current or expected future state of the contact center. Therefore, unexpected load imbalances may occur when you use this rule. To avoid this potential problem, you can use the Minimum Expected Delay selection rule instead.
Minimum Longest Delayed Call (Min Delay)	Services and Enterprise Services	Evaluate: MIN (* .LongestCallQ)	Selects the target with the shortest longest delayed call. Note: This selection rule evaluates the historical average, not the current or expected future state of the contact center. Routing contacts to the target with the shortest longest delayed call does not immediately change the longest delay value. Therefore, this selection rule may route a disproportionately large number of calls to a single target. To avoid this potential problem, you can use the Minimum Expected Delay selection rule instead.

Selection Rule	Applicable Targets	Formula	Description
Minimum Expected Delay (MED)	Services and Enterprise Services	Evaluate: MIN (*.ExpectedDelay)	Selects the target with the shortest expected delay. In making this evaluation, this selection rule considers the average handle time, the number of contacts in queue, and the number of positions staffed. This rule is usually the most effective rule for keeping queue times to a minimum. The MED algorithm is not supported on Unified CCE.

Caution: Values used by the standard selection rules Minimum Average Speed Answer, Minimum Average Queue Delay, and Minimum Longest Delayed Call change slowly. Because the averages in these rules only consider what has happened in the past rather than what is currently happening, using these rules inappropriately can lead to load imbalances as newly routed contacts have little immediate effect on the values used to route later contacts. In contrast, the standard selection rule Minimum Expected Delay takes into account each contact as it is routed. Selecting the service using the Minimum Expected Delay rule usually provides the best balance among the services in the target set.

Custom Selection Rules

Instead of using one of the standard selection rules, you can create a custom selection rule. To write custom selection rules, you must be familiar with using formulas. For more information on formulas, see the chapter Use of Formulas.

A custom selection rule has three parts:

- **Consider if statement 0.** This expression ensures that only skill groups with at least one available agents are considered as targets; if a skill group has no available agents, the expression returns False and the skill group is not considered.
- **Selection criteria.** A numeric expression plus an evaluation rule. The numeric expression determines a certain value of each target for which the Consider if statement returned True. The evaluation rule determines if the target with the minimum or maximum value returned is selected. If you do not define selection criteria, the first target to return True for the Consider if statement is selected. For example, the Selection criteria for the predefined Longest Available Agent selection rule is MAX (*.LongestAvailable). This expression determines the highest LongestAvailable value of all the skill groups in the target set for which the Consider if statement returned True.
- **Accept if statement.** A Boolean expression that returns True or False for the target selected by the selection criteria. If the Accept if statement returns True, the target is selected; if it returns False, no target is selected by the Select node.

Selection of Targets by Rules

You can select targets by rules by using the Select node in the Routing tab of the Palette.

Figure 22: Select Node Icon



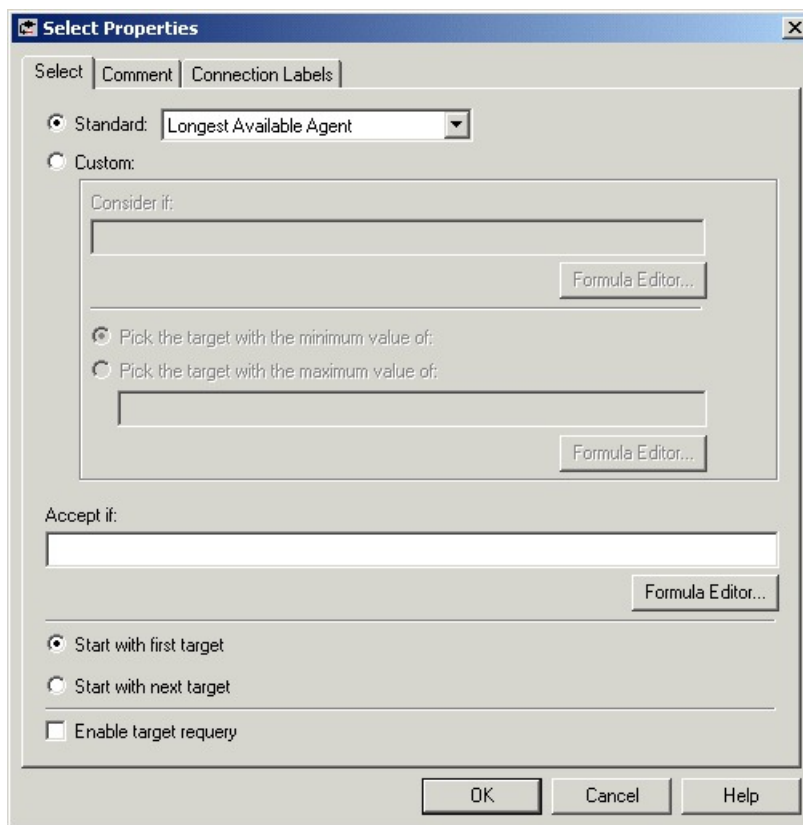
The Select node sets up a rule by which the node chooses from a set of routing targets for the contact. You can select a standard rule or define your own custom rule. This node also has target requery capabilities.

