Oracle® Communications Session Route Manager

User Guide

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Oracle Communications Session Route Manager User Guide, Release 8.2

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About This Guide

This document and other product-related documents are described in the Related Documentation table.

Related Documentation

Table 1 Oracle Communications Product Plug-in Documentation Library

Document Name	Description
Session Element Manager User Guide	Provides information for managing and optimizing network infrastructure elements and their functions with comprehensive tools and applications used to provision fault, configuration, accounting, performance, and security (FCAPS) support for managed network functions and their associated devices in Oracle Communications Session Delivery Manager (SDM).
Report Manager User Guide	Provides information about configuring Report Manager to interoperate with Oracle BI Publisher as well as creating reports on Session Delivery product network devices.
Report Manager Installation Guide	Provides information for installing Oracle Communications Report Manager product as an addition to SDM including the Oracle database and BI Publisher components. The Oracle session delivery product plugin must be added to Oracle Communications Session Delivery Manager before performing the Report Manager installation.
Route Manager User Guide	Provides information for updating local route table (LRT) data on a single device or multiple devices.

Table 2 Oracle Communications Session Delivery Manager Documentation Library

Document Name	Document Description
Administration Guide	Provides the following administration information: • Implement SDM on your network as a standalone server or high availability (HA) server. • Login to the SDM application, access GUI menus including help, customize the SDM application, and change your password. • Access the product plugin service through the GUI to manage product plugin tasks, including how product plugins are uploaded and installed. • Manage security, faults, and transport layer security certificates for east-west peer SDM server communication, and southbound communication with network function (NF) devices. • Configure northbound interface (destination) fault trap receivers and configure the heartbeat trap for northbound systems. • Monitor SDM server health to detect heartbeat messages and display the server status to prevent health problems, or view server disk utilization information and server directory statistics. • Maintain SDM server operations, which includes database backup and database restoration and performing server cluster operations. • Use available SDM server scripts, the contents of fault trap notifications, and a list of northbound notification traps generated by the SDM server.
Installation Guide	Provides the following installation information: • Do pre-installation tasks, which include reviewing system requirements, adjusting linux and firewall settings, completing SDM server settings and configuring your NNCentral account for security reasons. • Do the typical installation to perform the minimal configuration required to run the SDM server. • Do the custom installation to perform more advanced configurations including the mail server, cluster management, Route Manager, transport layer security (TLS), and Oracle database configuration.
Release Notes	Contains information about the administration and software configuration of the SDM feature support new to this release.

Table 2 (Cont.) Oracle Communications Session Delivery Manager Documentation Library

Document Name	Document Description
Security Guide	Provides the following security guidelines: • Use guidelines to perform a secure installation of SDM on your server, which includes methods for securing the server, firewall settings, system support for encryption and random number generators (RNG), using HTTPS, and password guidelines. • Review Security Manager features that are used to configure groups, users, operations, privileges, and manage access to the system. • Follow a checklist to securely deploy SDM on your network and maintain security updates.
REST API Guide	Provides information for the supported REST APIs and how to use the REST API interface. The REST API interface allows a northbound client application, such as a network service orchestrator (NSO), to interact with SDM and its supported product plugins.
SOAP API Guide	The SOAP API guide provides information for the SOAP and XML provisioning Application Programming Interface (API) client and server programing model that enables users to write client applications that automate the provisioning of devices. The web service consists of operations that can be performed on devices managed by the SDM server and data structures that are used as input and output parameters for these operations.

My Oracle Support

My Oracle Support (https://support.oracle.com) is your initial point of contact for all product support and training needs. A representative at Customer Access Support (CAS) can assist you with My Oracle Support registration.

Call the CAS main number at 1-800-223-1711 (toll-free in the US), or call the Oracle Support hotline for your local country from the list at http://www.oracle.com/us/support/contact/index.html. When calling, make the selections in the sequence shown below on the Support telephone menu:

1. Select 2 for New Service Request.
2. Select 3 for Hardware, Networking, and Solaris Operating System Support.
3. Select one of the following options:
   - For technical issues such as creating a new Service Request (SR), select 1.
   - For non-technical issues such as registration or assistance with My Oracle Support, select 2.

You are connected to a live agent who can assist you with My Oracle Support registration and opening a support ticket.

My Oracle Support is available 24 hours a day, 7 days a week, 365 days a year.

Emergency Response

In the event of a critical service situation, emergency response is offered by the Customer Access Support (CAS) main number at 1-800-223-1711 (toll-free in the US), or call the Oracle Support hotline for your local country from the list at http://www.oracle.com/us/support/contact/index.html. The emergency response provides immediate coverage, automatic escalation, and other features to ensure that the critical situation is resolved as rapidly as possible.

A critical situation is defined as a problem with the installed equipment that severely affects service, traffic, or maintenance capabilities, and requires immediate corrective action. Critical situations affect service and/or system operation resulting in one or several of these situations:

- A total system failure that results in loss of all transaction processing capability
- Significant reduction in system capacity or traffic handling capability
- Loss of the system's ability to perform automatic system reconfiguration
- Inability to restart a processor or the system
- Corruption of system databases that requires service affecting corrective actions
- Loss of access for maintenance or recovery operations
- Loss of the system ability to provide any required critical or major trouble notification

Any other problem severely affecting service, capacity/traffic, billing, and maintenance capabilities may be defined as critical by prior discussion and agreement with Oracle.

Locate Product Documentation on the Oracle Help Center Site

Oracle Communications customer documentation is available on the web at the Oracle Help Center (OHC) site, http://docs.oracle.com. You do not have to register to access these documents. Viewing these files requires Adobe Acrobat Reader, which can be downloaded at http://www.adobe.com.

1. Access the Oracle Help Center site at http://docs.oracle.com.
2. Click **Industries**.
3. Under the Oracle Communications sub-header, click the **Oracle Communications documentation** link.
   The Communications Documentation page appears. Most products covered by these documentation sets appear under the headings "Network Session Delivery and Control Infrastructure" or "Platforms."
4. Click on your Product and then Release Number.
   A list of the entire documentation set for the selected product and release appears.
5. To download a file to your location, right-click the **PDF** link, select **Save target as** (or similar command based on your browser), and save to a local folder.

Revision History

This section provides a revision history for this document.

Date	Revision
May 2019	• Initial Release.
March 2021	• Includes updates for SDM 8.2.3
July 2021	• Includes updates for SDM 8.2.4

1 Overview

The Oracle Communications Route Manager application is used to update local route table (LRT) data on a single device or multiple devices.

Session Element Manager Prerequisites

The following prerequisites are required before you can access product plugin FCAPS functionality in the Session Delivery Manager GUI.

> **Note:**
>
> Unsupported features are hidden or disabled by the product plugin.

- You must install the Session Delivery Manager server before you can install your product plugin through the Session Delivery Manager GUI. See the *Oracle Communications Session Delivery Manager Installation Guide, Release 8.1* for Session Delivery Manager server installation instructions.
- You must upload and install the product plugin in the Session Delivery Manager GUI. See the *Session Delivery Manager Software Distribution Media* section in the *Oracle Communications Session Delivery Manager Release Notes, Release 8.1* for the file name of your product plugin, and the *Oracle Communications Session Delivery Manager Administration Guide* for product plugin upload and installation instructions.

Basic Route Manager Functionality

You can use the Oracle Communications Route Manager application to update local route table (LRT) data on a single device or on multiple devices, provision large LRTs across multiple SBCs and Session Routers for numeric-based routing, and do the following:

- Import routes from a comma-separated value (CSV) file that contains routing information.
- Assign a list of devices to a route set.
- Generate an LRT file, which contains an XML route table, from a route set.
- Push an LRT file to all assigned devices.
- Refresh LRT data on a device using the LRT file that was pushed.
- Back up, restore, and rollback route sets if necessary.

