Oracle® Communications Session Route Manager

User's Guide

Release 7.3

Formerly Net-Net Central Route Manager

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Contents

About this Guide

The Oracle Communications Session Route Manager Configuration Guide provides the information you need to use the application to centrally automate the management and distribution of routing data.

1 Using Net-Net Route Manager

Introduction

This chapter explains how to use Net-Net Route Manager (RM).

Basic Functionality

The Net-Net RM application lets you easily update local route table (LRT) data on a single device or on multiple devices. With Net-Net RM, you can provision large LRTs across multiple Net-Net SBCs and Net-Net Session Routers for numeric-based routing. Net-Net RM lets you:

- Import a comma-separated values (CSV) file containing routing information
- Build an XML route table from the CSV contents
- Assign a list of devices to the route set
- Generate an LRT file from the route set
- Push the LRT file to all assigned devices
- Refresh the LRT data on the device using the LRT file that was pushed
- Backup, restore, and rollback route sets

Basic Components

When using Net-Net RM you are working with CSV files, LRT files, route sets, routes, and devices.

CSV Files

You import CSV files to build XML route tables. The minimum fields required in a CSV formatted record for an import file are:

- 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”. Pub Id (or the Pub Id formula and the 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.

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 Net-Net RM 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 Net-Net RM 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 process of creating an LRT file starts with 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 Net-Net RM.

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 SED is represented here.

Here is an example of multiple routes to the same destination. Order of appearance in the LRT file dictates preference.

Route Set

A route set contains a group of routes.

The following table lists the route set properties along with their definitions.

Property	Definition
Order	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	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.
Destination Group	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	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	Alphanumeric string that can be used in the formula to generate the SED for a route record.
Trunk Context	Alphanumeric string that can be used in the formula to generate the SED for a route record.
Routing Number (RN)	Telephone number or prefix that can be used in the formula to generate the SED for a route record.
Carrier identification code ($CIC)	Numeric value that can be used in the formula to generate the SED for a route record.
User 1 through User 5	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	Alphanumeric string that contains an expression used to define string concatenation and text replacement to generate the SED for a route record.

Property	Definition
Pub Id Formula	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	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.

Accessing Net-Net Central

You can access the Net-Net Central server by using the following address formats:

http://<*Net-Net Central server IP address*>:8080

https://<*Net-Net Central server IP address*>:8443

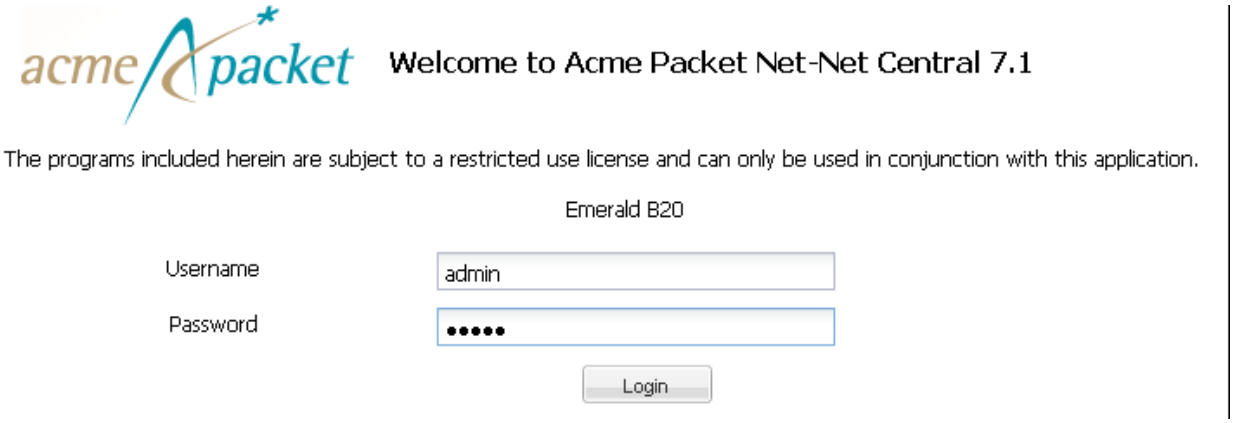
To access Net-Net Central:

1. Open a Web browser.
2. Connect to the Net-Net Central server using one of the following address formats:

   http://<*Net-Net Central server IP address*>:8080

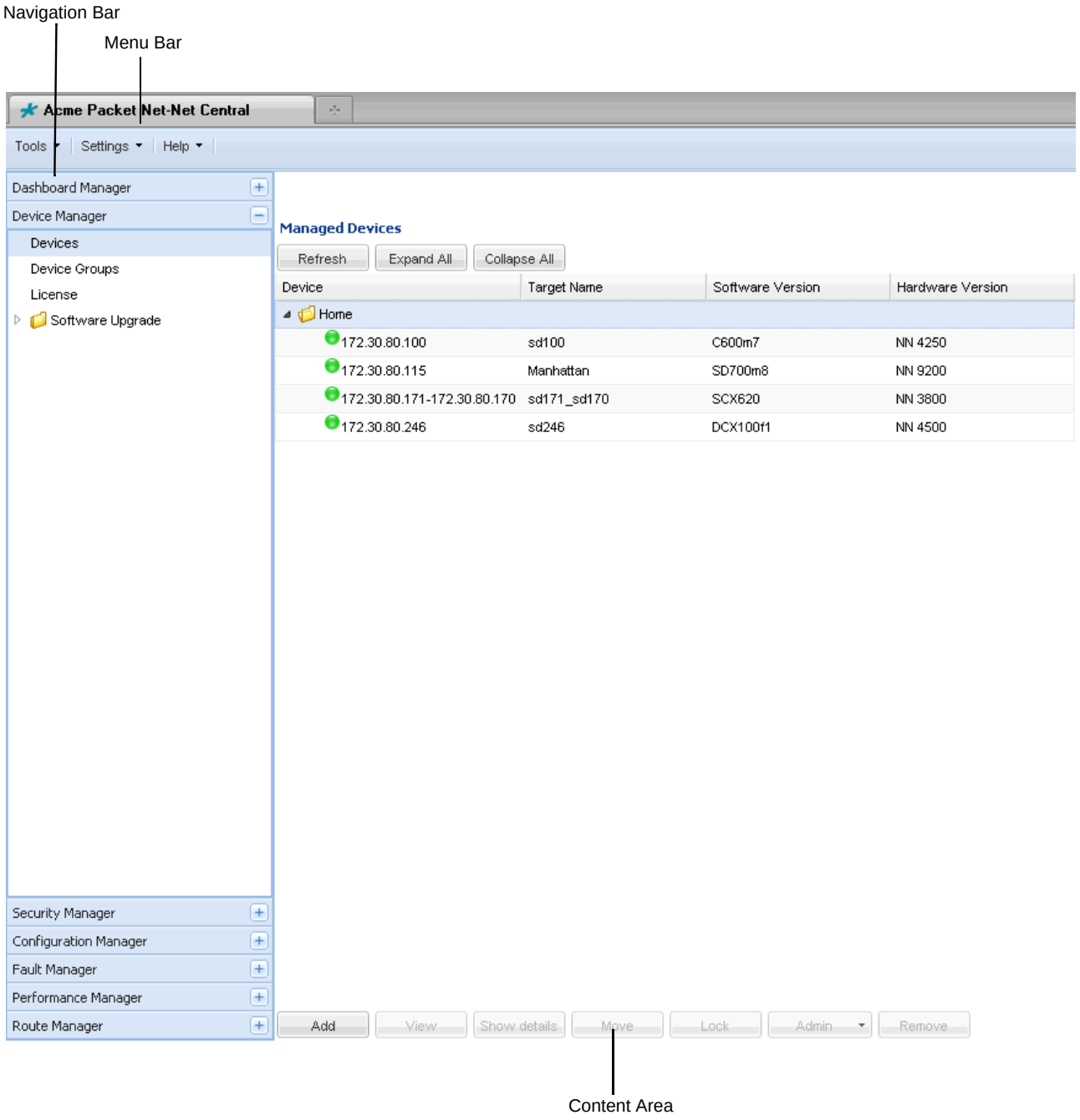
   https://<*Net-Net Central server IP address*>:8443

   The Login screen appears.



3. Enter your user name and password and click **Login**. (The default username is `admin`, with a default password of `admin`.)

You have now accessed Net-Net Central.



Note: When you login to Net-Net Route Manager, your display will differ based on your licensed applications.

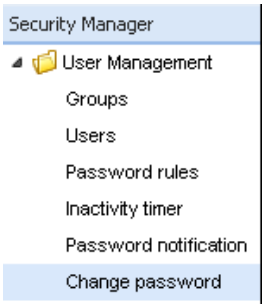
Changing Your Password

You can change your Net-Net Central user password, if required, from the Tools menu > Change Password, or from the Security Manager slider.

Note: You must have administrator permissions assigned to perform this task.

To change your password from the Security Manager slider:

1. Expand Security Manager > User Management.
2. Click Change password.



The Change password fields display.

3. **Enter your password**—Enter your current Net-Net Central login password.
4. **Enter new password for user**—Enter the new Net-Net Central login password.
5. **Confirm new password for user**—Re-enter the new Net-Net Central login password again to confirm it.

6. Click **Apply**. The new password is in effect.

Note: Passwords can take numeric, alphanumeric, punctuation characters, as well as special characters, such as: #, ^, @, etc.

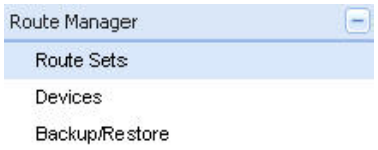
For more information about password rules, see the *Net-Net Central Administration Guide*.

Accessing Net-Net Route Manager

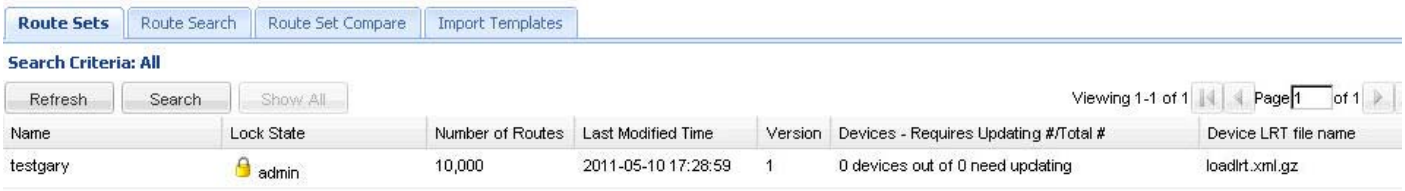
You access Net-Net RM from the navigation bar of the Net-Net Central GUI.

To access Net-Net Route Manager:

1. Click Route Manager in the Net-Net Central navigation bar to expand the menu.



   Net-Net Route Manager appears in the content area.



Using the Net-Net Central GUI

The Net-Net Central GUI is divided into the following areas:

- Menu bar: Houses the drop down lists for administration, help, monitoring tools.
- Navigation bar: Contains route manager, dashboard manager, device manager, security manager, configuration manager, fault manager, and performance manager.

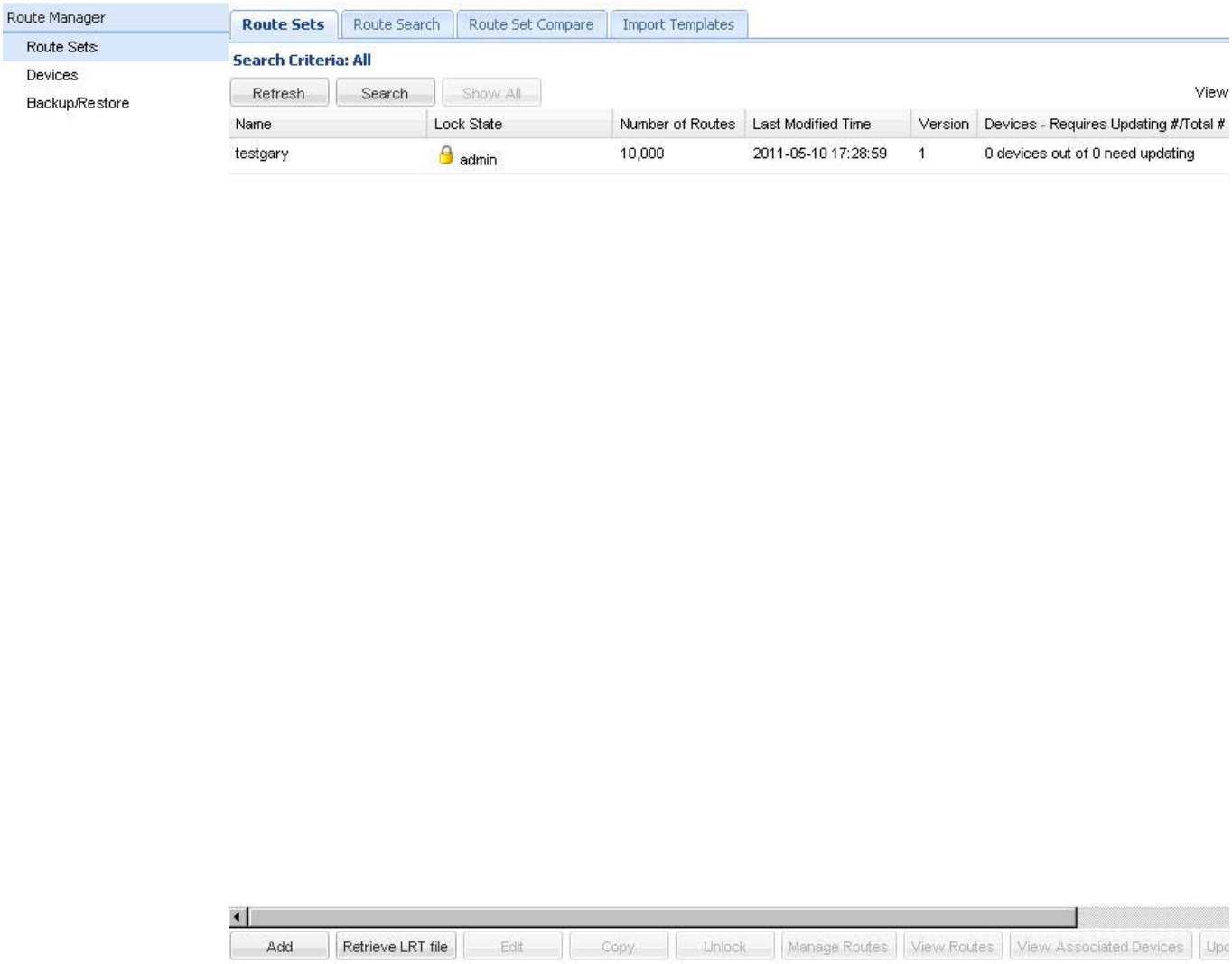
Note: The navigation sliders that appear in Net-Net Central will vary depending on your licensed applications.

- Content area: Displays routing information in the appropriate forms.

For more information about the Net-Net Central GUI, see the *Net-Net Central Core Functionality* guide and chapter: *Net-Net Central GUI Overview*.

Content Area

The content area is your work area. As you navigate through Net-Net Route Manager, the forms for configuration entries and results from searches are displayed here. The following example shows the information that appears in the content area when you choose Route Sets under the Route Manager slider.