Notes:

- You can follow the instructions in this section to select targets by rules using the Select node. You can also use the Route Select node to select targets as well as distribute contacts to targets.
- You must add a skill target and create a connection from the Select node's success terminal, and define at least one target in the target set, before defining the Select node.
- The Select Node supports Target Requery.

Following is the Properties dialog box of the Select node:

Figure 23: Select Properties - Select Tab



Define Select node properties as follows:

1. Select from the list of Standard rules, or select Custom and:
 - In the **Consider if** field, enter a Boolean expression. A target is considered for selection only if the Consider If expression is true for that target. Optionally, use the Formula Editor.
 - Select **Pick the target with the minimum value of** or **Pick the target with the maximum value of** and enter an expression to select the target.
2. Optionally, in the **Accept if** field, enter a Boolean expression that must evaluate to true for the target to be selected. It determines whether the target must be returned or the process must end. The Boolean

expression does not permit wild cards and evaluates various conditions to determine if any target must be returned. For example, you can use a peripheral user variable such as **Peripheral.PG_CCM.userRouteToCustomerService==1** in the **Accept if** field of a Select node to determine whether the script is routed to any customer service skill groups at a particular time.

3. Select **Start with first target** or **Start with next target** to indicate how Unified ICM looks for targets. For more information, see the section [Types of Target Searches](#).
4. Optionally, check **Enable target requery**.
5. Optionally, add comments and connection labels.

Related Topics

[Target Requery](#), on page 34

Distribute Contacts to Targets

You can create a script to allocate contacts among the targets in the set based on current information about each target by using the Distribute node in the Routing tab of the Palette.

Figure 24: Distribute Icon



For example, you can distribute contacts among a set of services based on the number of agents in the service in the Ready state. Services with more agents in the ready state are routed more contacts than services with fewer agents in the Ready state, thus keeping the load balanced.

You can distribute contacts to any of the following types of target sets: Agent, Skill Group, Service, Enterprise Skill Group, or Enterprise Service.

When creating a script to distribute contacts to targets, you must define the following for the Distribute node using formulas. For more information on using formulas, see the chapter [Use of Formulas](#).

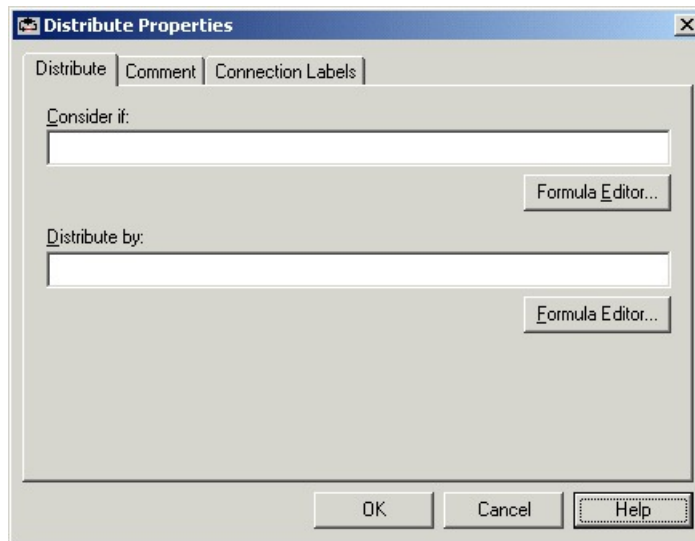
- **Consider if statement.** A Boolean expression that returns True or False for each target in the target set. Only targets in the set for which the expression is True are eligible to be distributed contacts. If you do not define an expression for the Consider if statement, all targets in the target set are considered. For example,
- **Distribute by statement.** A formula used to distribute contacts to targets

Notes

- You can follow the instructions in this section to distribute contacts to targets using the Distribute node. You can also use the Route Select node to select targets as well as distribute contacts to targets.
- You must add a skill target and create a connection from the Distribute node's success terminal, and define at least one target in the target set, before defining the Distribute Enter node.