> **Note:**
>
> Before you can work with route sets in the **Route Sets** tab, you must lock the route set. Only users with full permission granted can lock and unlock route sets. See the *Apply User Group Privileges for Route Manager* section in the *Security Manager* chapter of the *Oracle Communications Session Delivery Manager Administration Guide* for more information.

- Add and manage route sets.
- Add routes to route sets or modify routes in a route set.
- Maintain a history of route changes and system updates through audit log capabilities in Oracle Configuration Session Delivery Manager.
- Provide global search and replace capabilities.

Basic Route Manager Components

When you use Oracle Communications Route Manager, you work with several components, including CSV and LRT files, route sets, routes and devices.

CSV File

The following CSV file fields must be specified to import a CSV file that is used to build XML route tables:

- **operation**—Add or delete operations for routes in a route set
- **public identifier (pub-id)**—A public identifier in the form of a telephone number or prefix (for example, NPA-NXX) used in LRT lookup. It is referred to in the LRT XML as object “user” of type “E164”. The Pub Id (or the Pub Id formula and the associated fields required to generate Pub Id): identified in the LRT XML as the object “next” of type “regex”. The Pub Id can be a string value if the route set’s Pub Id type is set to string. Pub Id can be directly imported or edited or it could be the result of the record’s formula. The regex in the LRT file is the URI scheme used by the network attribute to route the call.
- **Session establishment data (SED or the SED formula and the associated fields required to generate SED)**—Identified in the LRT XML as the object “next” of type regex. SED can be directly imported or edited or it could be the result of the record’s formula. The regex in the LRT file is the URI scheme used by the network attribute to route the call.

> **Note:**
>
> Any other combination of fields can be empty, unless they are included in the formula field of the record for which an error should be reported in the import log. A formula specified in Oracle Communications Route Manager during import is applied globally and stored with each record during the import operation. A value supplied in the formula field of a record has precedence over the formula specified in Oracle Communications Route Manager during the import process. The order and preference determines the order of the numbers in the XML file. The lowest number appears first.

LRT File

The Oracle Communications Route Manager application creates an LRT file by first importing individual routes from a CSV file. These routes are stored in the database and grouped into a route set. The database also contains a list of devices that the LRT file resides upon. This list is used when an update task refreshes the LRT information for a specific route set. The LRT file is gzipped and placed at a specified location on the device. Once the file has been successfully transferred to a device, an action can be issued to each device to load the file. The LRT file location on the device is **/code/lrt**. You can also import an LRT file from a device into Oracle Communications Route Manager. See the View LRT Files section for more information.

The following example shows an LRT file meant for distribution to devices:

```
<?xml version="1.0" encoding="UTF-8"?>
<localRoutes>
 <route>
<user type="E164">9999999</user>
         <next type="regex">!^.*$!sip:04580090001@192.168.202.34:5060!</next>
     </route>
     <route>
<user type="E164">98888888</user>
         <next type="regex">!^.*$!h323:\7777777@172.16.202.33:1720!</next>
 </route>
 <route>
<user type="E164">7777777</user>
         <next type="regex">!^.*$!sip:8888888@192.168.202.34:9001!</next>
        <next type="regex">!^.*$!sip:8888888@192.168.202.35:9001!</next>
        <next type="regex">!^.*$!sip:8888888@192.168.202.36:9001!</next>
 </route>
 <route>
<user type="E164">7817654321</user>
         <next type="regex">!^.*$!sip:7817654321@192.168.200.223:5060!</next>
 </route>
<route>
<user type="E164">9817654321</user>
         <next type="regex">!^.*$!sip:9817654321@172.16.0.223:5060!</next>
 </route>
<route>
<user type="E164">10061</user>
         <next type="regex">!^.*$!sip:10061@172.16.0.198:5060!</next>
```

```
 </route>
       </localRoutes>
```

The following example shows an LRT file with the format, priority, and weight tags. If the route has format as "weighted", then it must have both Priority and Weight. For each route with a format, SDM inserts the format into the LRT file within a *format* tag. The *priority* and *weight* are included in the *next* tag as they are the attributes of the next hop.

```
<?xml version="1.0" encoding="UTF-8" ?>
<localRoutes>
<route format="weighted">
<description>testsample</description>
<user type="E164">11</user>
<next prio="1" weight="30" type="regex">!^.*$!sip:\0@SAG-Mediafone!</
next>
<next prio="1" weight="30" type="regex">!^.*$!sip:\0@SAG-Mediafone!</
next>
<next prio="1" weight="30" type="regex">!^.*$!sip:\0@SAG-Mediafone!</
next>
<next prio="1" weight="30" type="regex">!^.*$!sip:\0@SAG-Mediafone!</
next>
<next prio="1" weight="30" type="regex">!^.*$!sip:\0@SAG-Mediafone!</
next>
<next prio="1" weight="30" type="regex">!^.*$!sip:\0@SAG-Mediafone!</
next>
<next prio="1" weight="30" type="regex">!^.*$!sip:\0@SAG-Mediafone!</
next>
<next prio="1" weight="30" type="regex">!^.*$!sip:\0@SAG-Mediafone!</
next>
<next prio="1" weight="30" type="regex">!^.*$!sip:\0@SAG-Mediafone!</
next>
</route>
</localRoutes>
```

Route Set Properties

The following table contains a list of route entries and a description of each that can be imported from a CSV file or entered through the GUI.

Name	Description
Order	The numerical value used as a mechanism for sorting the display of route records in the application or order the output of routes in the LRT that have the same pub-id. The order of display or output is lowest numerical value to highest.
Preference	The numerical value used as a mechanism for sorting the display of route records in the application or order the output of routes that have the same pub-id and order. The order of display or output is lowest numerical value to highest.

Name	Description
Destination Group	The group of public identifiers that have an object in common. That object stores information that can be used to select a subset of the route set for an operation, for example for global replacement.
Next Hop	The IP address, FQDN, session agent name, or session agent group name that can be used in the formula to generate the SED for a route record.
Trunk Group	The alphanumeric string that can be used in the formula to generate the SED for a route record.
Trunk Context	The alphanumeric string that can be used in the formula to generate the SED for a route record.
Routing Number (RN)	The telephone number or prefix that can be used in the formula to generate the SED for a route record.
Carrier identification code ($CIC)	The numeric value that can be used in the formula to generate the SED for a route record.
User 1 through User 5	The alphanumeric value that has a user-specific definable meaning that can be used in the formula to generate the SED for a route record. It can also be used for aggregating route records into groups. Once defined, use of this field must be consistent within the route set.
SED Formula	The alphanumeric string that contains an expression used to define string concatenation and text replacement to generate the SED for a route record.
Pub Id Formula	The alphanumeric string that contains an expression used to define string concatenation and text replacement to generate the Pub Id for a route record.
NPA, NXX, Puser1, Puser2	The alphanumeric value that has a user-specific definable meaning that can be used in the formula to generate the Pub-Id for a route record. It can also be used for aggregating route records into groups. Once defined, use of this field must be consistent within the route set.

2

Add Route Sets

Use this chapter to add a route set by copying an existing route set, adding a new route set, or importing a route set from multiple CSV files or added manually through the GUI. This chapter also provides instructions for manually adding route entries to a route set.

Add a New Route Set

A route set is a container of routes and information about these routes such as their public identifier (PUB ID) and other information, such as the number of hops for a route and so on. Route sets are used to update LRT data on device groups that use an LRT file.