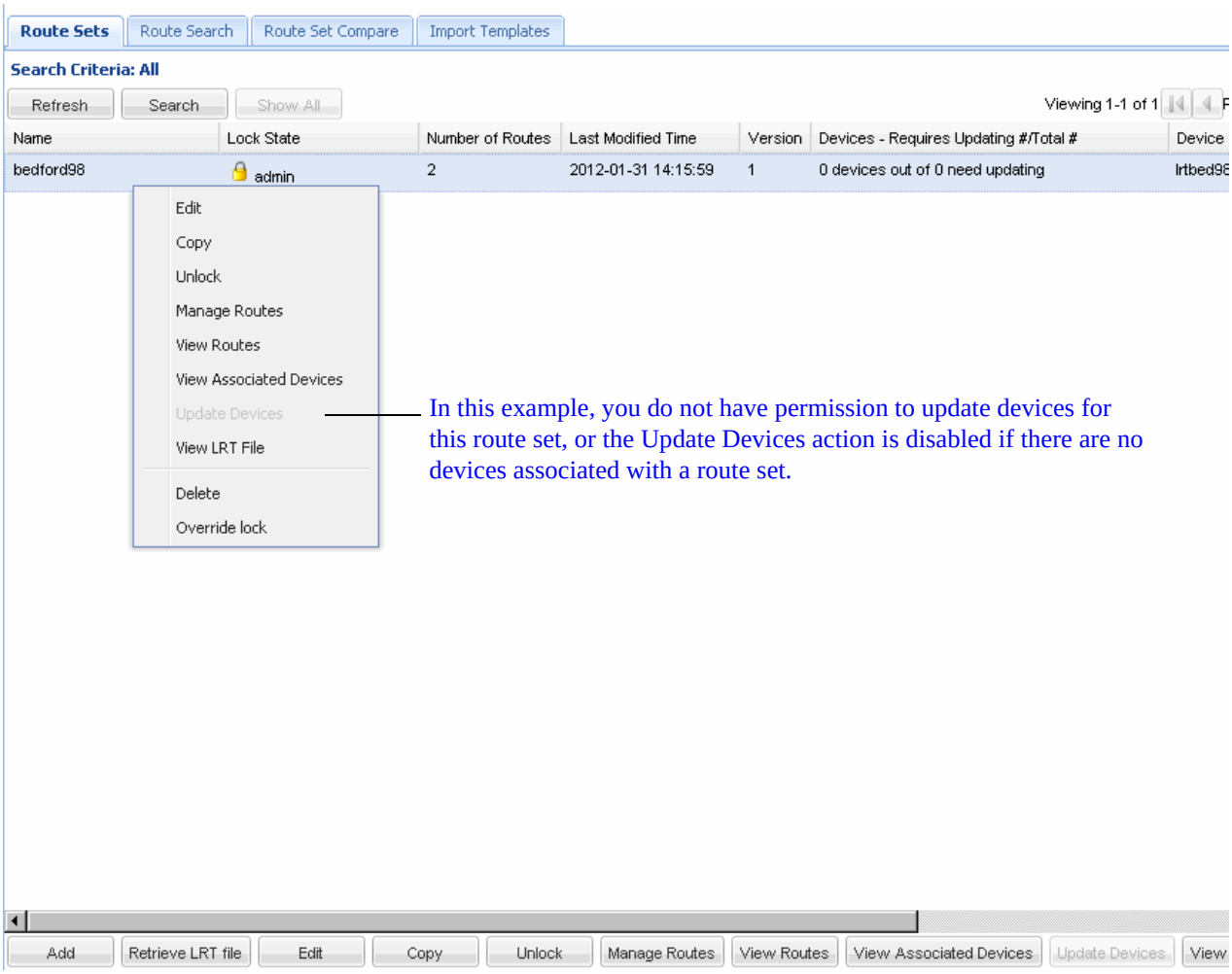


Accessing Route Set Actions

There are two ways to access all route set operations:

- Clicking one of the action buttons at the bottom of the content area

- Right-clicking a route set to display a menu of actions, for example:



The right-click menu displays the same actions as the buttons at the bottom of the display.

The action buttons are enabled if you have permission to perform these actions on the device(s) within this route set. Otherwise, the action buttons are grayed out if permission is denied, for example, you do not have permission to perform an **Update Devices** action.

> **Note:** The **Update Devices** action will be disabled if there are no devices associated with a route set.

For more information about device/route set permissions, see Route Manager Privileges (20).

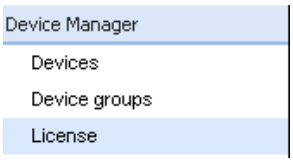
Viewing Net-Net Route Manager License Information

There are two ways to view the Net-Net Route Manager license information.

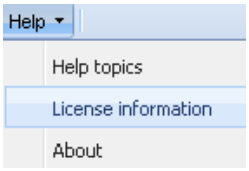
Note: No privilege is required to view license information.

To view license information:

1. Expand the Device Manager slider > License.

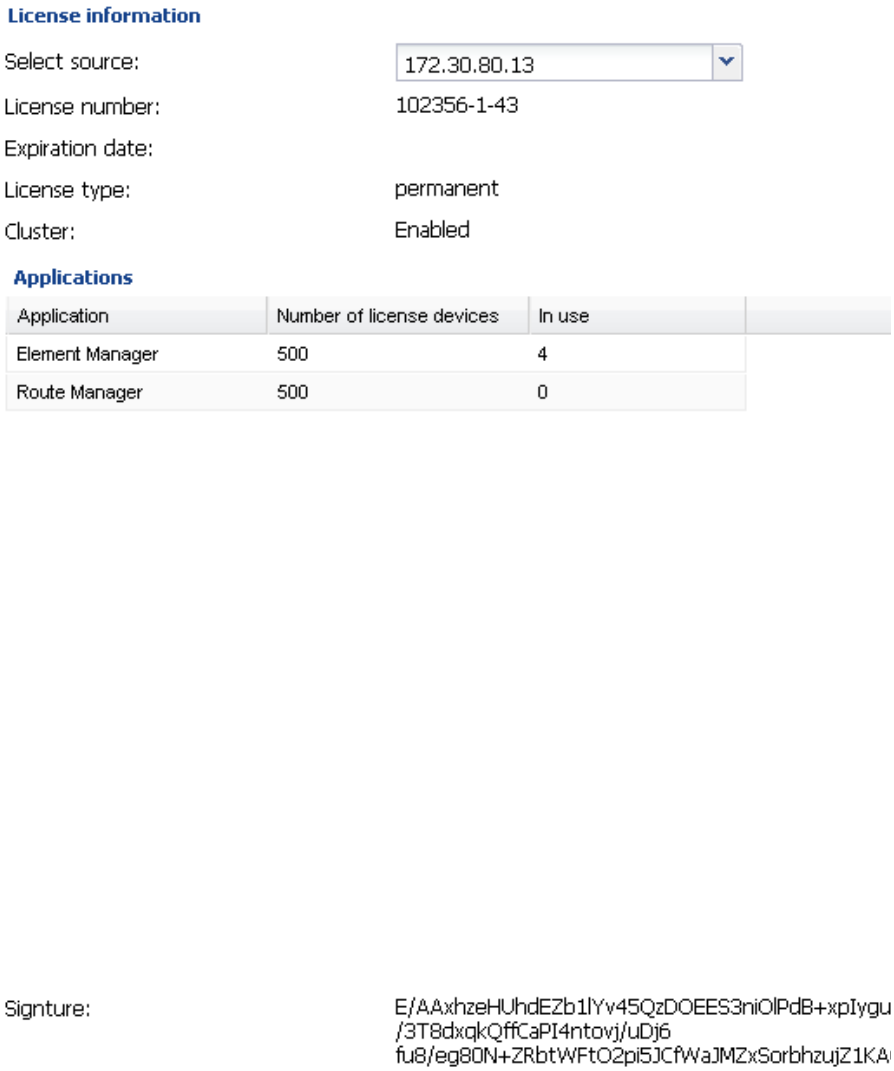


2. From the Help menu, choose `License Information`.



3. **Select source:**—Click the source IP address of the Net-Net Central server you want to view license information for in the drop-down list.

The Net-Net Route Manager License information displays. For example, on the following Licence information screen there are two licensed applications, Element Manager and Route Manager. Each application has 500 devices licensed, with Element Manager having 4 devices in use and Route Manager having 0 devices in use



The value in the **Number Of License Devices** displays the number of licensed devices. The number in this column changes when you add devices to the license. The value in the **In use** column fluctuates on the running Net-Net Central server depending on the number of devices in use at a particular time.

The number of devices in-use is important since it cannot exceed the number of licensed devices. For example, if you are licensed for 500 devices and have 498 devices in use, you can consider adding devices to your license. For more information, contact your Acme Packet sales representative.

About License Information

Net-Net Central License information displays the license data for each Net-Net Central server. The information includes:

- Licensed applications installed
- Number of licensed devices for each application
- Number of licensed devices in use for each application

The license information for this Net-Net Central server appears.

The license information data is explained below.

Data	Description
Select source	IP address of the Net-Net Central server for which you want to view license information
License number	Unique number for this Net-Net Central license
Expiration Date	Expiration date for this Net-Net Central license. If left blank, there is no expiration date
License Type	License types for the Net-Net Central server are temporary or permanent. If temporary, the Expiration Date field displays the expiration date for this temporary license. If permanent, the Expiration Date field is left blank
Cluster	Specifies whether clustering is enabled or disabled with this Net-Net Central license. If enabled, clustering is permitted. If disabled, clustering is not permitted
Application	Name(s) of the licensed applications
Number of Licensed Devices	Number of licensed Net-Net SBCs for each application
In use	Number of Net-Net SBCs in use for each licensed application
Signature	A mathematical scheme, usually encrypted, that provides authenticity to a digital message or document. A valid digital signature gives a recipient validation that a message was created by a known sender, and that it was not altered in transit.

Route Manager Privileges

Depending on your level of user privileges (or privileges set for the User Group you belong to), you can perform certain operations in Route Manager. The operations are:

- Configure route sets
- Configure templates
- Backup/Restore
- Device operations

Route set group privileges (also called permissions) are directly associated with the group privileges that belong to the device (Net-Net SBC), which owns the route set. For example, you might be a member of a group with full privileges to perform all route operations for Device A, but might have limited privileges to only configure templates for Device B. Each route set inherits the privileges that belong to the device which created the route set.

If you belong to a group with no privileges granted for a device, the same level of privileges would apply to the route sets associated with the device, and you would have no privileges to work with the route sets.

> **Note:** You must have full privileges granted for all devices associated with a route set in order to perform operations for this route set. Operations you perform on a route set for a particular device inadvertently affects all other devices associated with this route set.

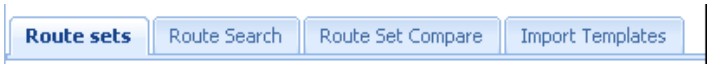
For more information about group/user privileges, see the *Net-Net Central Administration Guide.*

Setting Route Manager Privileges

You can set privileges for each level of operation in Route Manager. There are three privilege states:

- Full—You can perform all actions associated with Route Manager, for example you can lock and unlock route sets, override another user's lock on a route set, as well as add, edit, or delete routes from route sets. All action buttons appear in the content area for all operations. With a Full privilege level, all Route Manager operation tabs appear in the content area:

  Route sets:

  Devices:

  Backup/Restore:

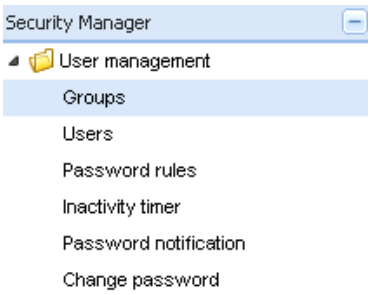
  

- View—You can view information, for example, view route sets and routes within a route set. With this permission level, the **Manage Routes**, **Lock**, and **Unlock** action buttons are invisible.
- None—You have no access. For example, you cannot view routes, route sets, templates, etc.

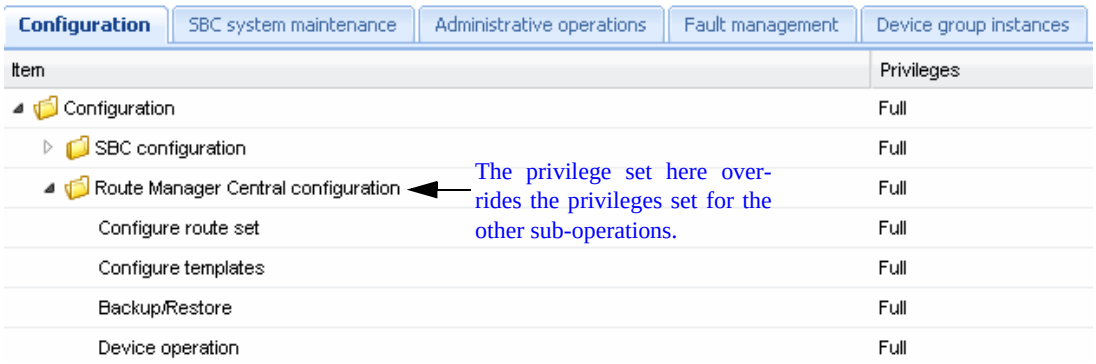
  Note: For more information, see the *Net-Net Central Administration Guide*.

To set privileges for a Group:

1. Expand the Security Manager slider > User management.



2. Click Groups.
3. Click the group you want to set permissions for and click **Edit**.
4. Click the Configuration tab.
5. Expand the Configuration > Route Manager Central configuration.



The privileges are set according to the operation. With Full privileges assigned, users belonging to this group can:

- **Configure route set**: Configure route sets, add route sets, manage route sets, and retrieve LRT files. The Route Sets, Route Search, and Route Set Compare tabs are visible.
- **Configure templates**: Configure the templates used for mapping the columns of the CSV files to the properties of the roues, allowing for the import of the CSV files. The Import Template tab is visible.
- **Backup/Restore (route sets)**: Create backup files of the route set(s) and restore the backup files to the device. The Route Set Backups and Route Set Scheduled Backups tabs are visible.
- **Device operation**: Add route sets to devices, view the route sets associated with each device, update route sets, and update task histories. The Device Route Sets, Associated Devices, Device Route Set Updates, and Update Task History tabs are visible.

Note: The privilege state set for Route Manager Central configuration overrides the privilege states set for the above operations.

6. Click the state in the Privileges column to change the privilege for this operation. For example:

7. Click **Apply**. The privilege state is changed.

   Note: If the privilege state is set to **None** for an operation, the action buttons associated with this operation are invisible. For example, if set to **None**, the **Manage Routes**, **Edit, Copy, Lock/Unlock** buttons would not be visible.

2 Managing Route Sets

Overview

This chapter describes how to manage route sets. Route sets are a collection of route entries. The routes contained in the route set are imported from multiple CSV files or entered via the Net-Net Central GUI. Route sets are associated with devices. They can be associated with one or multiple devices.

Route sets have a version that increments the first time after you commit the result of an operation:

- Importing from a CSV file
- Editing a route
- Deleting a route
- Restoring from a device

Property Definitions

The following table lists the route set properties along with their definitions.

Property	Definition
Order	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	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.
Destination Group	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	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	Alphanumeric string that can be used in the formula to generate the SED for a route record.
Trunk Context	Alphanumeric string that can be used in the formula to generate the SED for a route record.

Property	Definition
Routing Number (RN)	Telephone number or prefix that can be used in the formula to generate the SED for a route record.
Carrier identification code ($CIC)	Numeric value that can be used in the formula to generate the SED for a route record.
User 1 through User 5	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	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	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	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.

Accessing Route Sets

To access route sets:

1. Under the Route Manager area of the navigation pane, click Route Sets. The route sets table appears in the content area.

From here you can add new route sets and work with existing route sets.

Customizing the Display

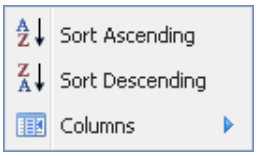
You can change the route set table display by changing the columns that are displayed and/or the order of table entries.

> **Note:** The example images displayed in this guide might not display all possible table data. By performing the steps in this procedure, you can display all data, or as little as you require. The data display can be changed as frequently as you like.