Following is the Properties dialog box of the Distribute node:

Figure 25: Distribute Properties - Distribute Tab



Define Distribute node properties as follows:

Procedure

-
- Step 1** Enter a condition in the Consider if field to test potential targets against.
 - Step 2** Enter a formula by which to distribute contacts in the Distribute by field.
 - Step 3** Optionally, add comments and connection labels.
-

Select Targets and Distribute Contacts with One Node

You can combine the functionality of selecting targets by rules with the Select node and distributing contacts to targets with the Distribute node by using the Route Select node in the Targets tab of the Palette.

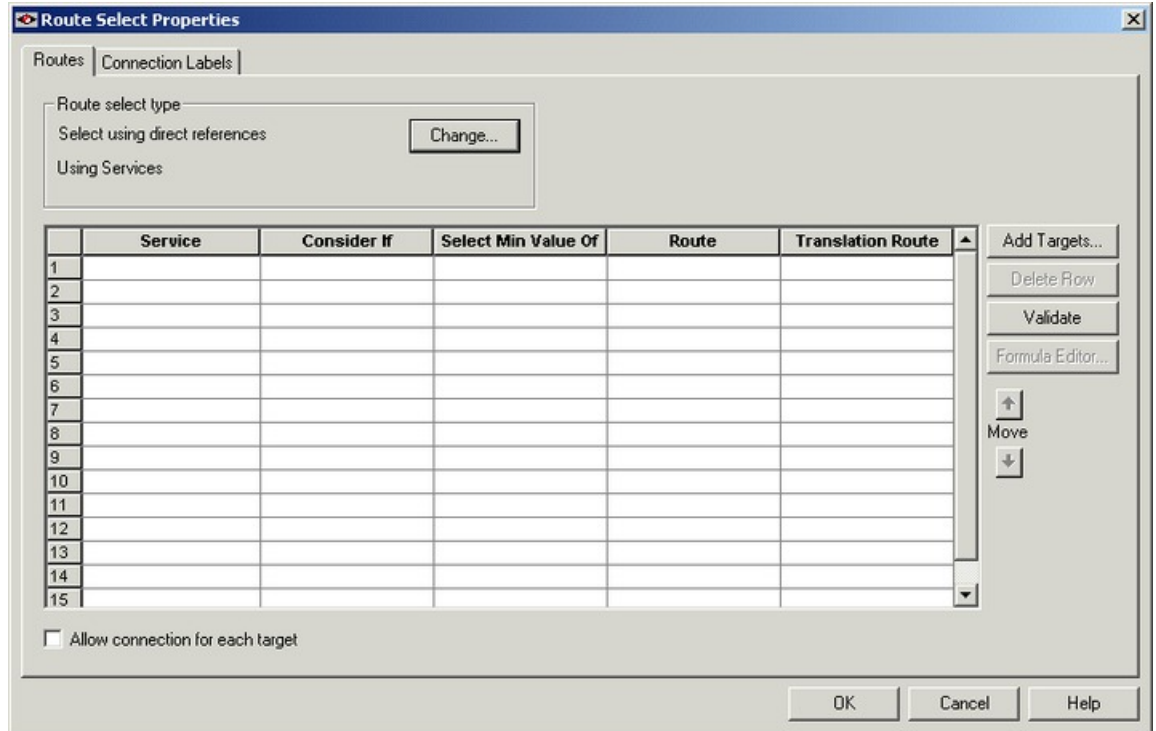
Figure 26: Route Select Icon



Note The Route Select Node supports Target Query.

Following is the Properties dialog box for the Route Select node:

Figure 27: Route Select Properties - Route Tab



Define Distribute node properties as follows:

Procedure

Step 1 To select the Route select type, click **Change**. The Route Select Type dialog box opens:

Figure 28: Route Select Type

- a) For Target Type, select **Agent**, **Enterprise Service**, **Enterprise Skill Group**, **Service**, **Service Array**, or **Skill Group**.
- b) If you selected Enterprise Service or Enterprise Skill Group, select a **Business Entity** and **Enterprise target**.
- c) Select **Distribute among targets** or **Select most eligible targets**.
- d) If you selected **Select most eligible targets**, select **Pick the target with the minimum value** or **Pick the target with the maximum value**. In the Accept target if field, enter a condition that the target must meet to be selected. Select **Start with first target** or **Start with next target**. For more information, see [Types of Target Searches](#).
- e) In the Target references field, select **Explicit target references** to use direct references to targets, or **Lookup target references by expression** to use expressions that evaluate to names of targets. **Note** **Lookup target references by expression** is not available when an External Authorization server is used with Internet Script Editor and will be grayed out in the interface.
- f) Optionally, check **Enable target requery**.
- g) Click **OK**.