1. Expand the **Route Manager** slider, and click **Route sets**.
2. In the **Route sets** tab, click **Add**.
3. In the **Add Route Set** dialog box, complete the following fields:

Route Set Type field	The **SBC** radio button is selected by default for the Session Border Controller (SBC) route set type. The DSC option is deprecated.
Name field	The name for the new route set using alphanumeric characters without spaces.
Device LRT configuration name field	The configuration name of the local route table (LRT) associated with the route set. This value must match the configured name on the device.
Device LRT file name field	The name used for this LRT file, which must match the LRT file name in the device configuration and select its extension. The default file extension is **.xml.gz**.
pub-id type drop-down list	(Required) Select the public identifier in the form of a telephone number or prefix (for example, NPA-NXX) used in LRT lookup for this route set.
Description field	(Optional) Enter a description for this route set.
Notes field	(Optional) Enter a note for this route set.
Populate from existing route set drop-down list	(Optional) Use the parameters of a pre-existing route set.

4. Click **OK**.

Add a Route Set by Copying an Existing One

You can copy an existing route set to make a new route set.

1. Expand the **Route Manager** slider, and click **Route sets**.

2. In the **Route sets** tab, select the route set and click **Lock**.

   The lock state toggles from unlocked, indicated by  , to locked, indicated by  . The name of the user who locked the route set is listed.

3. With the locked route set selected, click **Copy**.
4. In the **Copy Route Set** dialog box, complete the following fields:

Name field	The name for the route set copy using alphanumeric characters without spaces.
Device LRT configuration name field	The configuration name of the local route table (LRT) associated with the route set. This value must match the configured name on the device.
Device LRT file name field	The name used for this LRT file, which must match the LRT file name in the device configuration and select its extension. The default file extension is **.xml.gz**.
Description field	(Optional) Enter a description for this route set.
Notes field	(Optional) Enter a note for this route set.
Populate from existing route set drop-down list	(Optional) Use the parameters of the existing route set from which you want to populate or the name of the route set you want to copy.

5. Click **OK**.

Import Routes for a Route Set

When a comma-separated values (CSV) file is imported, column definitions and minimum fields are required in the file. Formulas specified in Oracle Communications Route Manager during the import process are applied globally and stored with each record during the importation process.

A value supplied in the formula field of a record has precedence over the formula specified in Oracle Communications Route Manager during the importation process. Order and precedence determine order of the numbers in the XML file, with the lowest appearing first.

You must specify the CSV file and the file format and allow the mapping of CSV columns to Oracle Communications Route Manager properties. Finally, a confirmation displays of what is imported, including a display of error messages.

> **Note:**
>
> The route set version increments after you commit the route set.

Select a CSV File to Import a Route Set

1. Expand the **Route Manager** slider, and click **Route sets**.

2. In the **Route sets** tab, select the route set you want to manage and click **Lock**.

   The lock state toggles from unlocked, indicated by  , to locked, indicated by 

   . The name of the user who locked the route set is listed.
3. With the locked route set selected, click **Manage Routes**.
4. In the **Route Set Edit** tab, click **Import**.
5. In the **Route Set Import - Step 1 -File Selection** pane, complete the following fields:

File field	The CSV file path. You can click **Browse** to find the CSV file that you want to import from your system.
Does the file contain a header line field	Select the **Yes** or **No** radio button depending on whether your CSV file has a header line or not.
File delimiter drop-down list	Select from the following file delimiting method: • **Comma** • **Tab** • **Space**
Template to use drop-down list	Select an available template, or leave this field blank. See the Manage Import Templates section for more information.

6. Click **Next**.

Continue to the next section (**Route Set Import -Step 2 - CSV Column Assignments** pane).

Specify CSV Column Assignments

> **Note:**
>
> If you map the Session Establishment Data (SED) property to CSV file column, the two formula properties are disabled and the SED is used for the route and the formula.

1. In the **Route Set Import -Step 2 - CSV Column Assignments** pane, complete the following fields:

Operation drop-down list	Select from the following values: • **Add**—Select to add the route. • **Delete**—Select to delete the route.
Pub-id Formula drop-down list	Select the numerical entry for the alphanumeric string that contains an expression used to define string concatenation and text replacement to generate the Pub Id for a route record.
Additional PubId Properties menu	Click the arrow icon to expand the following Pub Id property entries that can be mapped to their corresponding CSV file column number:

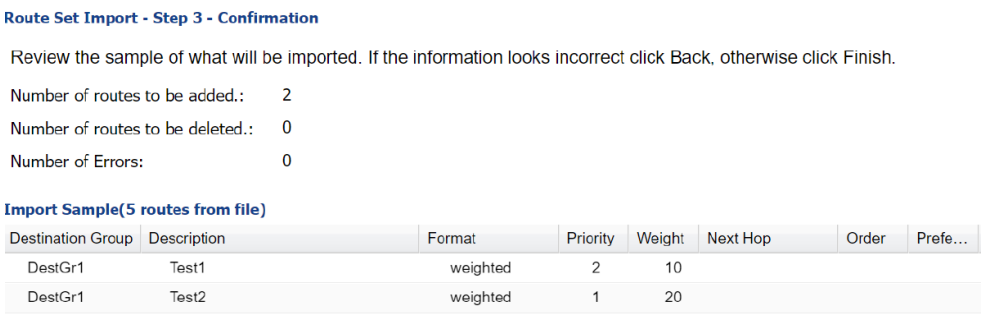
	• **NPA ($NPA)**, **NXX ($NXX)**, **PUser1** and **PUser2** fields—Select the route entry that has the alphanumeric value that has a user-specific definable meaning that can be used in the formula to generate the Pub-Id for a route record. It can also be used for aggregating route records into groups. Once defined, use of this field must be consistent within the route set.
Session Establishment Data (SED) drop-down list	Select the applicable SED.
Order drop-down list	Select the value used to order, by preference, route records or output of routes in the LRT that have the same pub-id to display from lowest to highest.
Preference drop-down list	Select the value used to order, by preference, route records or output of routes in Oracle Communications Route Manager that have the same pub-id to display from lowest to highest.
Destination Group drop-down list	Select the public identifier group that stores operational route set information.
Description	Add a description for the route. All routes created with the same pub-id reflect the last (newest) non-empty change made to the **Description** field.
Format	• Select the Format, Priority, and Weight fields while assigning columns during the import of CSV file in SDM. • The Format column in the CSV file is mapped to Format column field and the data from the CSV file is imported to SDM. • The format of the first entry for a pub-id in the csv file is considered. – For a specific pub-id, if the format of the first entry is ‘weighted’, then all the subsequent entries for the same pub-id must have Format as "weighted" with mandatory values for the Priority and Weight. An entry with Format as blank or "non-weighted" is considered as failed. – For a specific pub-id, if the format of the first entry is blank or "non-weighted" then all the subsequent entries for the same pub-id must have Format as blank or "non-weighted" with both Priority and Weight not specified. – All entries with the format identical to the first entry for that pub-id are processed, the rest are considered as failed entries.
Priority	The Priority column in the CSV file is mapped to Priority column field, and the data from the CSV file is imported to SDM.
Weight	The Weight column in the CSV file is mapped to Weight column field, and the data from the CSV file is imported to SDM.