To customize the table display:

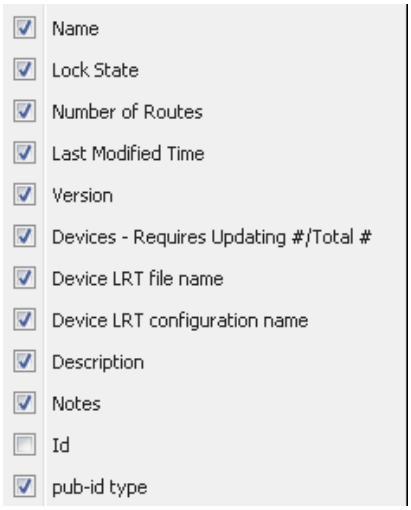
1. Position the cursor over a column heading. An arrow appears on the right side of the box. For example:

2. Click the down arrow to display the menu. For example:



3. Click Sort Ascending to order the route sets by ascending order or Sort Descending.

4. Click Columns to access a list of column names. For example:



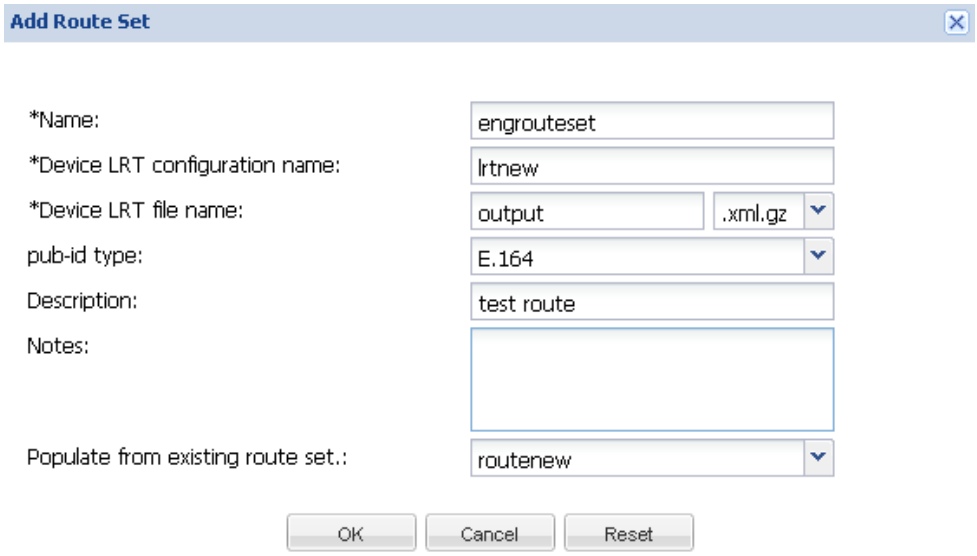
5. Click a marked checkbox to hide that column or click an empty checkbox to display that column.
6. Click elsewhere in the display to clear the menus.

Adding Route Sets

To add new route sets:

1. From the Route Sets tab, click **Add**. The Add Route Set dialog box appears.
2. **Name**—Enter a name for the new route set using alphanumeric characters without spaces.
3. **Device LRT configuration name**—Enter the configuration name of the LRT associated with the route set. This value must match the configured name on the device.
4. **Device LRT file name**—Enter the name you want to use for this LRT file. The file name must match what is in the device's configuration.

   Note: The values entered for **Device LRT configuration name** and **Device LRT file name** must match the configuration objects found in the LRT.
5. **pub-id type**—Click E-164 or String in the drop down list.
6. **Description**—*Optional*. Enter a description for this route set.
7. **Notes**—*Optional*. Enter a note for this route set.
8. **Populate from existing route set**—If you want to populate the new route set with data from an existing route set, choose the source route set from the drop-down list.



9. Click **OK**. The new route set appears in the Route Sets table.

Working with Existing Route Sets

You can work with the existing route sets displayed in the table. Before you can work with route sets, you must lock the route set. Only users with full permission granted can lock and unlock route sets. For more information about permissions, see the *Net-Net Central Administration Guide*.

Locking a Route Set

You must first lock a route set before you can:

- Edit this route set
- Make a copy of this route set
- Manage routes
- Delete this route set

To lock a route set:

1. Click the route set you want to edit in the route set table 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.

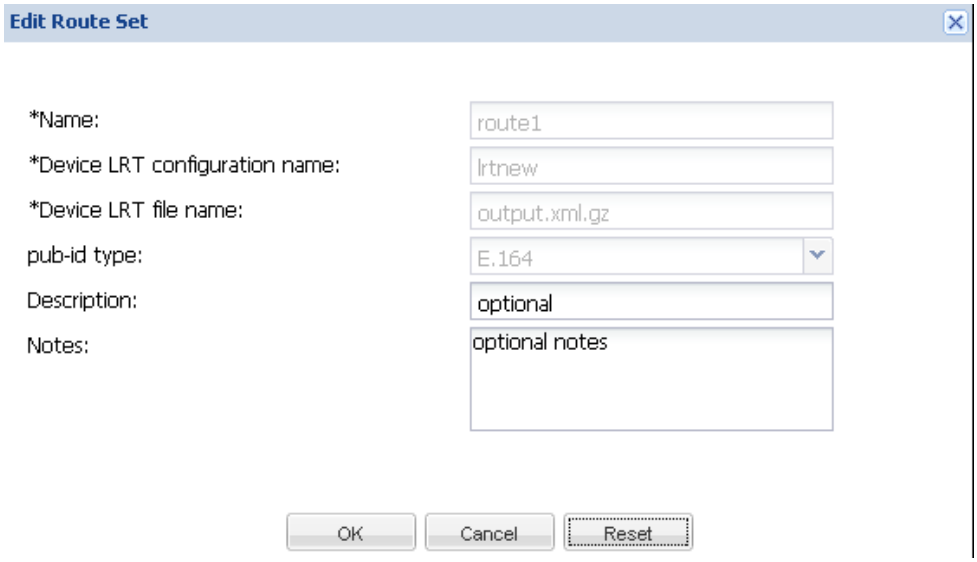
   From here, you can edit this route set. (Before you lock the route set, the **Edit** button is disabled. Once you lock the route set, the **Edit** button is enabled.)

Editing Route Sets

To edit a route set:

1. Click a row in the table to select route set and click **Lock** to lock this route set for editing.
2. Click **Edit**. The Edit Route Set dialog box appears.
3. **Description**—Edit, or add, the description to your route set.
4. **Notes**—Edit, or add, the notes to your route set.

   You cannot edit any of the other parameters.

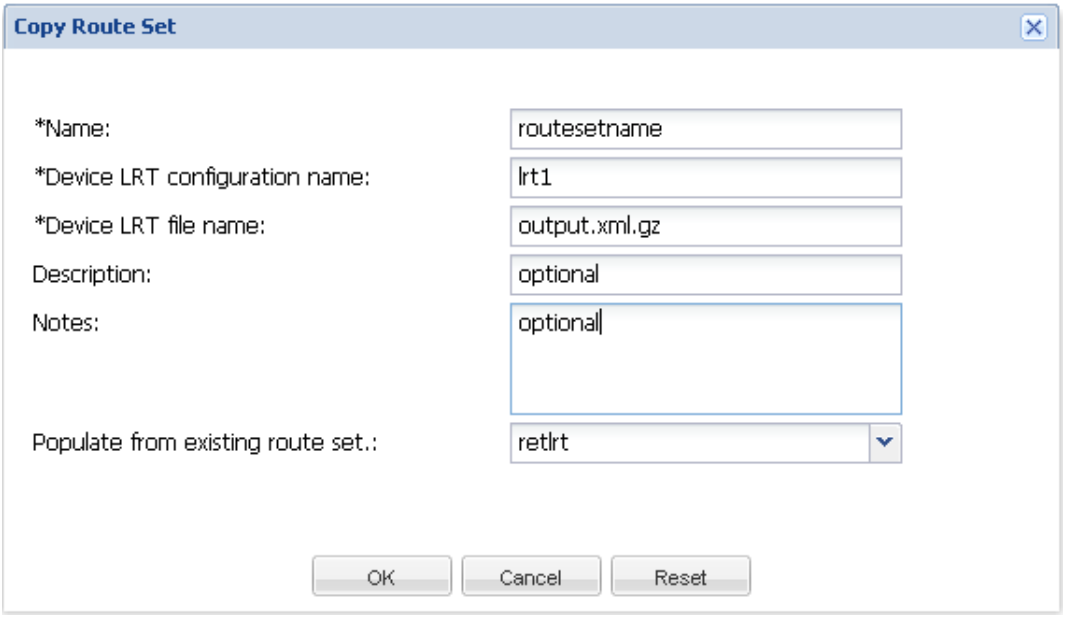


5. Click **OK** to save your edits.

Copying Route Sets

To copy a route set:

1. Click the row for the route set you want to copy and click **Copy**. The Copy Route Set dialog box appears.
2. **Name**—Enter a name for the route set copy.
3. **Device LRT configuration name**—Retain the originally-entered value or enter a new LRT configuration name.
4. **Device LRT file name**—Retain the originally-entered value or enter a new LRT file name.
5. **Description**—*Optional*. Retain the originally-entered value or enter a new description for the copy.
6. **Notes**—*Optional*. Retain the originally-entered value or enter new notes for the copy.
7. **Populate from existing route set**—Retain the default existing route set from which you want to populate or choose a new one from the drop-down list. You can also choose not to populate from an existing route set.



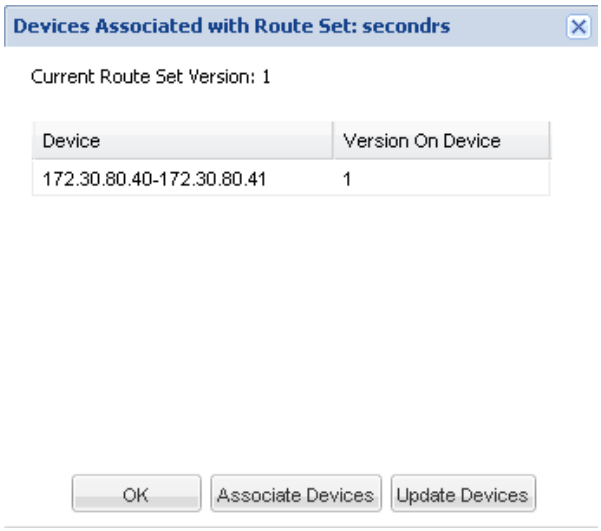
8. Click **OK**. Your route set copy is added to the Route Sets table.

Viewing Associated Devices

To view associated devices:

1. Click the route set row in the table and click **View Associated Devices**. The Devices Associated with Route Set window appears listing the devices associated with that route set.

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



2. Click **OK** to close the window.

Viewing LRT Files

To view LRT files:

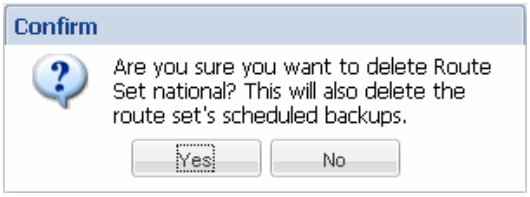
1. Click a row in the table and click **View LRT File**. A status message shows the progress of loading the LRT file. After the file is loaded, you are prompted to either open or save the file.
2. Open the file in an XML editor to review it or save the file.

Deleting Route Sets

To delete route sets:

Note: You must first lock this route set before you can delete it. For more information, see Locking a Route Set (28)

1. Click the route set row in the table and click **Delete**. A confirmation message appears.



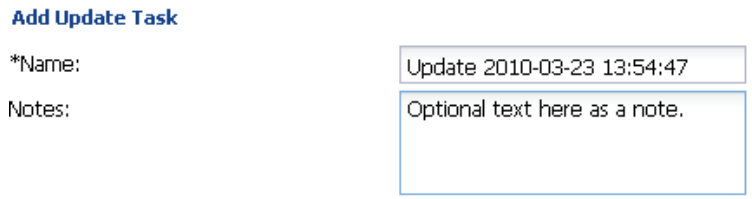
2. Click **Yes** to continue with the deletion or **No** to exit.

Updating Devices

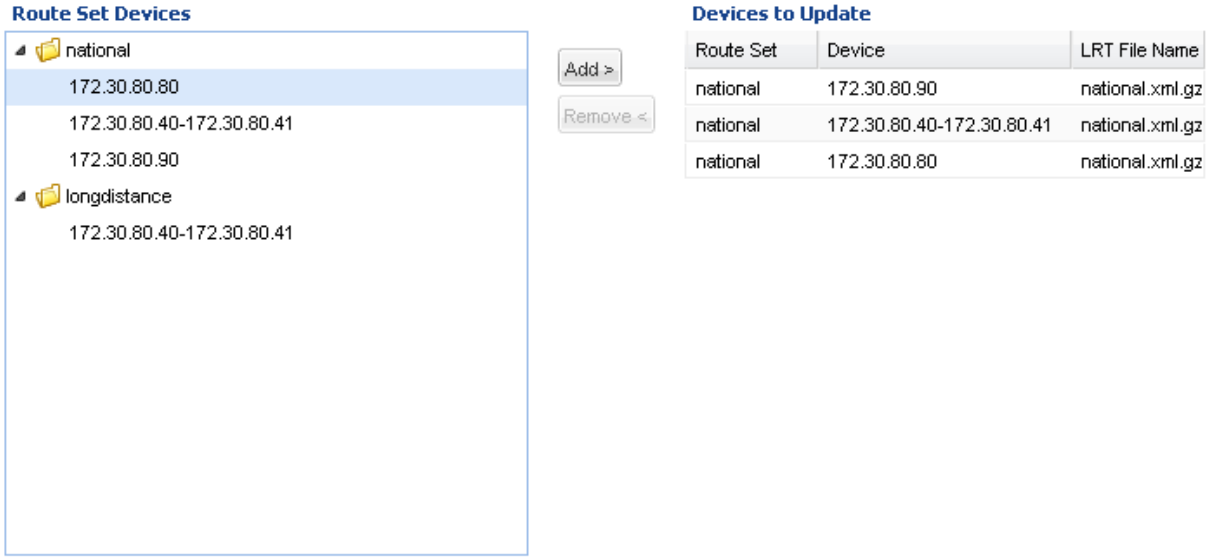
You can update the devices for route sets displayed in the Route Sets table. Check the Devices - Requires Updating #/Total # column to identify those route sets that require updating. If there are no route sets with devices requiring an update, the **Update Devices** button remains grayed out.

To update devices:

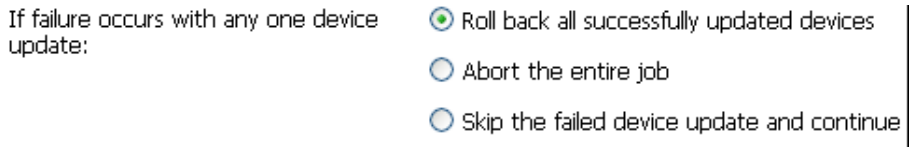
1. Click the route set in the table that has devices requiring update. The **Update Devices** button becomes active.
2. Click **Update Devices**. The Add Update Task information appears.
3. **Name**—Retain the default update task name or enter a new one.
4. **Notes**—*Optional*. Enter text for the optional notes.