Step 2 The fields in the Route Select Properties dialog box change depending on your route select type selections. Enter and select data appropriate for the type you selected.

Step 3 Click **Validate** to check whether the targets you defined are valid. Correct any errors that are flagged.

Step 4 Optionally, add connection labels.

Transfer Calls from Agents to Agents

You can transfer a call from an agent to an agent by using the Agent to Agent node in the Targets tab of the Palette.

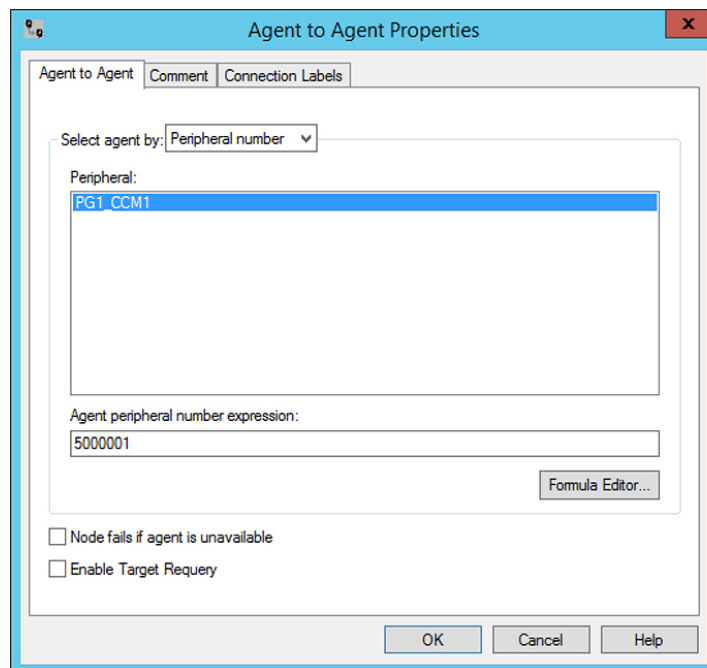
Figure 29: Agent to Agent Icon



The Agent to Agent node routes the call to the specified agent. You define the agent either by directly selecting the agent from the database or by providing an expression using a formula. The expression must translate to agent peripheral number or SkillTargetID. The router then finds a valid label for the agent. If there are no labels configured for the specified agent, the failure node of the Agent to Agent node is run.

Following is the Properties dialog box for the Agent to Agent node:

Figure 30: Agent to Agent Properties



Define Agent to Agent node properties as follows:

Procedure

- Step 1** Choose an option from the **Select agent by** drop-down list:
- Peripheral number - To select a peripheral and a provide formula that translates to the agent's peripheral number.
 - Enterprise Name - To select the agent from the list of configured agents.

- c) Skill target ID - To select the agent by providing an expression that translates into the agent's SkillTargetID. In the supervisory case, the expression should use the call's PreferredAgentID.

Step 2 Based on your selection in Step 1, select the peripheral or agent, or enter an expression, as necessary.

Step 3 Optionally, check or uncheck **Fail node** if agent is unavailable:

- a) When checked, the success branch of the Agent to Agent node is run and the router sends the call if the router finds a valid label for the agent, the agent is available, and the agent state is Ready.
- b) The failure branch of the Agent to Agent node is run if the router does not find a valid label for the agent, or the agent is not available or the agent is in TempUnavailable mode (the router has just send a call to the agent).
- c) When not checked, the success branch of the Agent to Agent node is run and the router sends the call if the router finds a valid label for the agent. The failure branch of the Agent to Agent node is run if the Router does not find a valid label for the agent.

Step 4 Optionally, add comments and connection labels.

Step 5 Optionally, check **Enable Target Requery**.

Related Topics

[Target Requery](#), on page 34

Send Contact to a Different Unified ICM System

A script may determine that the contact should be routed by a different Unified ICM system.

You send a contact to a different system by using the ICM Gateway node in the Routing tab of the Palette.

Figure 31: ICM Gateway Icon



The ICM Gateway node passes a routing request to the selected Unified ICM system.



Note Before you can successfully use an ICM Gateway node in a script, you must use the Unified ICM Configuration Manager to configure a gateway to the Unified ICM system to which you send the request. For more information, see the *Configuration Guide for Cisco Unified ICM/Contact Center Enterprise* at <https://www.cisco.com/c/en/us/support/customer-collaboration/unified-contact-center-enterprise/products-installation-guides-list.html>.