Additional SED Properties menu	Click the arrow icon to expand the following SED property entries that can be mapped to their corresponding CSV file column number: • **Imported SED formula**—Select the numerical entry for the alphanumeric string that contains an expression used to define string concatenation and text replacement to generate the SED for a route record. • **Next Hop ($NEXTHOP)**—Select the numerical entry for the IP address, FQDN, session agent name, or session agent group name that can be used in the formula to generate the SED for a route record. • **Trunk Group ($TRUNKGROUP)**—Select the numerical entry for the alphanumeric string that can be used in the formula to generate the SED for a route record. • **Trunk Context ($TRUNKCONTEXT)**—Select the numerical entry for the alphanumeric string that can be used in the formula to generate the SED for a route record. • **Routing Number ($RN)**—Select the numerical entry for the telephone number or prefix that can be used in the formula to generate the SED for a route record. • **Carrier Identification Code ($CIC)**—Select the numerical entry for the numeric value used in the formula to generate the SED for a route record. • User 1 through User 5 —Select the numerical entry for the alphanumeric value with a user-specific definable meaning that can be used in the formula to generate the SED for a route record. It can also be used for aggregating route records into groups. Once defined, use of this field must be consistent within the route set.
SED Formula field	Select the numerical entry for the alphanumeric string that contains an expression used to define string concatenation and text replacement to generate the SED for a route record. **Note:** The SED formula overrides the Imported SED formula.
Save as Template text box	Enter the a name for these mappings if you want to save them to a template.

2. Click **Next**.
3. In the **Route Set Import -Step 3 - Confirmation** pane, the number of routes added, deleted or with errors (if applicable) displays.

   The following example shows all route sets are imported correctly:

Figure 2-1 Confirmation of the CSV file import



Route Set Import - Step 3 - Confirmation

Review the sample of what will be imported. If the information looks incorrect click Back, otherwise click Finish.

Number of routes to be added.: 2

Number of routes to be deleted.: 0

Number of Errors: 0

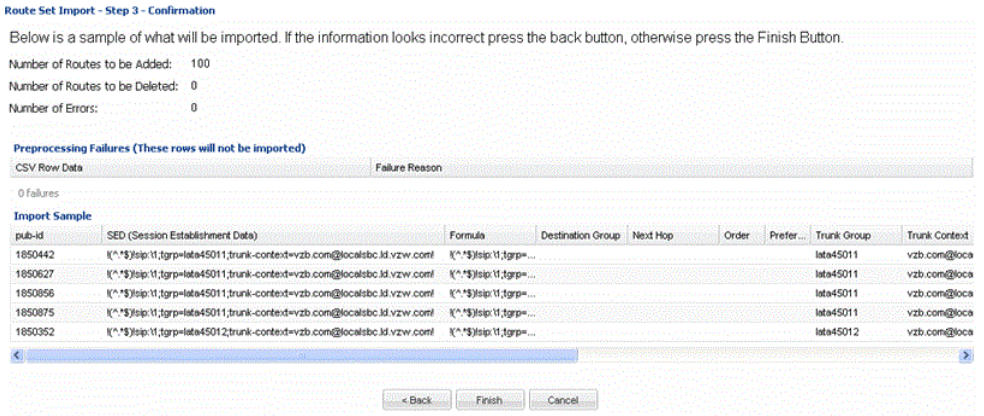
Import Sample(5 routes from file)

Destination Group	Description	Format	Priority	Weight	Next Hop	Order	Prefe…
DestGr1	Test1	weighted	2	10			
DestGr1	Test2	weighted	1	20			

4. If any errors appear in the **Failures** table, click **Back** to correct your route set mappings.

> **Note:**
>
> If the number of errors exceeds a certain amount, the **Finish** button is disabled and you must fix these errors to enable the **Finish** button.

The following example shows route sets that were imported with errors:



Route Set Import - Step 3 - Confirmation

Below is a sample of what will be imported. If the information looks incorrect press the back button, otherwise press the Finish Button.

Number of Routes to be Added: 100

Number of Routes to be Deleted: 0

Number of Errors: 0

Preprocessing Failures (These rows will not be imported)

CSV Row Data	Failure Reason
0 failures	

Import Sample

pub-id	SED (Session Establishment Data)	Formula	Destination Group	Next Hop	Order	Prefer…	Trunk Group	Trunk Context
1850442	I(^.*$)/sip:\1;tgrp=lata45011;trunk-context=vzb.com@localsbc.ld.vzw.com!	I(^.*$)/sip:\1;tgrp=...					lata45011	vzb.com@loca
1850627	I(^.*$)/sip:\1;tgrp=lata45011;trunk-context=vzb.com@localsbc.ld.vzw.com!	I(^.*$)/sip:\1;tgrp=...					lata45011	vzb.com@loca
1850856	I(^.*$)/sip:\1;tgrp=lata45011;trunk-context=vzb.com@localsbc.ld.vzw.com!	I(^.*$)/sip:\1;tgrp=...					lata45011	vzb.com@loca
1850875	I(^.*$)/sip:\1;tgrp=lata45011;trunk-context=vzb.com@localsbc.ld.vzw.com!	I(^.*$)/sip:\1;tgrp=...					lata45011	vzb.com@loca
1850352	I(^.*$)/sip:\1;tgrp=lata45012;trunk-context=vzb.com@localsbc.ld.vzw.com!	I(^.*$)/sip:\1;tgrp=...					lata45012	vzb.com@loca

< Back Finish Cancel

5. If there are no errors, or errors were corrected, click **Finish**.

Add a Route to a Route Set Manually

1. Expand the **Route Manager** slider, and click **Route sets**.
2. In the **Route sets** tab, select the route set you want to delete and click **Lock**.

   The lock state toggles from unlocked, indicated by  , to locked, indicated by 

   . The name of the user who locked the route set is listed.
3. With the locked route set selected, click **Manage Routes**.
4. In the **Route Set Edit** tab, click **Add**.

5. In the **Add Route** dialog box, complete the following fields:

Pub-Id field	The public identifier for this route. **Note:** The string value that displays for the Pub-Id depends on what you choose for the Pub-Id type, either E.164 (numerical) or String (any characters) when creating a route set.
Additional PubId Properties menu	Click the arrow icon to expand the following Pub Id property entries that can be mapped to their corresponding CSV file column number: • **NPA ($NPA)**, **NXX ($NXX)**, **PUser1** and **PUser2** fields—The alphanumeric value that has a user-specific definable meaning that can be used in the formula to generate the Pub-Id for a route record. It can also be used for aggregating route records into groups. Once defined, use of this field must be consistent within the route set. • **Pub-id Formula**—The alphanumeric string that contains an expression used to define string concatenation and text replacement to generate the Pub Id for a route record. **Note:** If you enter a Pub-id Formula, the pub id field is disabled.
Session Establishment Data (SED)	The SED for this route, which is a regular expression (regex) hop formula.
Order	Add a numerical entry used to sort the display of routes in the application or order the output of routes in the LRT that have the same pub-id. The order of display or output is from the lowest numerical value to highest. The order and preference determines the order of the numbers in the XML file. The lowest number appears first.
Preference	Add a numerical entry used to sort the display of routes in the application or order the output of routes in the LRT that have the same pub-id. The order of display or output is from the lowest numerical value to highest. The order and preference determines the order of the numbers in the XML file. The lowest number appears first
Destination Group	The group of public identifiers that have an object in common. The object stores information that can be used to select a subset of the route set for an operation, for example for global replacement.