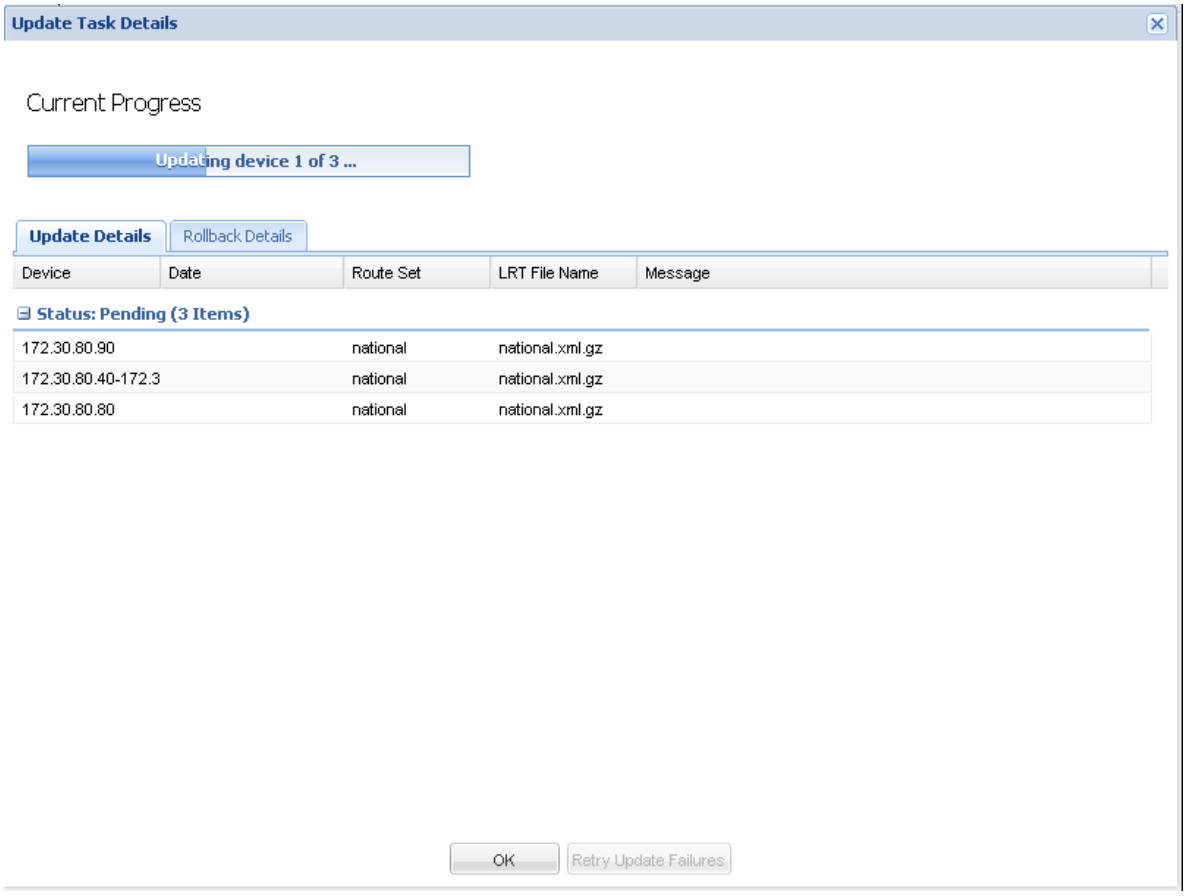
5. Select the device in the Route Set Devices tree and click **Add** to add it to the Devices to Update list.
6. Repeat step 5 to select all the devices you want to update for the route set.



7. Click **Update Devices**.
8. **If failure occurs with any one device update**—Click the radio button of the action you want taken if device update fails for any of the selected devices.

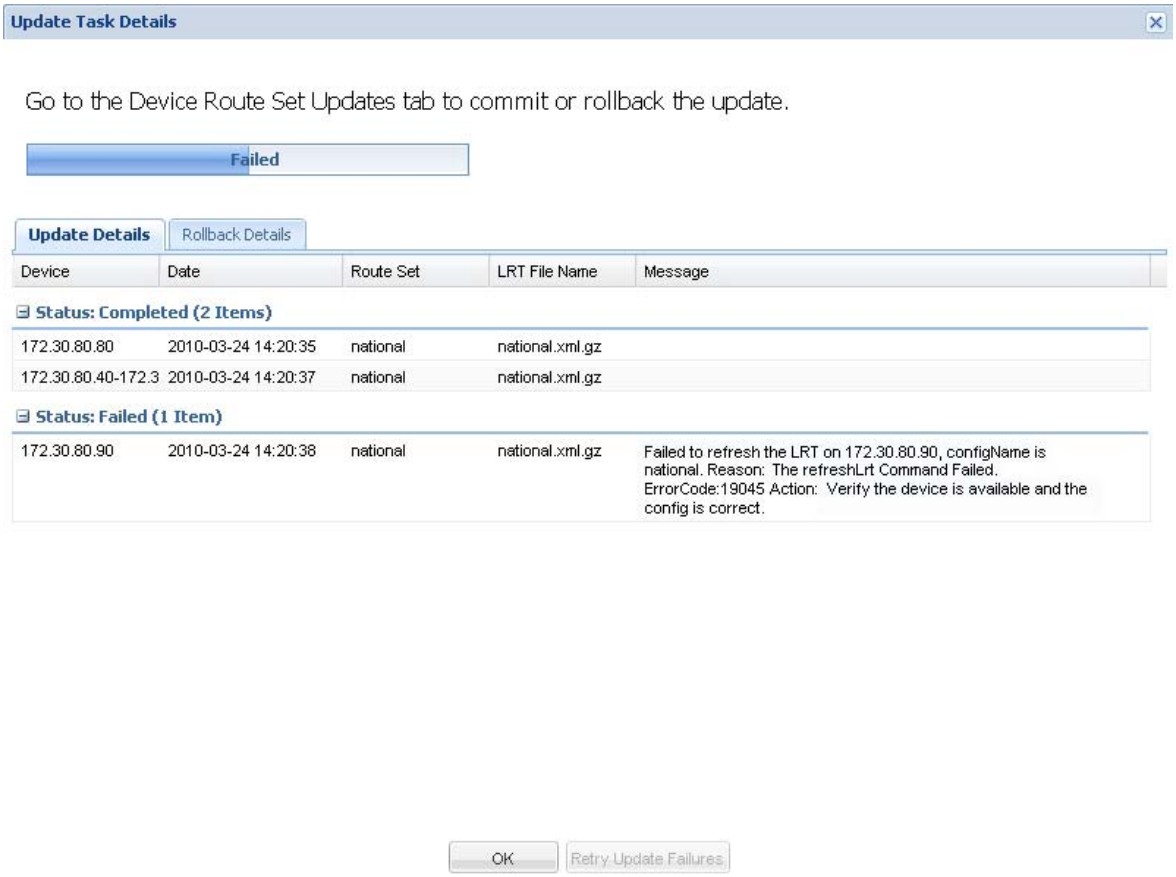


9. Click **OK**. The update process begins and an Update Task Details window appears displaying the progress.



Fail

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

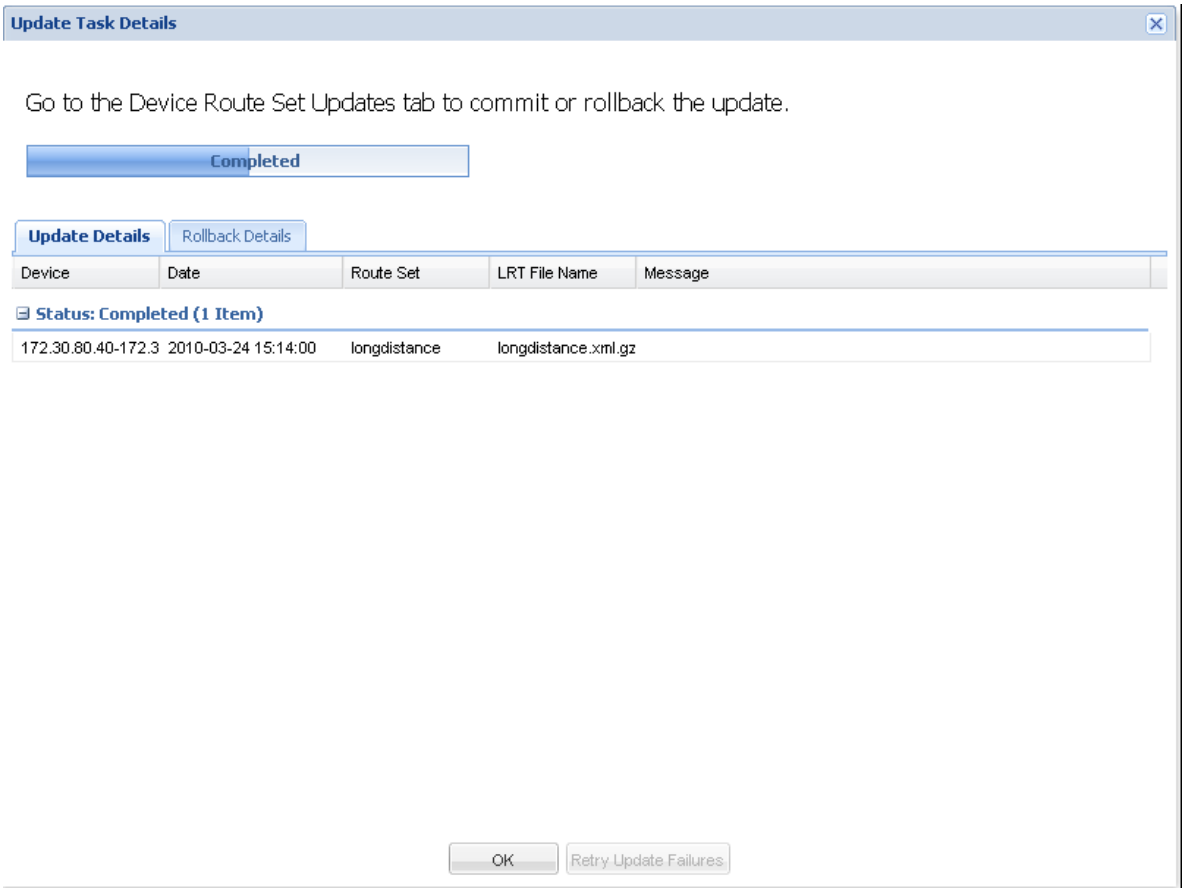


The selected failover action occurs. If you selected a failover action of roll back, click the Rollback Details tab.

10. Click **OK** to exit the Update Task Details window.

Success

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



1. Click **OK** to exit the Update Task Details window. The Device Route Set Updates tab appears.
2. Click **Commit** to save the device updates.

Importing Route Sets

When you import a CSV file, column definitions and minimum fields are required in the file. Formulas specified in Net-Net RM during the import process are applied globally and stored with each record during the import.

A value supplied in the formula field of a record has precedence over the formula specified in Net-Net RM during import. Order and precedence determine order of the numbers in the XML file, with the lowest appearing first.

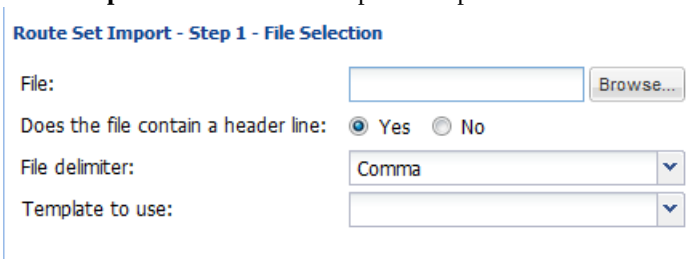
You specify the CSV file and the file format. Then you allow mapping of CSV columns to RM properties. Finally, a confirmation displays what is imported, including a display of errors.

> **Note:** Before you can import routes for this route set, you must make sure you have locked the route set. For more information about locking route sets, see Locking a Route Set (28).

File Selection

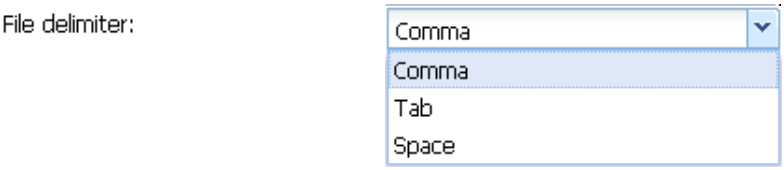
To import route sets:

1. In the Route Sets table, click the row of the locked route set for which you want to import routes and click **Manage Routes**. The Route Set Edit window appears.
2. Click **Import**. The Route Set Import - Step 1 - File Selection information appears.

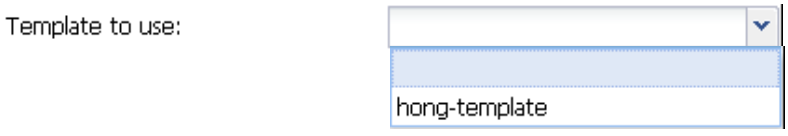


3. **File**—Browse to the file you want to import.
4. **Does the file contain a header line**—Click the appropriate radio button.

5. **File delimiter**—Choose the file delimiting method from the drop-down list.



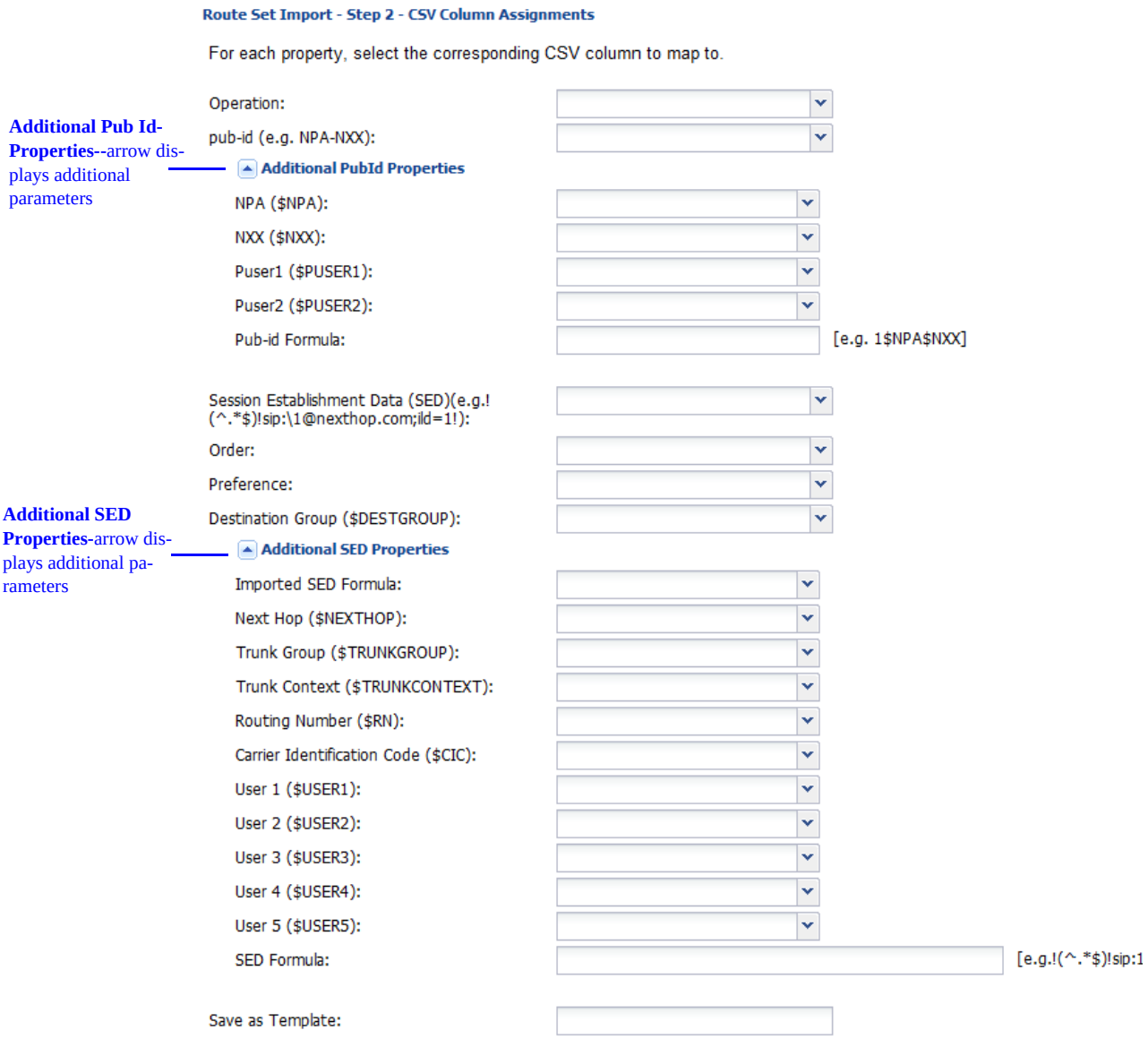
6. **Template to use**—Choose the template from the drop-down list, or leave this field blank. For more information about templates, see Managing Import Templates (50)



7. Click **Next**.

CSV Column Assignments

The Route Set Import - Step 2 - CSV Column Assignments information displays.