Define the ICM Gateway node properties as follows:

Procedure

Step 1 In the Send tab:

- a) Select the gateway to Unified ICM system (and hence the specific Unified ICM instance) from the ICM Gateways list to which you want to send the request.
- b) Check **Validate** returned labels to have Unified ICM validate the returned labels.

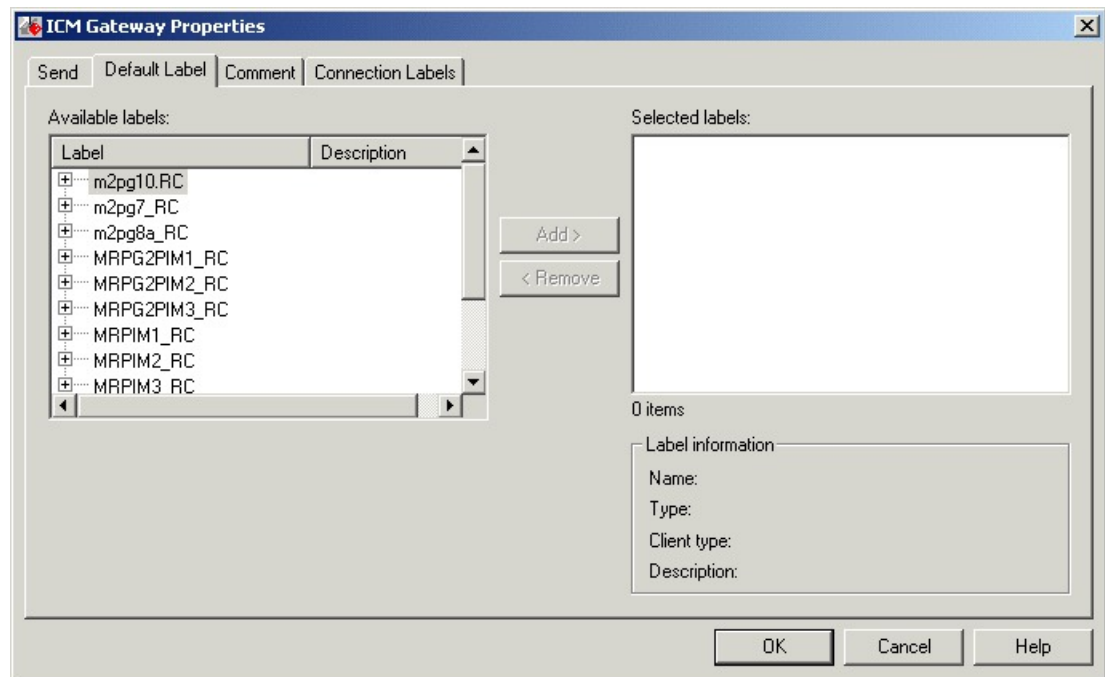
c) Specify whether Calling Line ID masking instructions should be applied before the request is passed to the other Unified ICM system. The Calling Line ID masking refers to when the caller's phone number is modified so that Unified ICM application does not display all of the digits; this is used in a NAM environment, where NAM sends the call to a customer Unified ICM. Choose one of the following:

- 1) **Do not apply masking rule** - If selected, masking instructions are ignored.
- 2) **Apply masking rule if call is presentation restricted** - If selected, applies masking instructions if the call variable CLIDRestricted is set to 1.
- 3) **Always apply masking rule** - If selected, masking instructions are always applied.

Note The Calling line ID masking rule is set through the Unified ICM Configuration Manager's System Information dialog box.

Step 2 In the Default Label tab:

Figure 32: ICM Gateway Properties



- a) In the Available Labels list, select one default label for each routing client to be used by the targeted Unified ICM system.
- b) Click **Add** to move the selected label to the Selected labels list.

Step 3 Optionally, add comments and connection labels.

Nodes Used to Stop Script Processing

You can use the following nodes to stop script processing:

- End Node
- Termination Node
- Release Call Node

End Node

You can terminate the script by using the End node in the General tab of the Palette.

Figure 33: End Icon



If the script reaches the End node, it has failed to find a target for the contact. Unified ICM then uses the default route for the Dialed Number.

Several End nodes can appear in the same script. The End node is never required; a script can terminate with any node.

You do not define any properties for the End node. You can optionally add comments.

Termination Node

You can terminate the script and specify how to handle the contact by using the Termination node in the Targets tab of the Palette.