Description	Enter a description for this route. All routes created with the same pub-id reflect the last (newest) non-empty change made to the **Description** field.
Format	• Format attribute specifies that all next-hop entries under this route entry must have both **Priority** and **Weight** fields defined. A Pub-Id can either have all entries as weighted or non-weighted. It cannot have both weighted and non-weighted route entries. • Check the **Format** checkbox to select the format as Weighted. If it is checked, then both the **Priority** and **Weight** attributes must be mentioned for each route that must be added using SDM.
Priority	• Specify only numerical values in the range 0 to 65535. Alphaneumeric and empty values are considered as invalid. • The maximum number of next-hop entries allowed under one route set with the same priority value is 10.
Weight	Specify values that are numerical and multiples of 10 within the range of 0 to 65535. Alphaneumeric and empty values are considered as invalid.
Additional SED Properties	Click the arrow icon to expand the following SED property entries that can be mapped to their corresponding CSV file column number: • **Imported SED formula**—The alphanumeric string that contains an expression used to define string concatenation and text replacement to generate the SED for a route record. • **Next Hop ($NEXTHOP)**—The IP address, FQDN, session agent name, or session agent group name that can be used in the formula to generate the SED for a route record. • **Trunk Group ($TRUNKGROUP)**—The alphanumeric string that can be used in the formula to generate the SED for a route record. • **Trunk Context ($TRUNKCONTEXT)**—The alphanumeric string that can be used in the formula to generate the SED for a route record. • **Routing Number ($RN)**—The telephone number or prefix that can be used in the formula to generate the SED for a route record. • **Carrier Identification Code ($CIC)**—The numeric value used in the formula to generate the SED for a route record. • User 1 through User 5 —The alphanumeric value with a user-specific definable meaning that can be used in the formula to generate the SED for a route record. It can also be used for aggregating route records into groups. Once defined, use of this field must be consistent within the route set. • **SED Formula**—The alphanumeric string that contains an expression used to define string concatenation and text replacement to generate the SED for a route record.

6. Click **OK**. The new route displays in the table.

3

Associate Route Sets to Devices

Use Oracle Communications Route Manager to associate a route set with devices by associating it with one or more device groups. Once this is done, Oracle Communications Route Manager generates an LRT file, pushes the file to each device, and the routes are activated on each device.

> **Note:**
>
> You must configure device groups in Device Manager before you can use them in Oracle Communications Route Manager. See the *Device Manager* chapter in the *Oracle Communications Session Element Manager for Session Delivery Products User Guide* for more information.

Associate a Route Set with a Device Group

1. Expand the **Route Manager** slider, and click **Devices**.
2. In the **Device Route Sets** tab that appears by default, you can associate a route set with one or more device groups. Select a route set from the **Route Sets** table **Name** drop-down list

   > **Note:**
   >
   > The **Add** button is disabled until a device group is selected.

3. Select one or more device groups and click **Add**.
4. Optionally, you can select a route set from the **Route Sets** table **Name** drop-down list, and click **Add to All** to associate this route set with all device groups that are shown in the list.
5. Use the previous steps to associate other route set(s) to available device group(s).
6. Click **OK** when you are finished.
7. In the success dialog box, click **OK**.

Update Devices with Route Sets

After you associate route sets with devices, do the following tasks to update devices with route sets:

1. Add a task that updates all the associated devices.
2. Start the task.

3. While an update task is in progress, the target devices are locked to all other updates. Commit the update task to the device group or roll it back.
   - Committing an update removes the lock on the target device group and the update task from this table, and adds the update task to the table displayed on the **Update Task History** tab.
   - Rolling back an update rolls back any changes made to the target device group. (You cannot access the rollback function while an update task is in progress.

> **Note:**
>
> If the update task included multiple target device groups and rollback fails on any one device group, Oracle Communications Route Manager continues the rollback on all other device groups.

The update process flow is:

1. Name the task.
2. Select one or more device groups.
3. Select a failure policy.
4. Apply updates.
5. Commit or rollback the update(s).

Whether your updates succeed or fail, you must commit or roll back the updates to release the device locks.

Add an Update Task

You can add an update task used to update one or more device groups.

1. Expand the **Route Manager** slider, and click **Devices**.
2. Select the **Device Route Set Updates** tab and click **Update**.
3. In the **Add Update Task** pane, complete the following fields:

Name field	The task name.
Notes field	(Optional) Text that describes the update task.

4. Select a device group from the **Route Set Devices** list and click **Add**.

   The device group appears in the **Devices to Update** table. If you decide to remove the device group that you just added, you can select it and click **Remove** to return it to the **Route Set Devices** list.
5. Repeat the previous step for each device group that you want to update.
6. Click **OK**. The **Update Task Details** dialog box displays with a progress bar that indicates the status of the update process.

> **Note:**
>
> While an update task is in progress, the target device group is locked from all other updates.

> **Note:**
>
> If a failure occurs, select from the following failure policies:

- **Roll back all successfully updated devices**
- **Abort the entire job**
- **Skip the failed device update and continue**

> **Note:**
>
> If the update fails because a targeted device group is busy or locked, an error message appears.

Once the update task process is finished, the task appears in the **Update Tasks** table in the **Device Route Set Updates** tab, and indicates whether the update task process was a success or failure. If the update failed and you selected rollback as the action policy, you can click **Retry Failures** in the **Update Task Details** dialog box to try the update again. Otherwise, exit the dialog box and rollback the update. See the Roll Back an Update Task in this chapter for more information.

7. Select the successful update task in the **Update Tasks** table and click **Commit** to remove the locks on the associated device group(s).

> **Note:**
>
> You must own the lock on the route set to commit the update(s) to the device group.

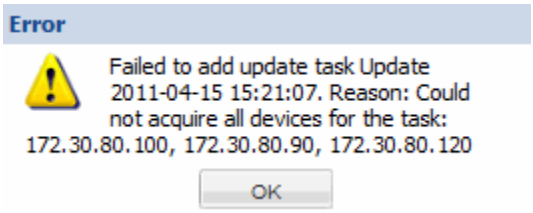
The update is committed on the target device group and the update task is removed from the **Update Tasks** table and appears in the **Update Task History** tab.

Roll Back an Update Task

If the update failed and you selected the **Roll back all successfully updated devices** or **Skip the failed device update and continue** policy when adding an update task, you can rollback the update task and remove the locks on the associated device group.

> **Note:**
>
> You must own the lock on the route set to rollback for the device group.

> **Note:**
>
> If you do not rollback an update task that fails, an error message displays similar to the example below when you attempt to perform another update task on device group(s) associated with the previous update task.



1. Expand the **Route Manager** slider, and click **Devices**.
2. Select the **Device Route Set Updates** tab.
3. Select the failed update task you want to rollback in the **Update Tasks** table and click **Rollback**.

   The rollback process starts and a progress bar indicates the status of the rollback. The update task status is updated in the **Update Tasks** table and the lock is removed on the device group(s) and appears in the **Update Task History** tab.

4
Manage Route Sets

Edit Route Set Information

> **Note:**
>
> You can update the description and notes for a route set only.

1. Expand the **Route Manager** slider, and click **Route sets**.
2. In the **Route sets** tab, select the route set and click **Lock**.

   The lock state toggles from unlocked, indicated by  , to locked, indicated by 

   . The name of the user who locked the route set is listed.
3. With the locked route set selected, click **Edit**.
4. In the **Edit Route Set** dialog box, complete the following fields:

Description field	(Optional) Enter a description for this route set.
Notes field	(Optional) Enter a note for this route set.
Format	Modify the **Format** attribute. The **Format** attribute specifies that all next-hop entries under this route entry must have both **Priority** and **Weight** fields defined. For more information, see Add a Route to a Route Set Manually.
Priority	Modify the **Priority**. Specify only numerical values in the range 0 to 65535. Alphaneumeric and empty values are considered as invalid. The maximum number of next-hop entries allowed under one route set with the same priority value is 10.
Weight	Specify only numerical values in the range 0 to 65535. Weight values must be multiple of 10. Alphaneumeric and empty values are considered as invalid.

5. Click **OK**.

> **Note:**
>
> The route set version increments after you commit the route set.

Update Devices for a Route Set

You can update the devices for route sets that are displayed in the **Associated Devices** tab. Check the **Needs Updating** column to identify any route sets that require updating. If there are no route sets with devices requiring an update, the **Update Device** button remains gray (inactive).