8. Select the corresponding CSV column from the drop-down list to map to each property listed.

   If you map a CSV column to the SED property, the two formula properties are disabled.

   If Session Establishment Data is mapped to a column in the CSV file, that SED is used for the route and the formula, if specified, is ignored.

   Note: If you chose a template in Step 6, this mapping is already defined.

   The value for the **Operation** property must be either:

   - Add to add the route
   - Delete to delete the route

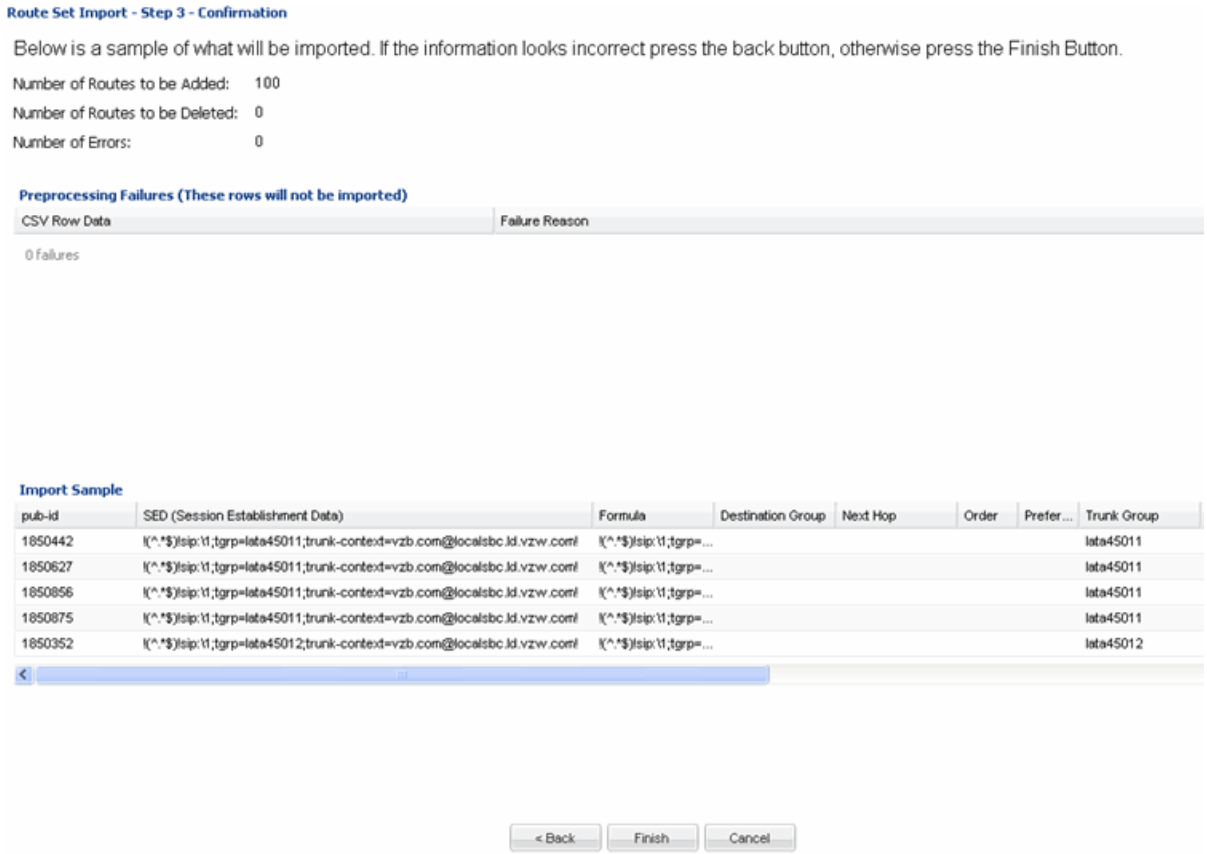
   Modify works by having two rows in the CV, a delete row and an add row.

9. **Additional PubId Properties**—Expand the arrow to display additional parameters. You can enter additional properties for the Pub Id: NPA ($NPA), NXX ($NXX), Puser1 ($PUSER1), Puser2 ($PUSER).
10. **Pub-id Formula**— Enter a **Pub-id** formula. The formula is used to create the Pub Id.
11. **Session Establishment Data (SED)—** Click the Session Establishment Data in the drop-down list.
12. **Order—**Click the numerical value in the drop-down list. The order 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.
13. **Preference**—Click the preference in the drop-down list. The preference is 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.
14. **Destination Group**—Click the **Destination Group** in the drop-down list. The Destination Group is a 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.
15. **Additional SED Properties**—Expand the arrow to display additional parameters. You can enter additional properties for the **SED**: Imported SED formula, Next Hop, Trunk Group, Trunk Context, Routing Number, Carrier Identification Code, User 1 ($USER1), User 2 ($USER2), User 3 ($USER3), User 4 ($USER4), User 5 ($USER5).
16. **SED Formula**—Enter the **SED** formula. The formula is used to create the SED.

    Note: The **SED formula** overrides the **Imported SED formula**.
17. **Save as Template**—Save mappings to a template, if not already specified in an earlier step, by entering a name for it in the textbox.
18. Click **Next**.

Confirmation

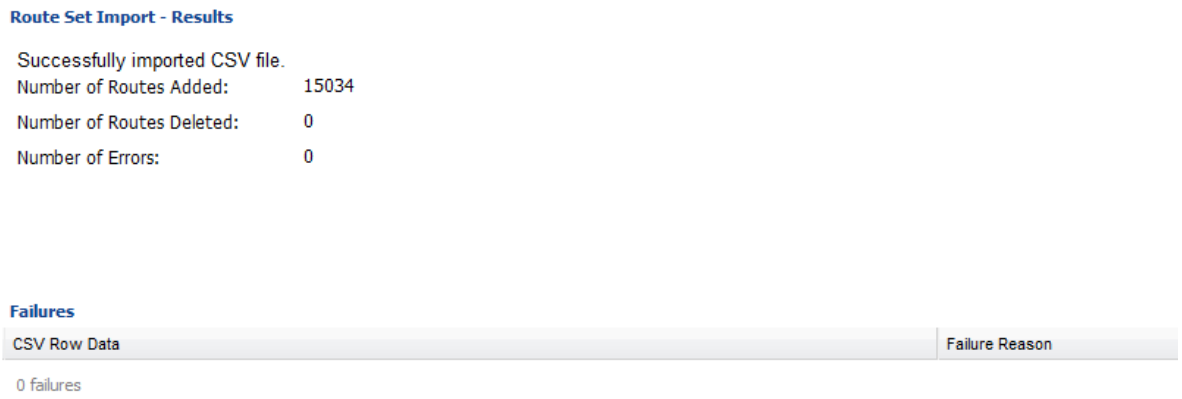
The Route Set Import - Step 3 - Confirmation displays a sample of what will be imported, along with any errors. If the number of errors exceeds a certain amount, the **Finish** button is disabled.



19. If there are errors, click **Back** and correct your mappings.
20. Click **Finish**.

Results

The following screen displays once you have completed all three steps of the Route Set Import task:



Route Set Import failures appear in the Failures table, along with a reason why the route set import failed.

Managing Routes in Route Sets

From the route sets you have created, you manage individual routes. For information about importing route sets, see the information in the prior section.

Note: You must lock the route set before you can manage routes within the route set. For more information, see Locking a Route Set (28).

To manage routes:

1. Click the locked route set in the table and click **Manage Routes**. The Route Set Edit tab for that route set appears. The default view is of routes organized by pub-id.

2. Click the Session Establishment Data (SED) table column header to view route sets organized by SED. For example:

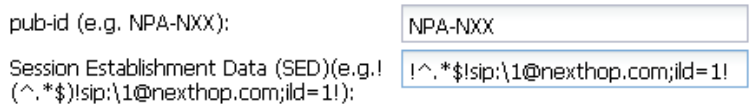
Note: You can customize the information displayed on the tab. For more information about customizing the display, see Customizing the Display (25).

Searching for Routes

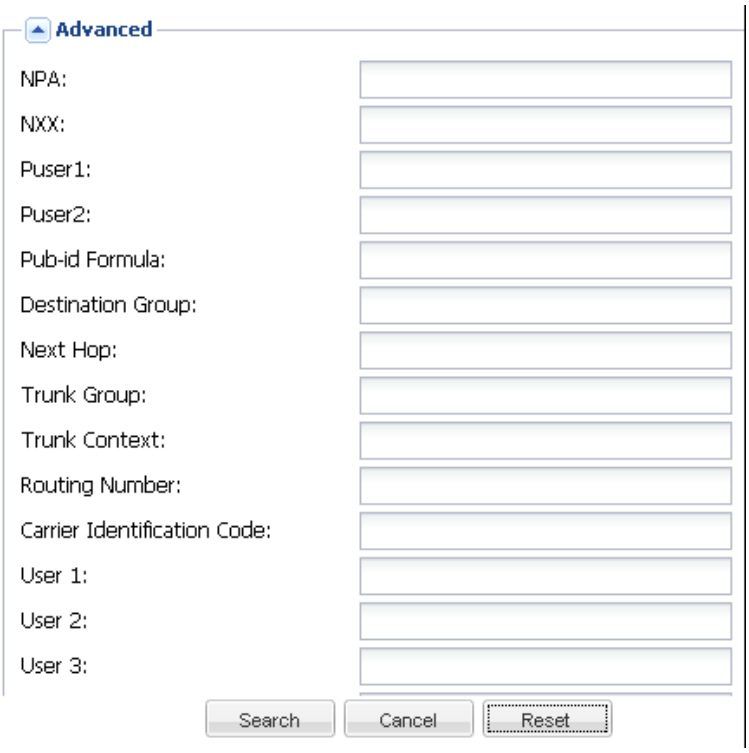
You can search for routes by pub-id, SED, and/or other properties. You can use the asterisk (*) as a wildcard for a partial substring match and the question mark (?) for character match for all the property fields except SED and formula.

To search for routes:

1. From the Route Sets tab, click the locked route set that you want to search routes for.
2. Click **Manage Routes**. The Route Set Edit window appears.
3. Click the **Search** button. The Route Search dialog box appears.
4. **pub-id**—Enter the public identifier you want to use as search criteria.
5. **Session Establishment Data (SED)**—Enter the SED you want to use as search criteria.

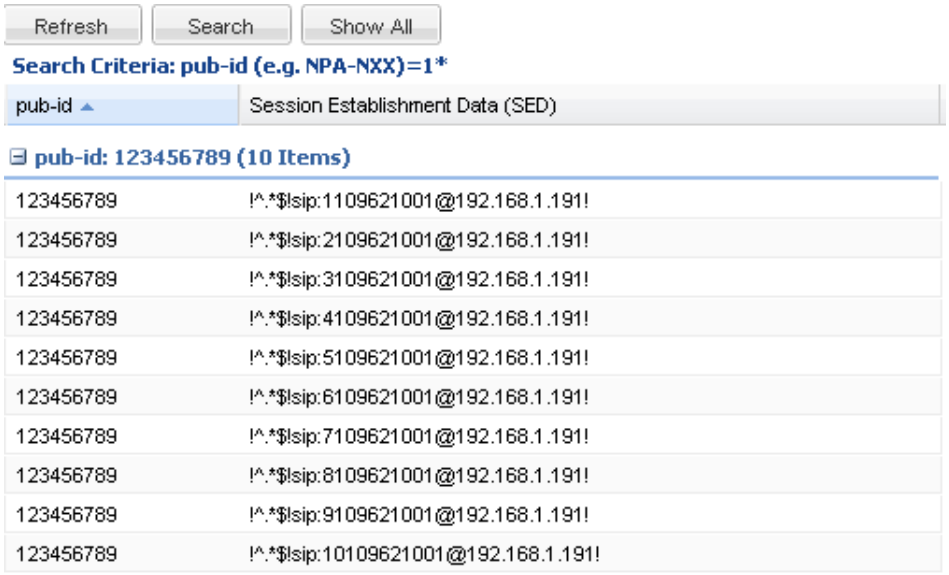


6. **Advanced**—Click the arrow to display search criteria list of advanced properties. Re-check the arrow to hide the list.



7. Enter values for the advanced properties if you want to use them as search criteria.

8. Click **Search**. The results of the search are displayed.



Adding Routes

You can add routes to the route sets you have created. You must first lock the route set for use before you can add routes to it. For more information, see Locking a Route Set (28).

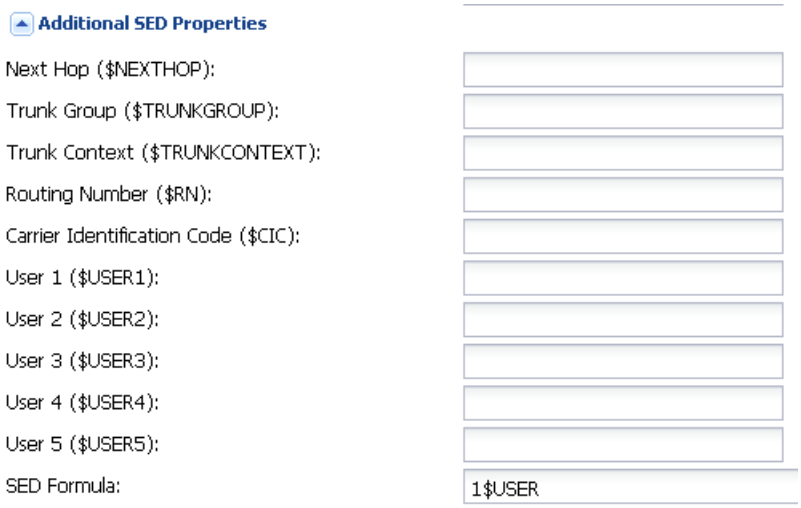
To add routes to route sets:

1. On the Route Sets tab, click the locked route set you want to add routes for and click **Manage Routes**. The Route Set Edit window opens.
2. **Click Add**. The Add Route dialog box displays.
3. **Pub-Id**—Enter the public identifier for this route.