Figure 34: Termination Icon

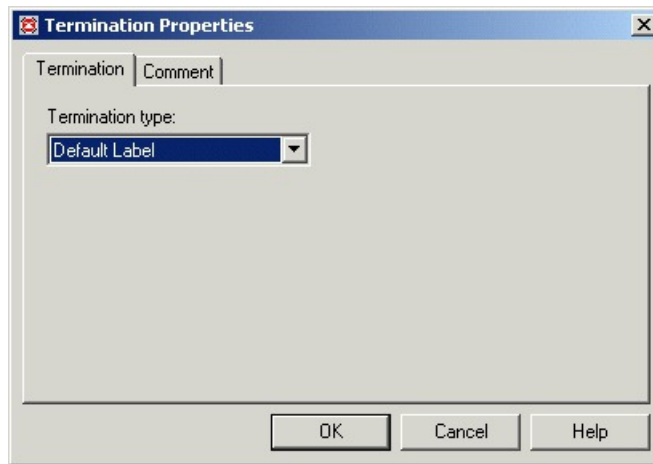


The Termination node includes the following options to invoke a default contact processing action or route for the Dialed Number:

- Default Label - Unified ICM uses the default label configured for the Dialed Number.
- Network Default - The routing client uses its own default processing.
- Ring - Makes the Termination node equivalent to a Ring node.
- Busy - Makes the Termination node equivalent to a Busy node.

Following is the Properties dialog box for the Termination node:

Figure 35: Termination Properties



Related Topics

[Targets Tab](#)

Release Call Node

You can terminate the script and disconnect the caller by using the Release Call node in the Targets tab of the Palette.

Figure 36: Release Call Icon



You can use a Release Call node in situations where the caller needs no further service after executing several VRU scripts.

You do not define any properties for the Release Call node. You can optionally add comments.

Service Requested

ServiceRequested is a call variable available in Script Editor. It provides more details regarding the routing request. The field is currently only set for multichannel routing (Task Routing), voice callback (Agent Request) and Pick/ Pull routing, otherwise it is set to 0. Based on the value of this field, the script can take different actions.

ServiceRequested Variable

Service Requested Variable	Description
0 = ROUTE_SERVICE_REQUEST_NONE	No service requested.
1 = ROUTE_SERVICE_REQUEST_VOICE_CALLBACK	Caller is requesting a voice callback.

2 = ROUTE_SERVICE_REQUEST_TRANSFER	Transfer a task that is already assigned to an agent back to a queue.
3 = ROUTE_SERVICE_REQUEST_RONA	A task is being rerouted on no answer (RONA).
4 = ROUTE_SERVICE_REQUEST_PICK_EXT_QUEUE	Pick a task that is associated external application queue for a specified agent.
5 = ROUTE_SERVICE_REQUEST_PULL_EXT_QUEUE	Pull a task that is associated external application queue for a specified agent.
6 = ROUTE_SERVICE_REQUEST_PICK_UCCE_AGENT	Pick a task that is already assigned to another agent for a specified agent.
7 = ROUTE_SERVICE_REQUEST_TRANSFER_PICK	Transfer a task that is already assigned to an agent directly to another agent, instead of back to a queue.

Target Requery

Target Requery is a script node feature that you can use to handle routing failures, for example due to No Answer or Busy responses, or for unreachable targets caused by transient failures in the network (such as network congestion). If the determined destination for a contact is available but not reachable, Target Requery attempts to find a different valid destination.

You need Target Requery to address the following failures:

- Failure to deliver a call to an ACD agent.
- Failure to deliver a call to an individual Enterprise Agent (EA).
- Failure of the outbound leg of a blind-mode Network Transfer.
- Target Requery works on a per call basis; that is, the routing information for one call does not affect the state for other calls. If the first target selected for the contact was not reachable, the target is not eliminated from the potential routing destinations for other contacts.



Note You can enable the Target Requery feature for CVP, ICM to ICM gateway, and a subset of the supported carrier NICs. You cannot use the requery feature with any of the multimedia requests because the MR PG does not support requery mechanism.

Target Requery Functionality

In the system, when queried, the CallRouter returns a label to the routing client. The routing client then routes the call to the destination specified by the label. If the destination is not reachable (for example, because of a busy signal or no answer), the call is routed to the default destination.

With Target Requery in a Label, Route Select, or Select node, if the router fails to route to a target node, a second attempt is made. If the failure occurs a second time, then the router continues from the failure path in the node.



Note In a Queue node, just one target is used. If the router fails to route to the target node, the failure path of the node is taken immediately. To implement requery in a Queue node, you can create a script that increases the priority and requeries the call from the failure path to the same queue.

In the event of a failure, you can handle requerying in the scripting environment, as you deem appropriate.

Target Requery:

- Is compatible with translation routes.
- Does not require different definitions for different failure cases. However, you can choose to handle different failures differently.
- Assigns the SERVICE_DIVERT_ON_BUSY service type for calls that use target requery. The Event Select in the connect message includes a REROUTE_REQUESTED_MASK. When a destination cannot be reached, the NIC queries the CallRouter for an alternative destination label.