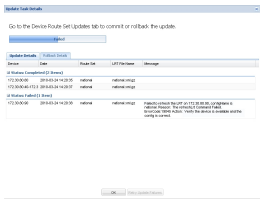
1. Expand the **Route Manager** slider, and click **Devices**.
2. In the **Associated Devices** tab, select the route set (see the **Route sets** column) that has devices which require an update.
3. Click **Update Device**.
4. In the **Add Update Task** dialog box, complete the following fields:

Name field	The default update task displays. You can enter a new task name for this field.
Note field	(Optional) The description of the update task.

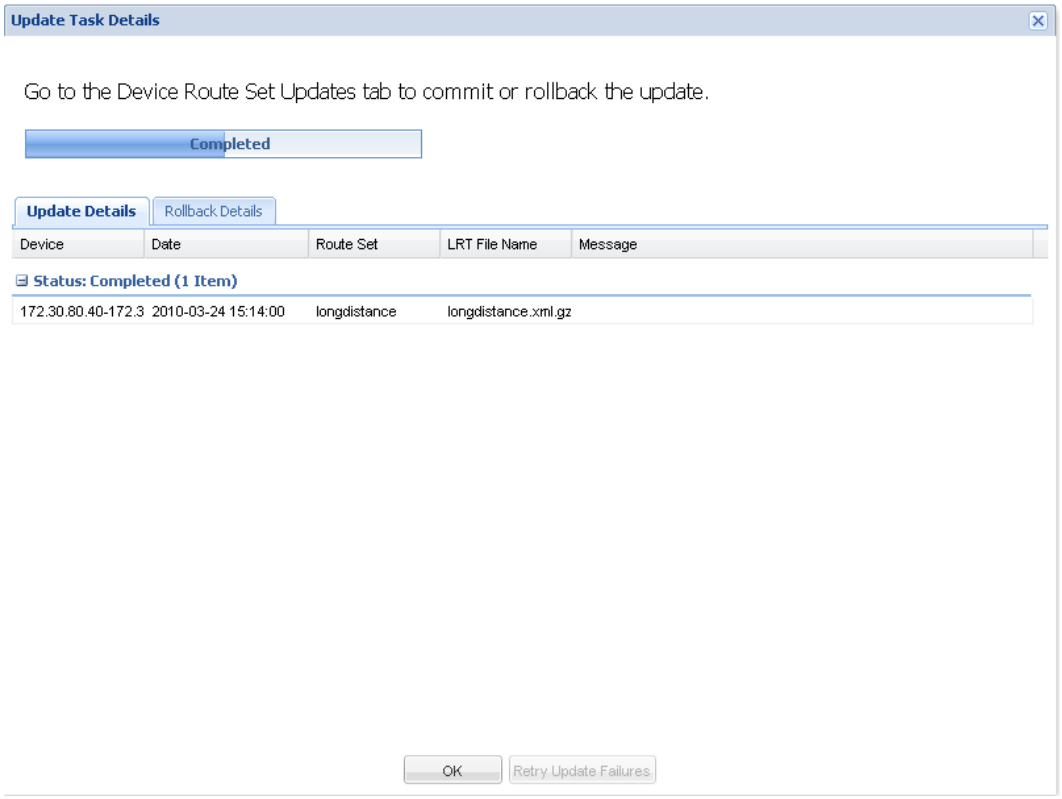
5. In the **Route Set Devices** box, select the device from the folder hierarchy and click **Add** to add it to the **Devices to Update** table.
6. Repeat the previous step to select additional devices that need to be updated for the route set.
7. In the **If failure occurs with any one device update** section, select from the following radio button options:
   - **Roll back all successfully updated devices**
   - **Abort the entire job**
   - **Skip the failed device update and continue.**
8. Click **OK**.

   The **Update Task Details** dialog box appears and displays the update process.

   If the update task fails, the progress bar reflects the failed status and a message appears in the **Update Details** table. For example:



   If the update task succeeds, the progress bar reflects the completed status and the devices appear under the **Status:Completed** section of the table. For example:



9. Click **OK**.
10. In the **Device Route Set Updates** tab, click **Commit** to save the device updates.

Manage Routes in a Route Set

From the route sets that you have created in previous sections, you can manage individual routes.

1. Expand the **Route Manager** slider, and click **Route sets**.
2. In the **Route sets** tab, select the route and click **Lock** to lock the route set before you can manage routes within the route set.

   The lock state toggles from unlocked, indicated by  , to locked, indicated by 

   . The name of the user who locked the route set is listed.
3. In the **Route Sets** tab, select the row of the locked route set for which you want to import routes and click **Manage Routes**.
4. In the **Route Set Edit** tab, the default view for the route set displays routes organized by pub-id. Click the Session Establishment Data (SED) table column header to view route sets organized by SED. For example:

Search for Routes in a Route Set

You can search for routes in a route set by pub-id, SED, and other properties. You can use the asterisk (*) as a wildcard for a partial substring match and the question mark (?) for character match for all the property fields except SED and formula.

1. Expand the **Route Manager** slider, and click **Route sets**.

2. In the **Route sets** tab, select the locked route set on which you want to search for routes and click **Manage Routes**.
3. In the **Route Set Edit** tab, click **Search**.
4. In the **Route Search** dialog box, complete the following fields for your search criteria:

pub-id field	The public identifier you want to use as search criteria.
Session Establishment Data (SED) field	The SED you want to use as search criteria.
Advanced menu	Click the arrow icon to expand the following Pub ID and SED search criteria property entries to search by way of their corresponding CSV file column number: • **NPA ($NPA)**, **NXX ($NXX)**, **PUser1** and **PUser2** fields—The numerical entry that has the alphanumeric value that has a user-specific definable meaning that can be used in the formula to generate the Pub-Id for a route record. It can also be used for aggregating route records into groups. Once defined, use of this field must be consistent within the route set. • **Pub-id Formula**—The alphanumeric string that contains an expression used to define string concatenation and text replacement to generate the Pub Id for a route record. **Note:** If you enter a Pub-id Formula, the pub id field is disabled. • **Destination Group**—The numerical entry that is used as the group of public identifiers that have an object in common. That object stores information that can be used to select a subset of the route set for an operation, for example for global replacement. • **Next Hop ($NEXTHOP)**—The numerical entry for the IP address, FQDN, session agent name, or session agent group name that can be used in the formula to generate the SED for a route record. • **Trunk Group ($TRUNKGROUP)**—The numerical entry for the alphanumeric string that can be used in the formula to generate the SED for a route record. • **Trunk Context ($TRUNKCONTEXT)**—The numerical entry for the alphanumeric string that can be used in the formula to generate the SED for a route record. • **Routing Number ($RN)**—The numerical entry for the telephone number or prefix that can be used in the formula to generate the SED for a route record.

	• **Carrier Identification Code ($CIC)**—The numerical entry for the numeric value used in the formula to generate the SED for a route record. • User 1 through User 5 —The numerical entry for the alphanumeric value with a user-specific definable meaning that can be used in the formula to generate the SED for a route record. It can also be used for aggregating route records into groups. Once defined, use of this field must be consistent within the route set.

5. Click **Search**.

Edit a Route in a Route Set

1. Expand the **Route Manager** slider, and click **Route sets**.
2. In the **Route sets** tab, select the route and click **Lock** to lock the route set before you can edit a route within the route set.