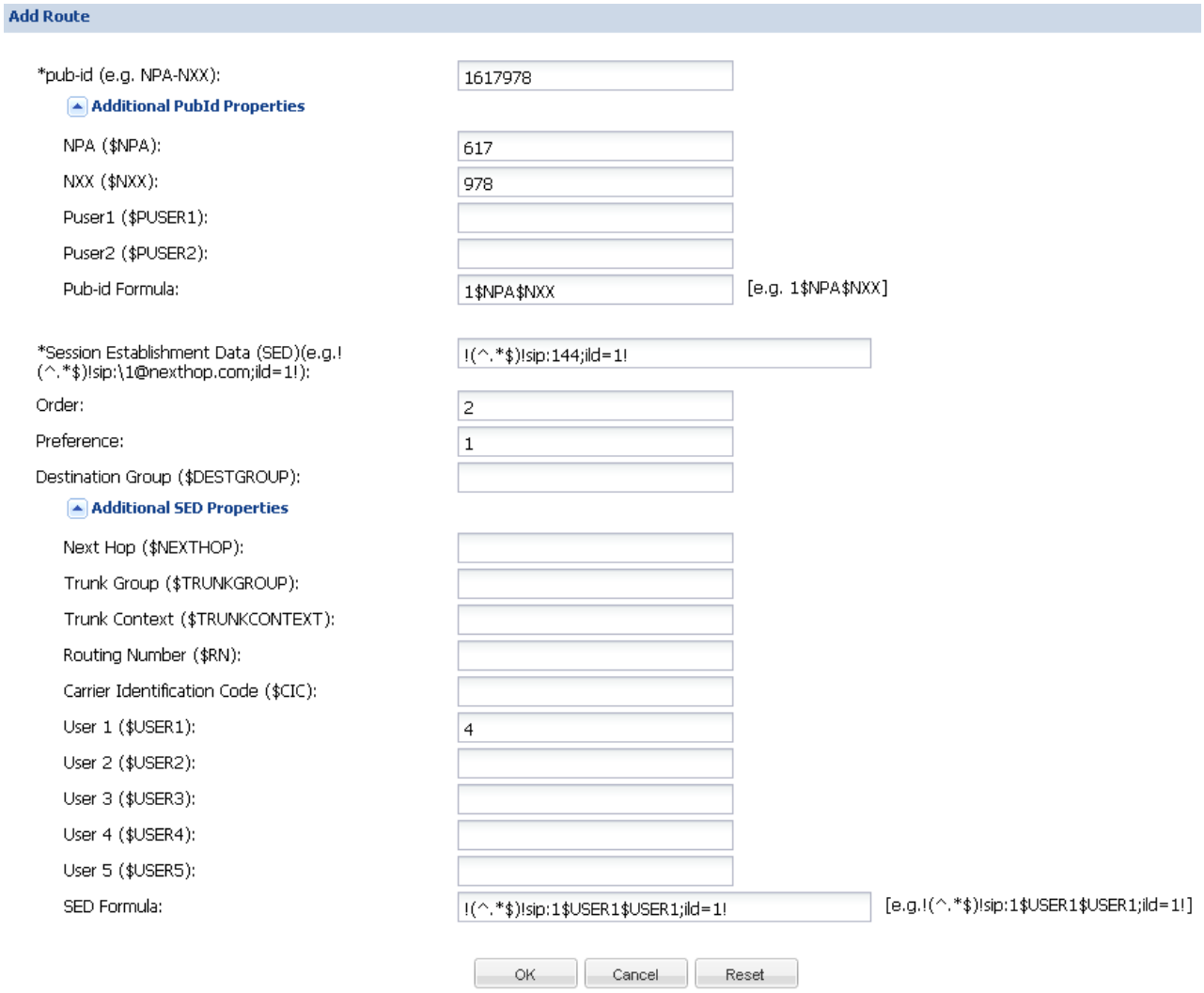
   Note: The string value that displays for the **Pub-Id** depends on what you choose for the **Pub-Id type**, either **E.164** (numerical) or **String** (any characters) when creating a route set.
4. **Additional PubId Properties**—Click ▶ to expand the list of fields for the **pub id**. You can enter multiple fields for this pub id. The five additional fields below allow you to create mapping from CSV files to the fields below. For example:

   Note: The **Pub-Id Formula** allows you to customize your formula using any of the additional PubId Properties: **NPA, NXX, Puser1,** or **Puser2.**
5. **Session Establishment Data (SED)**—Enter the SED for this route.

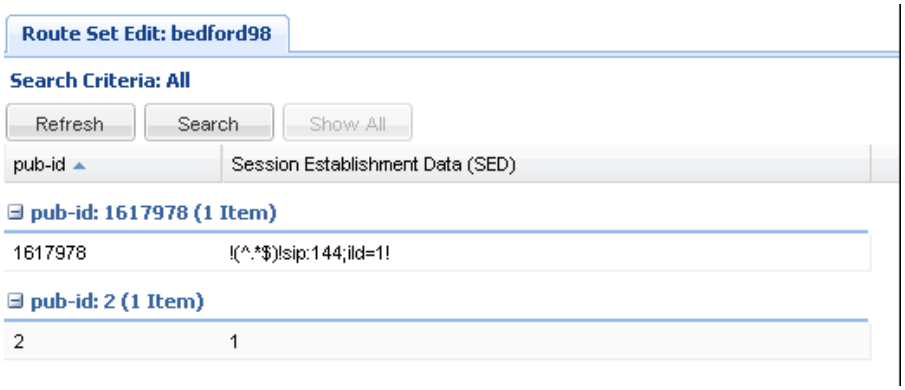
6. **Additional SED Properties**—Click to expand the list of fields for the SED. You can enter additional route properties for this SED, or create a SED formula. For example:.



Below is an example of an Add Route display:



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



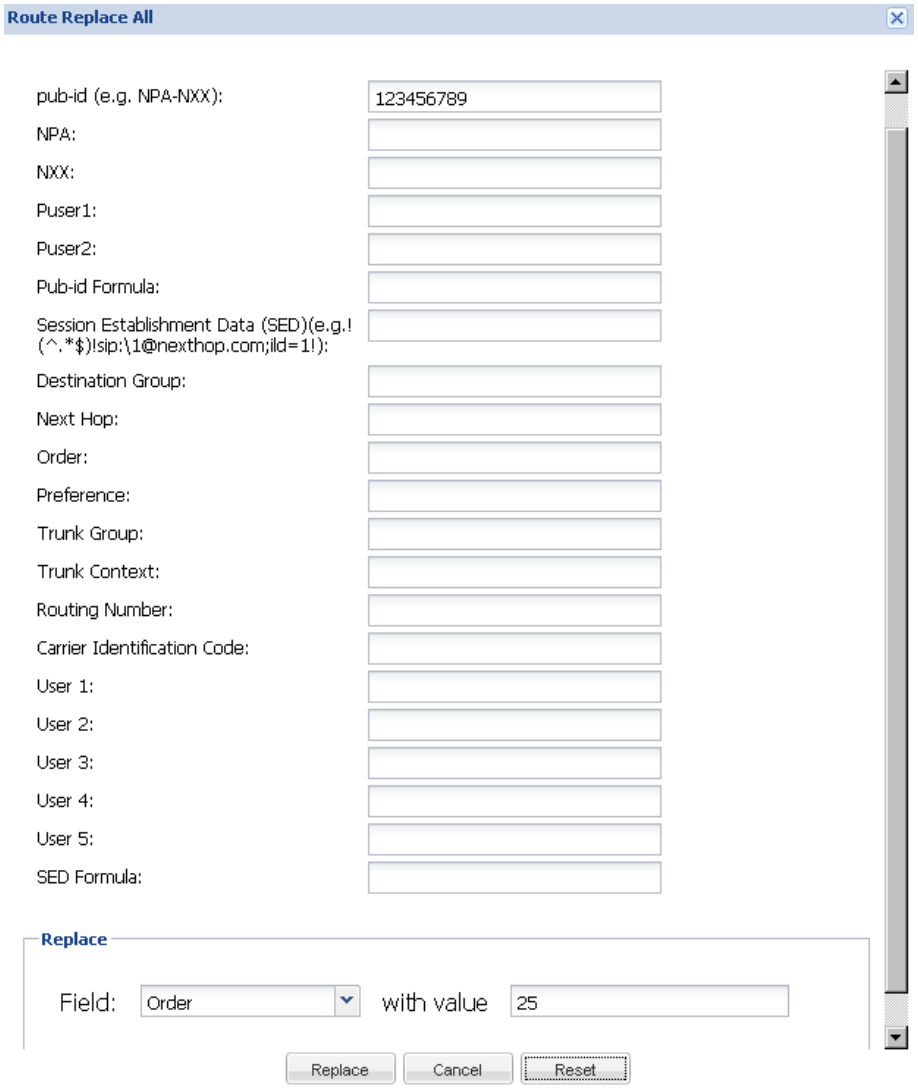
Replacing Route Properties

You can replace a property for multiple routes based on search criteria. Before you can replace route properties for your route set, you must make sure you locked your route set for managing. For more information, see Locking a Route Set (28).

To replace route properties:

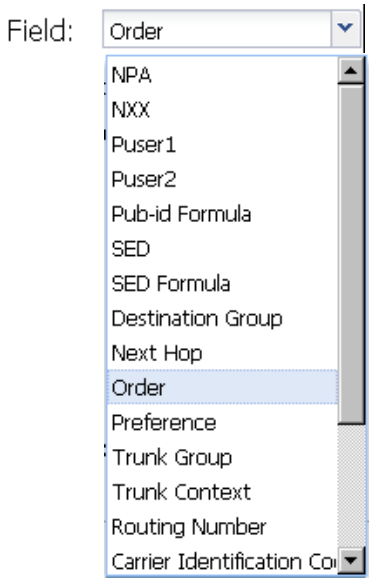
1. On the Route Set Edit page click **Replace**. The Route Replace All dialog box displays.
2. You can enter the search criteria such as **pub-id**, **SED**, and/or other property values. You can use the wildcard values asterisk (*) and question mark (?).

For example, to search for **pub-id** 123456789 and to replace the current Order value of 10 with 25:



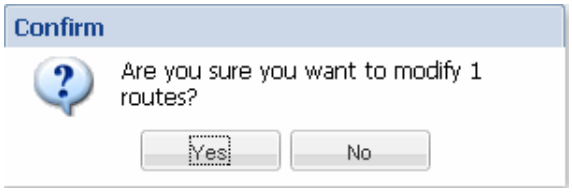
3. Scroll to Replace.

4. **Field**—Select the route property you want to replace in the drop-down list.



5. **with value**—Enter the new value for the route property you selected in the **Field** parameter. (This is the new value, which replaces the old value for the field.)

6. Click **Replace**. A confirmation message appears, For example:



7. Click **Yes** to continue. A progress message appears and the replacement is made.

   Or, you can scroll to the Replace section of the window and select a particular property to replace, along with a specific value for that property.

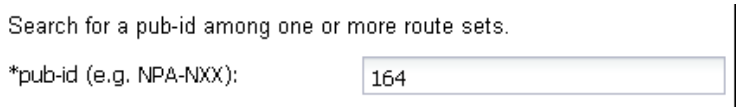
8. Click **Replace** to continue with this operation.
9. Click **Cancel** to cancel this operation.
10. Click **Reset** to clear the fields in the Route Replace All window and begin again.

Searching Routes

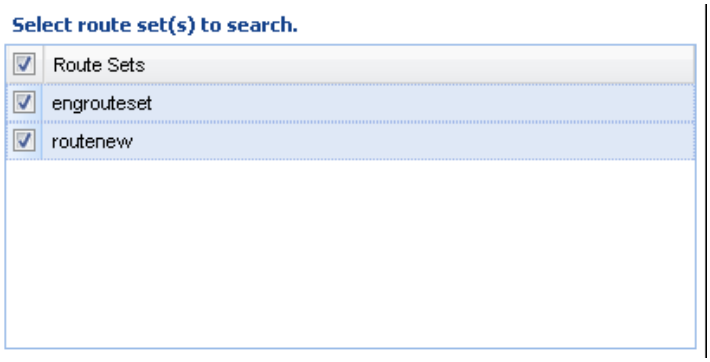
You can search routes in route sets for a specific pub-id, or any of the route properties.

To search route sets:

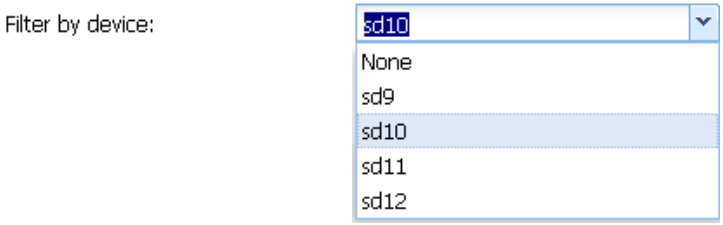
1. Click the Route Search tab.
2. ***pub-id (e.g. NPA-NXX)**—Enter the pub-id to use as search criteria. You can use the asterisk (*) as a wildcard.



3. **Select route sets to search**—Click the checkboxes for each individual route set you want to search, or click Route Sets to search all route sets in the list.



4. **Filter by device**—Click a device in the drop down list if you want to filter by device. The route sets are checked for the device.



5. Click **Search**. The results appear at the bottom of the screen. You can page through the results.
6. Click **Refresh** to refresh the display.
7. Select a row in the display 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.

Editing Routes

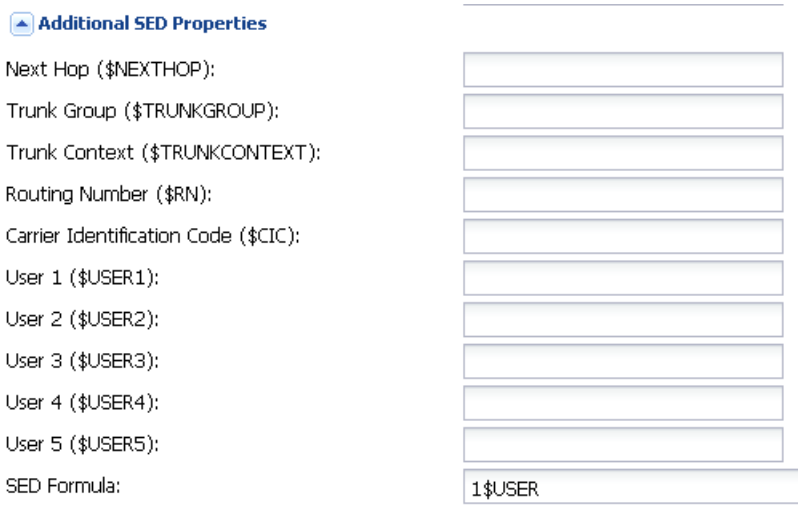
Before you can edit route properties for your route set, you must make sure you locked your route set for managing. For more information, see Locking a Route Set (28).

To edit routes:

1. On the Route Sets tab, click the locked route set you want to add routes for and click **Manage Routes**. The Route Set Edit window opens.
2. Click the route you want to edit in the route table and click **Edit**. The Edit Route dialog box appears.

3. Edit existing information for this route, or enter new information in the empty text boxes.
4. **Additional PubId Properties**—Click to expand the list of fields for the **pub id**. You can edit multiple fields for this pub id, including the **Pub-id Formula**. The five additional fields below allow you to create mapping from CSV files to the fields below. For example:

5. **Additional SED Properties**—Click to expand the list of fields for the SED. You can edit additional route properties for this SED, or edit a **SED Formula**. For example:.



6. Click **OK**.

Comparing Route Sets

You can compare two route sets. For example, before performing an update you can compare the contents of your route set with the one in the LRT file currently active on the Net-Net SBC. The differences between the two route sets are highlighted in yellow.

To compare route sets:

1. In Route Sets, click the Route Set Compare tab.
2. **Route Set 1**—Click the first route in the drop down list.
3. **Route Set 2**—Click the second route in the drop down list. The **Compare** button is activated.

4. Click **Compare**. A progress bar appears while the comparison is done. When complete, the results are displayed in two columns at the bottom of the screen.

Route Set 1		Route Set 2	
pub-id	Session Establishment Data (SED)	pub-id	Session Establishment Data (
		1617978	!(^.*$)!sip:144;ild=1!
		2	1

If the contents are identical between the two, messages appear in both columns.

Route Set 1		Route Set 2	
pub-id	Session Establishment Data (SED)	pub-id	Session Establishment Data (
Files are Identical			

Managing Import Templates

You can manage your existing import templates and add new ones.