Test of the RequeryStatus Variable

You can test the error path of these script nodes using Target Requery to determine the specific network cause of failure and conditionally retry the attempt as necessary. You can accomplish this using an If node to check the value of the call variable RequeryStatus. The decision path for the script is then determined by the value of the RequeryStatus variable.

The following are possible values for the RequeryStatus variable:

Table 2: RequeryStatus Variables

Requery Status Variable	Description
REQUERY_ANSWER (0)	Script ends. The call was successfully sent to the chosen target. Note This variable is used internally by the CallRouter. You cannot test for this variable in an IF node.
REQUERY_ROUTE_SELECT_FAILURE (1)	Routing client generated an error code from ReRouteReq msg indicating a Route Select failure.
REQUERY_CALLED_PARTY_BUSY (2)	Routing client generated error code from ReRouteReq msg indicating the called party is busy.
REQUERY_NO_ANSWER (3)	Routing client generated an error code from ReRouteReq msg indicating no answer.
REQUERY_ERROR (4)	CallRouter generated an error code. The attempt to send the call to target failed because the target was not reachable (i.e., busy, ring no answer).

Requery Status Variable	Description
REQUERY_ABORTED (5)	<p>The attempt to send the call to a target failed because the caller abandoned before the call could be delivered to its destination. In the case of ABANDON and DISCONNECT, the CallRouter assumes the call has ended and ends the script. The RequeryStatus value is set to 5, indicating REQUERY_ABORTED.</p> <p>Note This variable is used internally by the CallRouter. You cannot test this variable in an IF node.</p>
REQUERY_TIMED_OUT (6)	<p>The call attempt failed because the routing client did not respond to the router within the DivertOnBusyCallTimeout period (180 seconds by default). If the target node has Router Requery enabled, when DivertOnBusyCallTimeout period expires, the Router closes the Router Requery with REQUERY_TIMED_OUT .</p> <p>Note This variable is used internally by the CallRouter. You cannot test this variable in an IF node.</p>

Nodes That Support Target Requery

The following nodes support Target Requery:

- Label
- Queue
- Queue to Agent
- Precision Queue
- Route Select
- Select
- Agent to Agent



Note Scheduled Targets do not support Target Requery.

Target Requery with Unified CCE and Unified IP IVR

Target Requery is not supported when Unified IP IVR is used as the queue point in a Unified CCE system because Unified IP IVR cannot requeue the call. The call is requeued from Cisco Communications Manager instead. Setting the Target Requery option on the script node has no effect on the requeuing of the call, and may lead to timeouts and other script errors for that particular call.

Do not enable Target Requery in script nodes when you use Unified IP IVR.

Use Target Requery

You define nodes to enable Target Requery. For the Queue, Queue to Agent, Agent to Agent, and Route Select nodes:

Procedure

- Step 1** Open the node properties.
 - Step 2** Click **Change**. A dialog box opens.
 - Step 3** Check **Enable target requery**.
 - Step 4** Click **OK** to close the dialog box.
 - Step 5** Click **OK** to close the properties dialog box.
 - Step 6** For the Label, Select and Precision Queue nodes:
For the Label and Select nodes:
 - a) Open the node properties.
 - b) Check **Enable Target Requery**.
 - c) Click **OK** to close the properties dialog box.
-

Target checking

About Call Tracer

You can use the Call Tracer utility from within Script Editor to test and debug a routing script and to confirm that the Unified ICM is selecting targets as you expect. Call Tracer simulates a contact to the CallRouter and generates a text-based description of how the contact was handled. The test contact is processed by the active CallRouter, using all the real-time data of Unified ICM as it exists at that moment, but interactions with any peripheral is simulated.

Check Targets

To check targets for a voice calls:

Before you begin

Start the Call Tracer by double-clicking the Call Tracer icon in the Administration & Data Server group. The Script Editor and Call Tracer open. To open Call Tracer if the Script Editor is already open, double-click the Call Tracer icon in either the Administration & Data Server group or within the Script Editor toolbar.