   The lock state toggles from unlocked, indicated by  , to locked, indicated by  . The name of the user who locked the route set is listed.
3. With the locked route set selected, click **Manage Routes**.
4. In the **Route Set Edit** tab, select the route you want to edit in the route table and click **Edit**.
5. In the **Edit Route** dialog box, you can modify the following fields:

Additional PubId Properties menu	Click the arrow icon to expand the following Pub Id property entries that can be mapped to their corresponding CSV file column number: • **NPA ($NPA)**, **NXX ($NXX)**, **PUser1** and **PUser2** fields—The route entry that has the alphanumeric value that has a user-specific definable meaning that can be used in the formula to generate the Pub-Id for a route record. It can also be used for aggregating route records into groups. Once defined, use of this field must be consistent within the route set. • **Pub-id Formula**—The alphanumeric string that contains an expression used to define string concatenation and text replacement to generate the Pub Id for a route record. **Note:** If you enter a Pub-id Formula, the pub id field is disabled.
Additional SED Properties menu	Click the arrow icon to expand the following SED property entries that can be mapped to their corresponding CSV file column number:

- **Imported SED formula**—The numerical entry for the alphanumeric string that contains an expression used to define string concatenation and text replacement to generate the SED for a route record.
- **Next Hop ($NEXTHOP)**—The numerical entry for the IP address, FQDN, session agent name, or session agent group name that can be used in the formula to generate the SED for a route record.
- **Trunk Group ($TRUNKGROUP)**—The numerical entry for the alphanumeric string that can be used in the formula to generate the SED for a route record.
- **Trunk Context ($TRUNKCONTEXT)**—The numerical entry for the alphanumeric string that can be used in the formula to generate the SED for a route record.
- **Routing Number ($RN)**—The numerical entry for the telephone number or prefix that can be used in the formula to generate the SED for a route record.
- **Carrier Identification Code ($CIC)**—The numerical entry for the numeric value used in the formula to generate the SED for a route record.
- User 1 through User 5 —Select the numerical entry for the alphanumeric value with a user-specific definable meaning that can be used in the formula to generate the SED for a route record. It can also be used for aggregating route records into groups. Once defined, use of this field must be consistent within the route set.
- **SED Formula**—The alphanumeric string that contains an expression used to define string concatenation and text replacement to generate the SED for a route record.

6. Click **OK**.

Replace Route Properties

You can replace a property for multiple routes based on search criteria.

1. Expand the **Route Manager** slider, and click **Route sets**.
2. In the **Route sets** tab, select the route and click **Lock**.

   The lock state toggles from unlocked, indicated by  , to locked, indicated by 

   . The name of the user who locked the route set is listed.
3. With the locked route set selected, click **Manage Routes**.
4. On the **Route Set Edit** tab, click **Replace**.
5. In the **Route Replace All** dialog box, you can enter the search criteria such as **pub-id**, **SED**, and other property values. You can use the wildcard values asterisk (*) and question mark (?).
6. In the **Replace** section, complete the following fields:

Field drop-down list	Select from the following route properties that you want to replace: • **NPA** • **NXX** • **Puser1** • **Pub-id Formula** • **SED** • **SED Formula** • **Destination Group** • **Next Hop** • **Order** • **Preference** • **Trunk Group** • **Trunk Context** • **Routing Number** • **Carrier Identification Code** • **Format** • **Priority** • **Weight**
with value field	The new value for the route property you selected in the **Field** parameter, which is the new value that replaces the old value for the field.

7. Click **Replace**.
8. In the confirmation dialog box, click **Yes** to continue.

Manage Import Templates

Add an Import Template for a Route Set

1. Expand the **Route Manager** slider, and click **Import Templates**.
2. In the **Import Templates** tab, click **Add**.
3. In the **Choose Route Set** dialog box, **SBC** is the default route set type. The **DSC** option is deprecated. Click **OK**.
4. In the **Add Import Templates** dialog box, complete the following fields:

Name field	The new import template name.
Operation drop-down list	Select a row number to map it to the corresponding Operation row in the CSV file from the drop-down list.
pub id drop-down list	Select a row number to map it to the corresponding Pub ID row in the CSV file from the drop-down list.

Additional PubId Properties menu	Click the arrow icon to expand the following Pub Id property entries that can be mapped to their corresponding CSV file column number: • **NPA ($NPA)**, **NXX ($NXX)**, **PUser1** and **PUser2** fields—Select the route entry that has the alphanumeric value that has a user-specific definable meaning that can be used in the formula to generate the Pub-Id for a route record. It can also be used for aggregating route records into groups. Once defined, use of this field must be consistent within the route set. • **Pub-id Formula**—The alphanumeric string that contains an expression used to define string concatenation and text replacement to generate the Pub Id for a route record. If you enter a Pub-id Formula, the pub id field is disabled.
Session Establishment Data (SED) drop-down list	Select the numerical entry for the next hop formula that generates the Session Establishment Data (SED).
Order drop-down list	Select the numerical entry that is used as a mechanism for sorting the display of route records in the application or order the output of routes in the LRT that have the same pub-id. The order of display or output is lowest numerical value to highest.
Preference drop-down list	Select the numerical entry that is used as a mechanism for sorting the display of route records in the application or order the output of routes that have the same pub-id and order. The order of display or output is lowest numerical value to highest.
Destination Group($DESTGROUP) drop-down list	Select the numerical entry that is used as the group of public identifiers that have an object in common. That object stores information that can be used to select a subset of the route set for an operation, for example for global replacement.
Description	Enter a description for this route. All routes created with the same pub-id reflect the last (newest) non-empty change made to the **Description** field.
Format	Select the **Format** field while adding an import template in SDM. The import template is used while importing CSV files through the UI and/or the REST interface. **Format** attribute implies that all next-hop entries under this route entry must have both **Priority** and **Weight** fields defined. A Pub-Id can either have all entries as weighted or non-weighted. It cannot have both weighted and non-weighted route entries. Check

	the **Format** checkbox to select the format as **Weighted**. If you have selected the **Format** checkbox, then ensure that both **Priority** and **Weight** attributes are selected too.
Priority	• Specify only numerical values in the range 0 to 65535. Alphaneumeric and empty values are considered as invalid. • The maximum number of next-hop entries allowed under one route set with the same priority value is 10.
Weight	Specify values that are numerical and multiples of 10 within the range of 0 to 65535. Alphaneumeric and empty values are considered as invalid.
Additional SED Properties menu	Click the arrow icon to expand the following SED property entries that can be mapped to their corresponding CSV file column number: • **Imported SED formula**—Select the numerical entry for the alphanumeric string that contains an expression used to define string concatenation and text replacement to generate the SED for a route record. • **Next Hop ($NEXTHOP)**—Select the numerical entry for the IP address, FQDN, session agent name, or session agent group name that can be used in the formula to generate the SED for a route record. • **Trunk Group ($TRUNKGROUP)**—Select the numerical entry for the alphanumeric string that can be used in the formula to generate the SED for a route record. • **Trunk Context ($TRUNKCONTEXT)**—Select the numerical entry for the alphanumeric string that can be used in the formula to generate the SED for a route record. • **Routing Number ($RN)**—Select the numerical entry for the telephone number or prefix that can be used in the formula to generate the SED for a route record. • **Carrier Identification Code ($CIC)**—Select the numerical entry for the numeric value used in the formula to generate the SED for a route record. • User 1 through User 5 —Select the numerical entry for the alphanumeric value with a user-specific definable meaning that can be used in the formula to generate the SED for a route record. It

	can also be used for aggregating route records into groups. Once defined, use of this field must be consistent within the route set. • **SED Formula**—The numerical entry for the alphanumeric string that contains an expression used to define string concatenation and text replacement to generate the SED for a route record.

5. Click **OK**.

Edit Import Templates

1. Expand the **Route Manager** slider, and click **Import Templates**.
2. In the **Import Templates** tab, select an import template and click **Edit**.
3. In the **Edit Import Template** dialog box, make any edits that you need to the import template parameters.
4. Click **OK**.