Accessing Import Templates

To access import templates:

1. In the Route Sets window, click the Import Templates tab. A table of import templates displays.

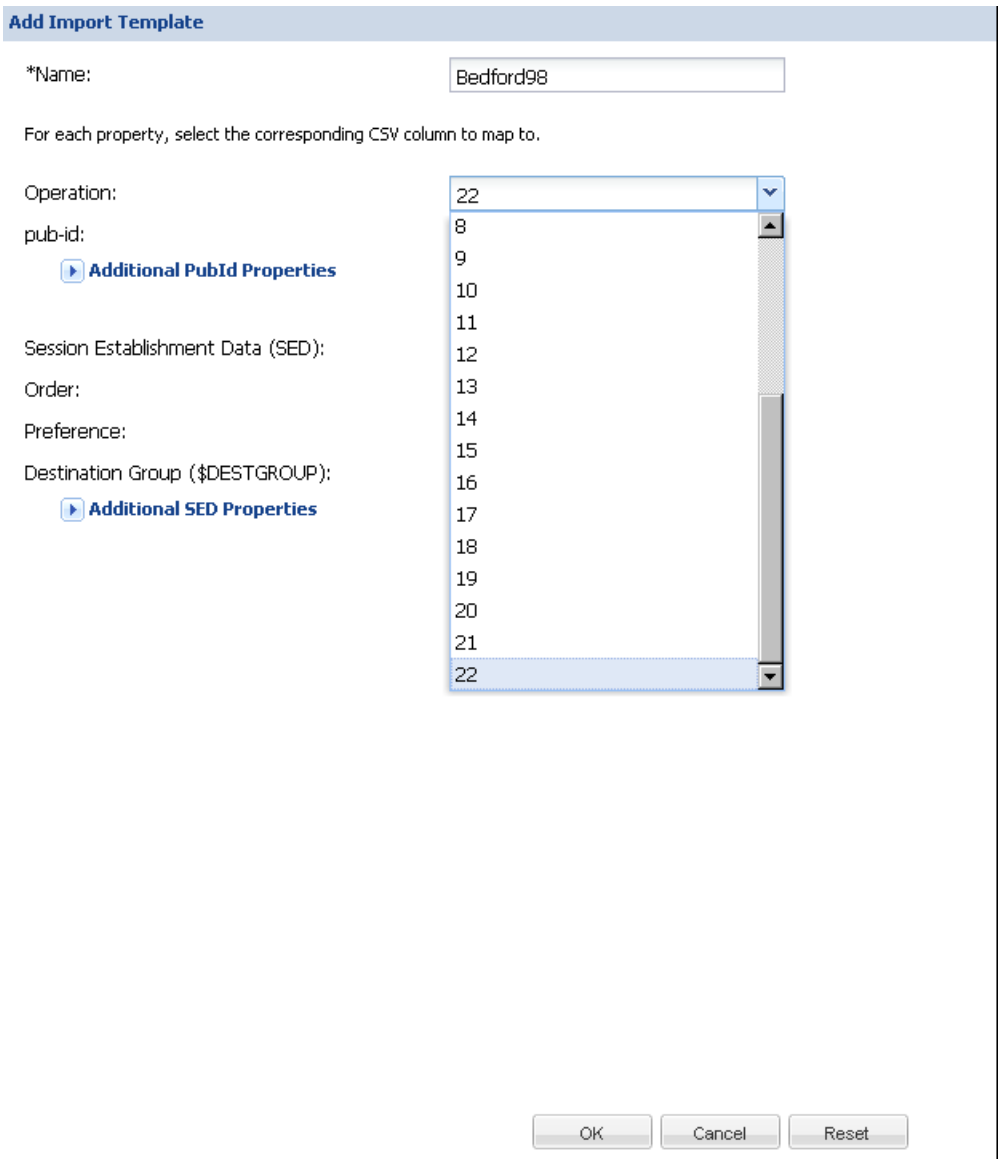
   From here you can add new import templates and edit existing ones.

Adding Import Templates

To add import templates:

1. In the Import Templates window, click **Add**. The Add Import Template dialog box displays.
2. **Name**—Enter a name for the new import template.

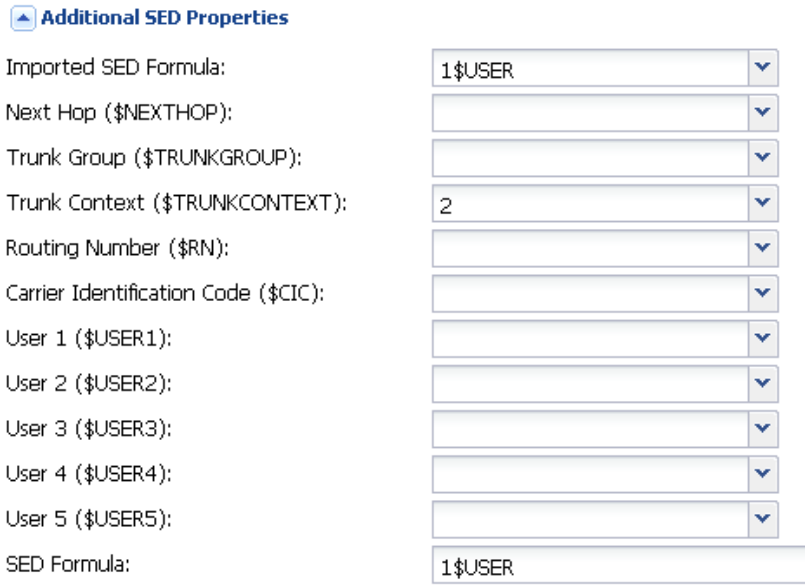
3. Map the properties to the corresponding row in the CSV file. You choose the row number from the drop-down list. For example:



4. **pub id**—Choose the row number from the drop-down list for this pub id.
5. **Additional PubId Properties**—Click to expand the list of fields for the **pub id**. You can enter multiple fields for this pub id. The five additional fields below allow you to create mapping from CSV files to the fields below. For example:

Note: If you enter a **Pub-id Formula**, the **pub id** field is disabled.

6. Enter the next hop formula that will generate the Session Establishment Data (SED).
7. **Additional SED Properties**—Click to expand the list of fields for the SED. You can enter additional route properties for this SED, or create a SED formula (**Imported SED formula**). For example:.



8. Click **OK**. The template is created.

   Note: For more information about pub id's or SED properties, see the Introduction (7).

Editing Import Templates

To edit import templates:

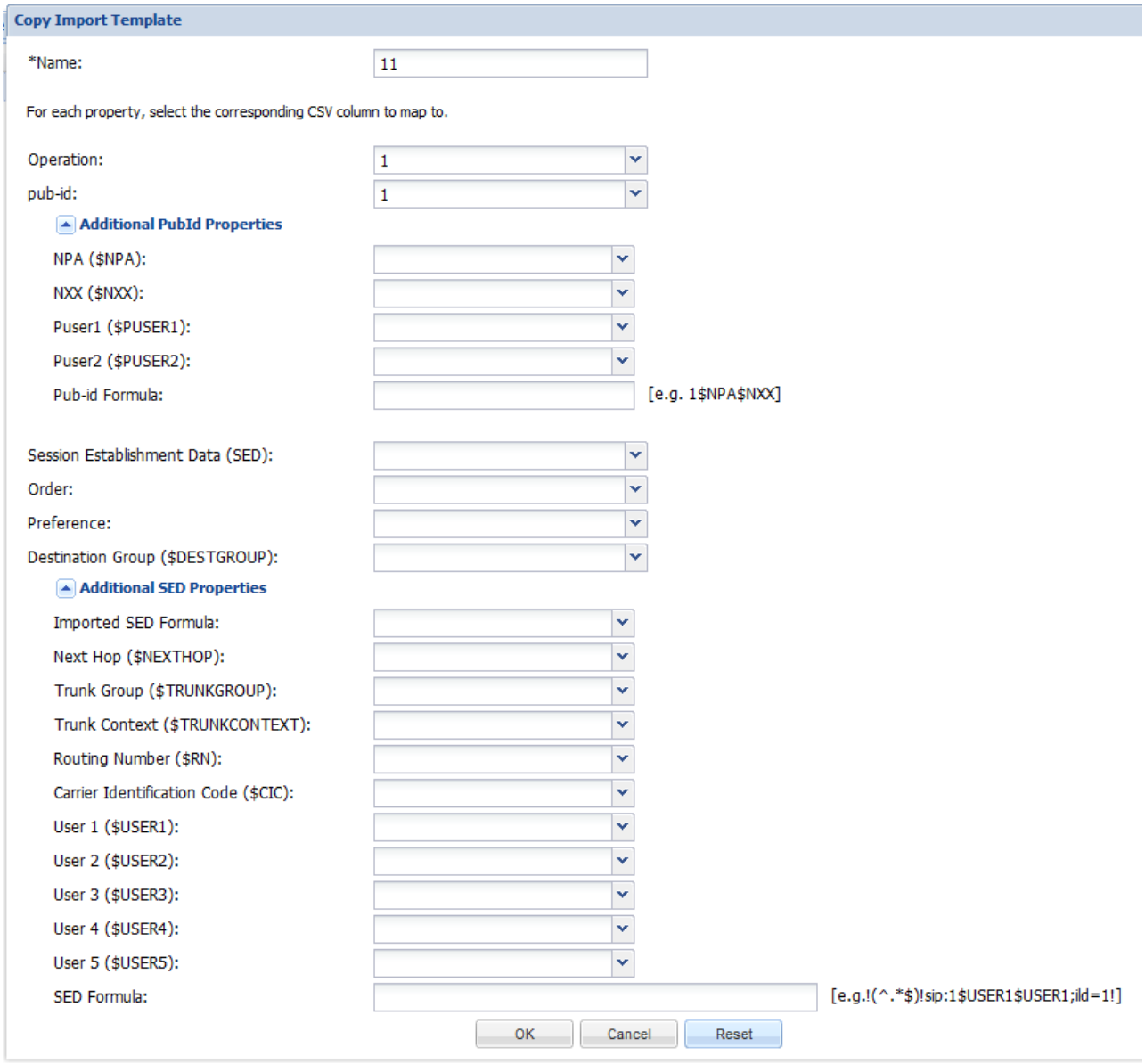
1. Click an import template in the table. The operation buttons are activated.
2. Click **Edit**. The Edit Import Template dialog box appears.
3. Make the edits you need to the properties and/or formula.
4. Click **OK**.

Copying Import Templates

To copy import templates:

1. Click the row of the import template you want to copy in the table and click **Copy**. The Copy Import Template dialog box appears.
2. **Name**—Enter a name for the import template copy.
3. Map properties to the corresponding rows in the CSV file.
4. Edit the imported template, if required.

For more information about the parameters found under Copy Import Template, see Importing Route Sets (35).



5. Click **OK**.

3 Working with Devices

Overview

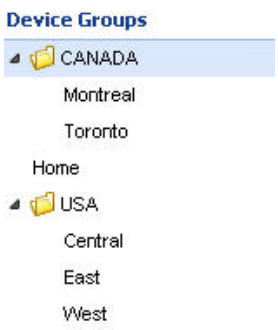
Devices are the Net-Net SBCs managed through Net-Net Central. Using Net-Net Central, you work with those managed devices when managing and distributing route set information.

After you add a managed device, you assign it to a device group. A device group is a logical grouping of devices managed by Net-Net Central. Device groups can be set up in a hierarchy that can contain an arbitrary number of levels. Devices can be maintained at any level in the device-group hierarchy. With the appropriate permissions, you can add, rename, or delete device groups.

About Devices Groups

Device Groups is the third option under Device Manager. You add and manage device groups here. Ideally, you create your device groups prior to adding your devices. Subsequently, when adding a device, you select the device group you want this device to belong to.

The hierarchy of the device groups is listed in the content area, for example:



A folder icon will appear next to a device group if it contains device groups. In the above example, Central, East, and West are child device groups of USA. Montreal and Toronto are child device groups of CANADA. Home, Central, East, West, Montreal, and Toronto are not parent device groups, or they currently do not contain device groups.

Using the Home Device Group

Device Groups includes a default device group called Home. You can add your devices to this default device group if no other device groups are created.

> **Note:** You must have admin privileges assigned to view this device group. If you cannot view the Home default group in the Device Groups list, you do not have the appropriate privileges.

With the Home device group:

- You cannot rename this device group
- You cannot delete this device group

- When adding a device, the Home device group will display in the Add Device Group dialog only if you have not targeted a previous device group from the table
- Will appear in Device Groups, under Device Manager when a user with admin privileges logs in

Adding a Device Group

When you add a new device group, the name you choose:

- Must start with an alphabetic character
- Can contain a minimum of three characters and a maximum of 50 characters
- Can contain the following characters: alphabetic, numeric, hyphens (-), and underscores (_)
- Can be a mix of upper-case and lower-case characters
- Cannot contain symbols
- Cannot be the same name as an existing group name within the same level in the hierarchy (sibling)

To add a device group:

1. Expand the Device Manager slider and click Device Groups. The Device Groups appear in the content area.
2. Click **Add**. The Add device group dialog box appears.
3. ***Device group name:**—Enter the name for this device group.

4. Click OK. The device group, Midwest, appears in the device groups.

Once you create a device group, you can move devices into the device group by:

- Specifying a device group when adding this device to be managed in Net-Net Central
- Moving devices or device groups from one device group to another device group by clicking the **Move** button

For additional information about device groups, see the *Net-Net Central Core Functionality Guide*, *Managing Devices* chapter.

About Managed Devices

You can view a list of all devices being managed. From this list, all or some of them will appear in the Devices list under Route Manager. For detailed information about devices, see the *Net-Net Central Core Functionality Guide*, *Managing Devices* chapter.

Accessing All Devices

To access a list of all devices:

1. Under Device Manager of the Navigation bar, click Devices. A table of all managed devices appears.
2. Click **Refresh** to update the table contents.

   From here you can add or remove managed devices.

Adding a Single Device

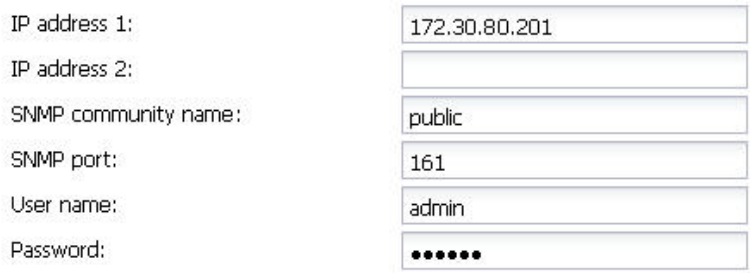
When adding devices in Net-Net Central, you have the ability to add a single device, or to add more than one device in a row. To add one device only, complete the required parameters in the Add Device dialog box and click the **OK** button at the bottom of the window.

To add a single device:

1. Expand the Device Manager slider and Click Devices.

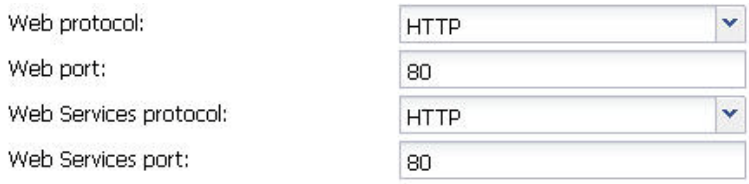
   The Device table appears in the content area.
2. Click **Add**. The Add Device dialog box appears.
3. **Device type:**—Click one of two device type choices for this device in the drop down list.

4. **IP address 1:**—Enter the IP address for this device.
5. **IP address 2:**—Enter the IP address for the second device, if this device is part of a cluster.
6. **SNMP community name:**—Enter the SNMP community name for this device. The SNMP community name is the name of an active community where this Net-Net SBC can send or receive SNMP information (performance and fault).
7. **SNMP port:**—Enter the SNMP port number for this device, or retain the default value of 161.
8. **User name:**—Enter a user name for this device, if necessary.
9. **Password:**—Enter the password associated with the user name you entered.



10. **Web protocol:**—*(Net-Net SBC E-series only)* Click the web protocol, HTTP or HTTPS, in the drop down list. The default value is HTTP.

11. **Web port:**—*(Net-Net SBC E-series only)* Enter the web port for this device. The default value is 80.
12. **Web Services protocol:**—*(Net-Net SBC E-series only)* Click the web protocol, HTTP or HTTPS, in the drop down list. The default value is HTTP.
13. **Web Services port:**—*(Net-Net SBC E-series only)* Enter the web port for this device. The default value is 80.



From here, you set the device group for this device.

14. **Device Group**—Click  . The Set Device Group dialog box displays.
15. Click the device group you want this device to belong to.
16. Click **OK** to add the device group.
17. Click **OK** to add this single device. Your device appears in the device group and the dialog box closes.