Figure 37: Call Tracer Icon



Procedure

- Step 1** In the Call Tracer window, choose a Media Domain as voice, a Routing Client, and a Dialed Number.
 - Step 2** Optionally, enter an ANI (callers telephone number).
 - Step 3** If you want to test a response from a VRU routing script, enter values in Caller-Entered-Digits (CED) and VRU Responses for External Script.
 - Step 4** To use Network Transfer Call, a feature that integrates Unified ICM Post-Routing function with a carrier network's call control ability so that a call can be transferred anywhere in the network without the use of transfer/connect services or inter-site tie lines:
 - a) Select Use Network Transfer.
 - b) Select a routing client and a Dialed Number value.
 - Step 5** Click **Send Call** to submit the request. The results appear in the Call Trace Results field.
 - Step 6** To send additional calls, optionally change any of the call parameters and then click **Send Call** again. The Call Trace Results field is updated.
 - Step 7** Unified ICM runs only installed scripts in response to requests from the Call Tracer. Any uninstalled changes in scripts are not reflected in the Call Tracer results.
-

Procedure

To check targets for a non-voice calls:

Procedure

- Step 1** In the Call Tracer window, choose a Media Domain other than a voice call, a Routing Client, and a Script Selector.
 - Step 2** Optionally, enter an Application String 1 and Application String 2.
 - Step 3** For tracing **PICK/PULL** request.
 - a) Select a **Service Type**, and choose a **Queue Type**
 - b) Enter a **Queue ID** and select the CCUM/system Peripherals with a **Preferred Agent**.
 - Step 4** Click **Send Call** to submit the request. The results appear in the Call Trace Results field.
 - Step 5** To send additional calls, optionally change any of the call parameters and then click **Send Call** again. The Call Trace Results field is updated.
 - Step 6** Unified ICM runs only installed scripts in response to requests from the Call Tracer. Any uninstalled changes in scripts are not reflected in the Call Tracer results.
-

Example Results

In the following example results from Call Tracer, Unified ICM invokes a script called sales. It begins with the Start node and then runs a Percent Allocation node that has three branches allocated for 42%, 16%, and 42%, respectively. The asterisk indicates that for this call, Unified ICM chooses the first branch. This branch

leads to a target that maps to the service Scranton.Sales. Had this been an actual call, the call would be delivered to that service.

As you continue to send calls to the Unified ICM, the numbers for each node change to indicate how calls have been distributed. Each time a call arrives at a Percent Allocation node, the Unified ICM calculates the percentage of calls previously sent to each branch:

```
> DialedNumber (8005551212) using CallType (General_Sales - 6)

Start #3

__Sales\Sales__General (version 2)

Percent allocation #54

__*42% = 0
__ 16% = 0
__ 42% = 0

Target #64

__Service: Scranton.Sales R

Route: Scranton.Sales

Peripheral target: DNIS: 1111, Trunk group: Scranton.Incoming800

Label: 2010000000
```

In the next example, for each branch the new call is counted in the denominator. Therefore, the numbers add up to less than 1.0 and gradually, as you send more calls, the total increases up to 1.0. Unified ICM picks the branch that is below its allocation value. For the example allocation, Unified ICM picked the third branch as 0.375 is below the allocation of 42% or 0.42 and sent the call to the Gary.Sales service.

Traces are linked to live scripts. For example, clicking on the trace details of a Percent Allocation node immediately, if it is not already open, opens the script and locates that node in the Script Editor window. Previously, you needed to manually decode script, script version and node ID information, and then visually scan the script for the desired node. Node titles in the trace window support localization.

The Call Tracer results refer to script nodes by their internal integer identifiers. To find which node maps to each identifier, open the script and choose Display Node IDs from the Script menu:

```
> DialedNumber (8005551212) using CallType (General_Sales - 6)

Start #3

__Sales\Sales__General (version 2)

Percent allocation #54

__42% = 0.416667
__16% = 0.166667
__*42% = 0.375

Target #58

__Service: Gary.Sales

Route: Gary.Sales

Peripheral target: DNIS: 1111, Trunk group: Gary.Incoming800
```

Label: 3010000000

Check VRU Scripts

To check VRU scripts:

Before you begin

Call Tracer allows you to simulate responses from VRU routing scripts. For each Script node Unified ICM encounters, you can specify one of the following responses:

- Fail. Unified ICM treats the External Script nodes as though it had failed.
- No Response. Unified ICM assumes it received no response from the Run External Script node.
- Response. You can specify a CED value and values for Variable1 through Variable10. Unified ICM assumes these values were returned by the External Script node.

Procedure

- Step 1** In the Call Tracer dialog box, click **Add**. The VRU Response dialog box opens.
- Step 2** Select the type of response (Fail, No Response, Response) the Call Tracer is to simulate.
- Step 3** If you chose Response in Step 2, optionally specify values to be returned for CED and Variable1 through Variable10.
- Step 4** Click **OK** to apply changes and close the dialog box.
-

What to do next



Note You can also set the initial condition of the 10 call variables for the first run of the External Script.