Copy an Import Template to Create a New Import Template

1. Expand the **Route Manager** slider, and click **Import Templates**.
2. In the **Import Templates** tab, select the row of the import template that you want to copy from the table and click **Copy**.
3. In the **Copy Import Template** dialog box, enter a name for the template that you are creating and edit or add parameter entries that appear in this dialog box. See the Import Route Sets section for more information about these parameters.
4. Click **OK** when you are finished creating the new import template.

Search for Route Sets

1. Expand the **Route Manager** slider, and click **Route sets**.
2. Select the **Route Search** tab and complete the following fields:

Route Set Type	The **SBC** radio button is selected by default for the Session Border Controller (SBC) route set type. The DSC option is deprecated.
***pub-id (e.g. NPA-NXX)** field	The pub-id to use as search criteria. You can use the asterisk (*) as a wildcard.
Select route sets to search section	Check the **Route Sets** check box to search all route sets in the list.
Filter by device drop-down list	Use the scroll bar to see this field if it does not at first appear on your screen. Select a device to filter by this device. The route sets are checked for this selected device type.
Format	Search for a specific route entry using the **Format** field individually. You can search for a specific route entry using the **Priority** and **Weight**fields individually or in a coupled way.

	• To search for weighted routes, check the **Weighted** checkbox.
Priority	Search for a specific route entry using the **Priority** field.
Weight	Search for a specific route entry using the **Weight** field.

3. Click **Search**. The results appear at the bottom of the screen. You can page through the results.
4. Click **Refresh** to refresh the display.
5. Select a table row and either click **Edit** to access the **Edit Route** dialog box to modify the route, or click **Delete** to delete the route from the route set.

Compare Route Sets

Use this task when comparing the contents of a route set with the route set contained in the LRT file of an active device before updating the contents of the route set.

1. Expand the **Route Manager** slider, and click **Route sets**.
2. Select the **Route Set Compare** tab, and complete the following fields:

Route Set Type field	The **SBC** radio button is selected by default for the Session Border Controller (SBC) route set type. The DSC option is deprecated.
Route Set 1 drop-down list	Select the first route set.
Route Set 2 drop-down list	Select the second route set. The **Compare** button is activated.

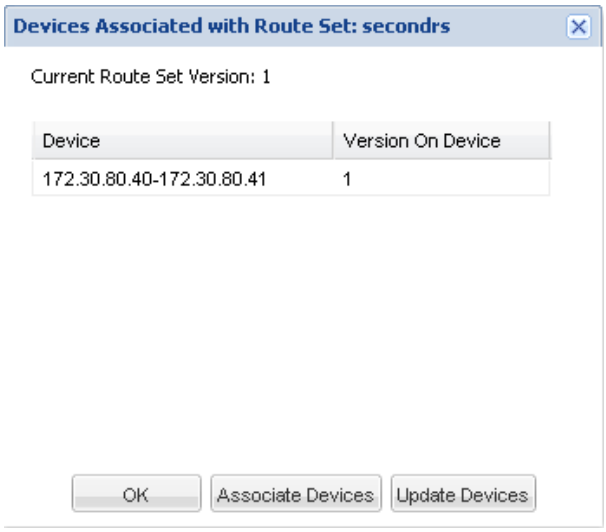
3. Click **Compare**.

   A progress bar appears while the comparison is processed. When complete, the results are displayed in two columns at the bottom of the screen. If the contents are identical between the two, messages appear in both columns.

View Devices Associated with a Route Set

1. Expand the **Route Manager** slider, and click **Route sets**.
2. Select the route set row in the table and click **View Associated Devices**.
3. In the **Devices Associated with Route Set** dialog box, devices that are associated with the route set are displayed.

   For example, the following image shows the HA pair associated with the route set named *secondrs*.



View LRT Files

1. Expand the **Route Manager** slider, and click **Route sets**.
2. In the **Route sets** tab, select the route set row in the table and click **View LRT File**.

   A status message shows the progress of loading the LRT file. After the file is loaded, you are prompted to either open or save the file.
3. Open the file in an XML editor to review or modify this file, or save the file.

View Update Task History

1. Expand the **Route Manager** slider, and click **Devices**.
2. Select the **Update Task History** tab, which shows the update tasks that were performed.
3. If you want to delete an update task from the table, select it and click **Delete**.
4. In the **Delete** confirmation dialog box, click **Yes** to delete the update task.

Delete a Route Set

1. Expand the **Route Manager** slider, and click **Route sets**.
2. In the **Route sets** tab, select the route set and click **Lock**.

   The lock state toggles from unlocked, indicated by  , to locked, indicated by 

   . The name of the user who locked the route set is listed.
3. With the route set row selected, click **Delete**.
4. In the confirmation dialog box, click **Yes**.

Remove a Route Set Association from a Device Group

1. Expand the **Route Manager** slider, and click **Devices**.

2. In the **Device Route Sets** tab that appears by default, you can remove a route set association from one or more device groups.
3. Select a route set name from one or more device groups in the displayed list, and click **Remove**.

> **Note:**
>
> The **Remove** button is disabled until a device is selected.

4. Optionally, you can select a route set name from any device group, and select **Remove From All** to remove this route set association from all other device groups that are displayed.
5. Use the previous steps to remove associations of other route set(s) from device group(s).
6. Click **OK** when you are finished.
7. In the success dialog box, click **OK**.

5

Backup and Restore Route Sets

You can access and restore backups, and search for backups in Oracle Communications Route Manager. When you restore a route set backup, you remove all edits made to the route set after the backup was made.

Access and Restore a Route Set Backup

1. Expand the **Route Manager** slider, and click **Backup/Restore**.
2. In the **Route Set Backups** tab, select a route set from the table and click **Restore**.
3. In the **Confirm** dialog box, click **Yes** to continue the restoration of the route set backup.

> **Note:**
>
> After the restoration of the route set is complete and committed, the route set version increments.

Schedule a Route Set Backup

You can schedule a route set backup to run now, daily, or weekly. If you create a backup to run now, a scheduled task is created and listed in the scheduled tasks table. Once it runs, the scheduled task is removed from the table.

> **Note:**
>
> A maximum of three route set backups for each type of backup can be scheduled. For example, for a route set named national, you can schedule three backups scheduled **Now**, another three scheduled **Daily**, and a final three scheduled **Weekly**.

1. Expand the **Route Manager** slider, and click **Backup/Restore**.
2. In the **Route Set Backups** tab, click **Add**.
3. In the **Add Scheduled Backups** dialog box, complete the following fields:

Name field	The name of the route set backup.
Route Set drop-down list	Select the route set you want to backup.
Run Daily at drop-down list	Select from each of the following options and the time each of the following options runs:

- Click **Now** to create a backup task that runs immediately.
- Click **Daily** to create a backup task that runs once a day at the selected time from the drop-down list.
- Click **Weekly** to create a backup task that runs weekly at a selected time on the day of the week you select from the drop-down lists.

4. Click **OK**.

   The route set backup task is added to the table. If it is scheduled to run now, it is deleted from the table after the process completes.

Search for Route Set Backups

You can search for route set backups based on name only, name and date and time, or on date and time.

1. Expand the **Route Manager** slider, and click **Backup/Restore**.
2. In the **Route Set Backups** tab, click **Search**.
3. In the **Backup Search** dialog box, complete the following fields to configure your search criteria:

Name field	The name of the route set backup.
Starting at field and drop-down list	The start date in YYYY-MM-DD format or click the calendar icon to select the date. Next, select the time of day from the drop-down list.
Ending at field and drop-down list	The end date in YYYY-MM-DD format or click the calendar icon to select the date. Next, select the time of day from the drop-down list.

4. Click **Search**.

   The results display in the table.

5. You can optionally click **Show All** to re-display all backups.