Adding Multiple Devices

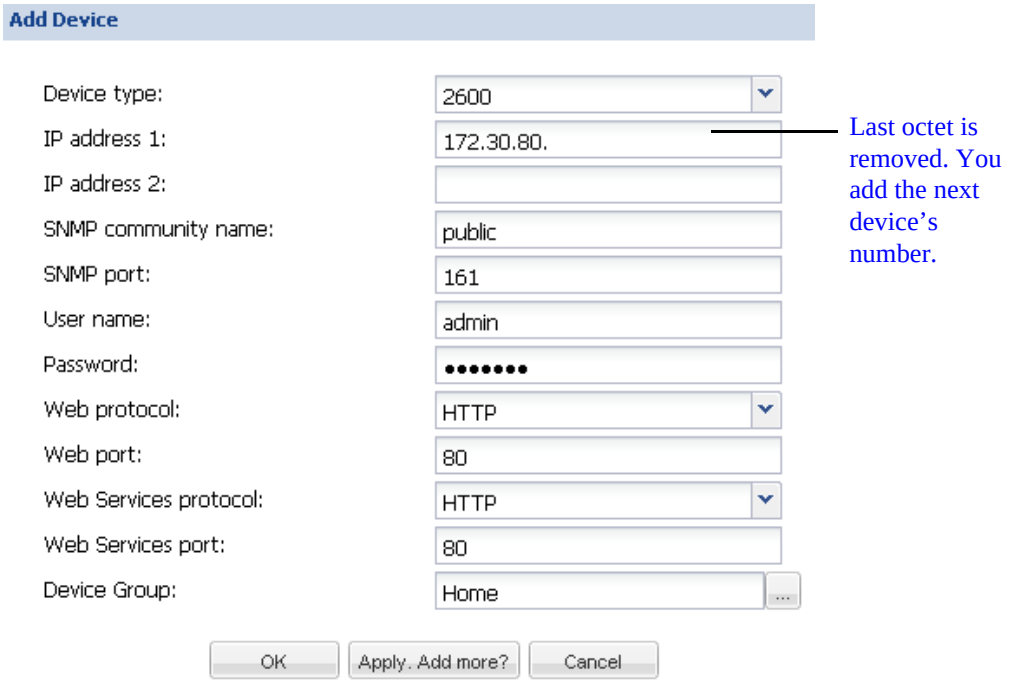
To add multiple devices, once you complete the required parameters in the Add Device dialog box for the first device, you retain most of the original information you entered by clicking the **Apply. Add more?** button.

When you click **Apply. Add more?**, the Add Device dialog box remains open with your originally-entered values, but the last octet of the management IP address is deleted so you can rapidly add another device, for example, 172.30.80.**112**, 172.30.80.**125**, and so on.

To add multiple devices:

1. Perform steps 1 through 17 in Adding a Single Device (57).
2. Click **Apply. Add More?** to add this device. A Success box appears.
3. Click **OK**. Your device is added to the device group.

The Add Device dialog box remains open with the same values, except for the **IP address 1** field. The last octet in the **IP address 1** field is removed.



4. **IP address 1**—Enter the last octet of the IP address.

   If required, revise other fields in the Add Device dialog box.

5. Click **OK** to add this device and no more.
6. Click **Apply. Add more?** to add this device and keep this Add Device dialog box open to add additional devices.

Adding a Device Group

If while adding a device, you notice that the device group you want is not in the list, you can add it from the Set Device Group dialog box.

1. From the Set device group dialog box, click **Add**. The Add Device group dialog box appears.
2. ***Device group name:**—Enter the name for this device group.

   For more information about naming criteria, see Adding a Device Group (59).

3. Click OK.

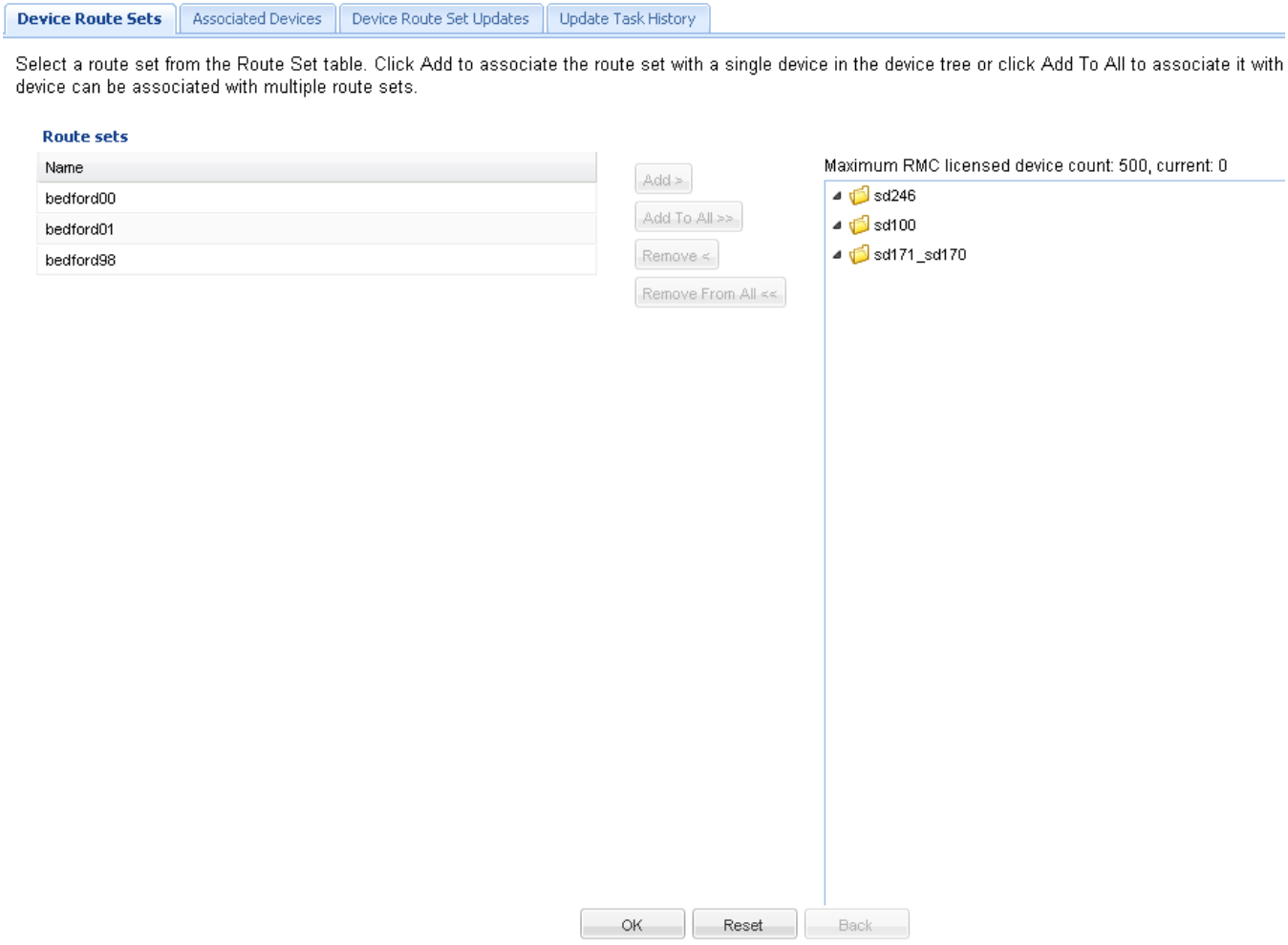
Working with Devices in Route Manager

This section contains information about working with the managed devices for route manager.

Accessing Devices

To access devices:

1. Under the Route Manager area of the navigation bar, click Devices. The Device Route Sets tab is displayed in the content area.



Note: You can customize the information displayed on the tab. For more information about customizing the display, see Customizing the Display (25).

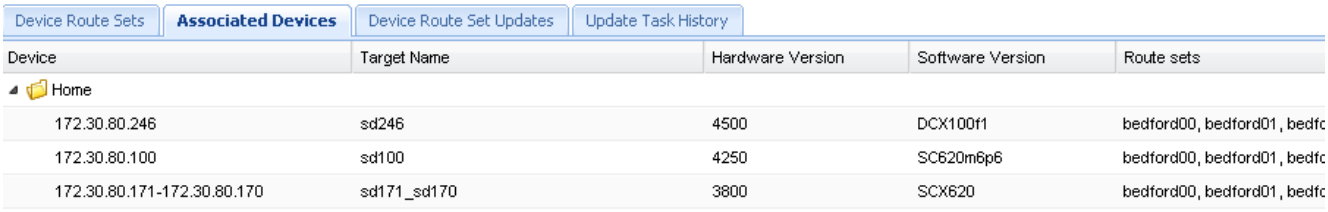
Working with Devices

You can work with the existing devices displayed in the table.

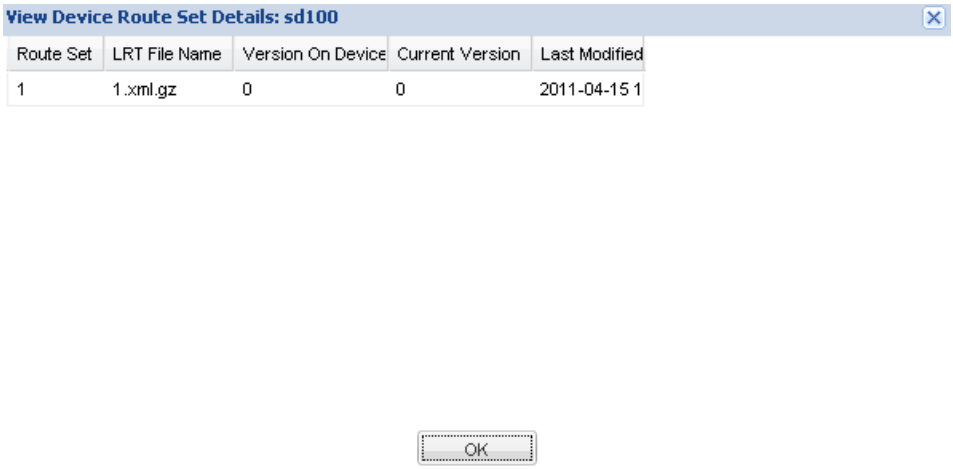
Viewing Route Sets Associated With Devices

To view route sets associated with a device:

1. Click Devices under the Route Manager slider. The Device Route Sets window appears.
2. Click the Associated Devices tab. A table appears with device group folders. For example:



3. Click the folder to view the list of devices found in this device group.
4. Click the device you want to view route sets for and click **View Associated Route Sets**. The View Device Route Set Details dialog box appears.



5. Click **OK** to close the dialog box.

Comparing LRT Files

You can compare an LRT file retrieved from a device against the current route set version.

To compare LRT files:

1. Click a row in the devices table and click **Compare**. The Select route set information appears.
2. **Route Set**—Choose the route set in the drop down list whose version of the LRT file you want to compare the LRT file retrieved from the device.

3. Click **Compare**. A message indicates the progress status and the results are displayed at in the Results area of the content area. A new tab is displayed in the content area. Any differences are highlighted in yellow.

Local version		Device version	
pub-id	Session Establishment Data (SED)	pub-id	Session Establishment Data (SED)
		1386207	!(^*.)!\1;tgrp=lata45204@vzb.com@localsb
		1386227	!(^*.)!\1;tgrp=lata45204@vzb.com@localsb

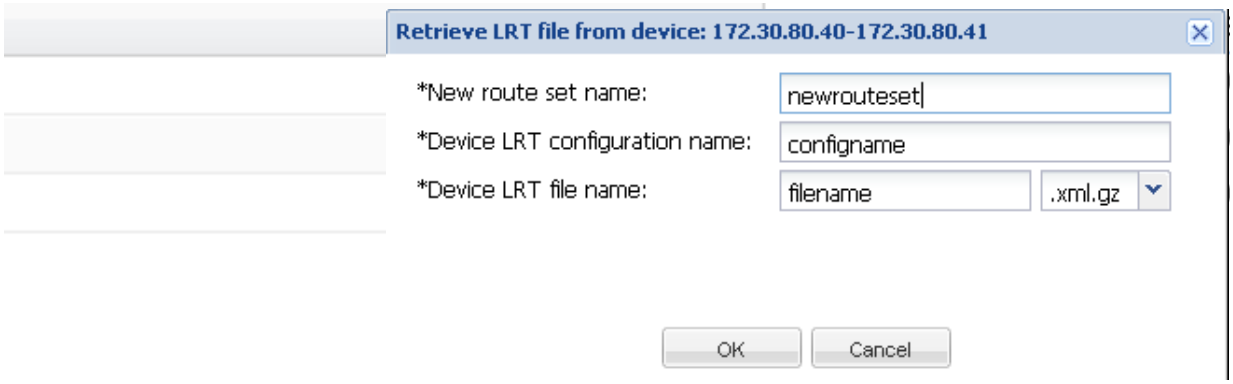
4. Click **X** on the tab to close, or click the Associated Devices tab to return to the device table.

Retrieving LRT Files

You can retrieve an LRT file from a device to use in a new route set.

To retrieve LRT file from a device:

1. From the Associated Devices tab, click the device in the table and click **Retrieve LRT file**. The Retrieve LRT file from device dialog box appears.
2. **New route set name**—Enter a name for the new route set.
3. **Device LRT configuration name**—Enter the name of the device LRT configuration.
4. **Device LRT file name**—Enter the device LRT filename and choose the extension from the drop-down list.



5. Click **OK**.

Updating Device with Route Set

This section shows you how to update a device with a route set.

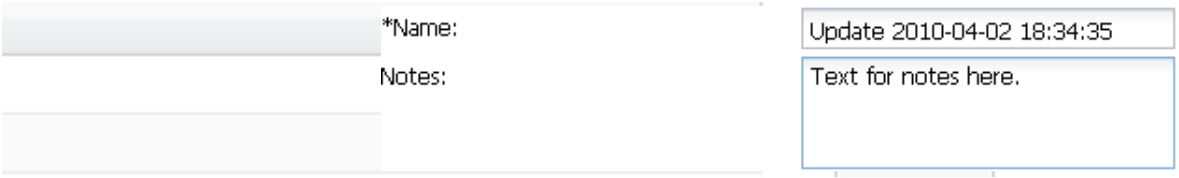
To update a device with a route set:

1. Check the Needs Updating column in the device table for the word Yes. This action indicates a device that needs updating, meaning the route set has been modified since it was last pushed to the device.

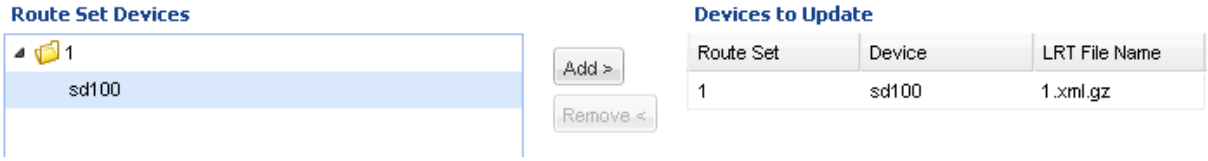
Device	Target Name	Hardware Version	Software Version	Route Sets	Needs Updating
Home					
172.30.80.100	sd100	4250	SC620m3	1	Yes

2. Click the **Update Device** button. The Add Update Task information appears in the content area.
3. **Name**—Retain the task name or enter a new one.

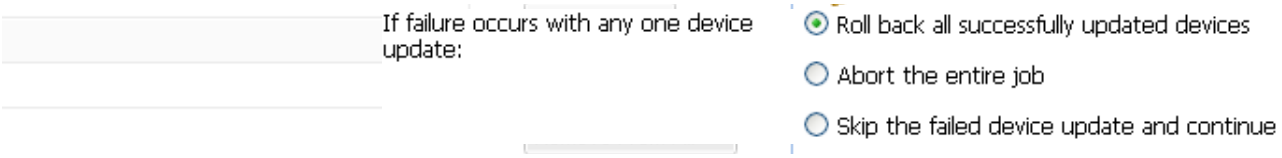
4. **Notes**—Add optional text for notes.



5. Select the device from the Route Set Devices column and click **Add.**



6. Repeat for each route set device you want to update.
7. **If failure occurs with any one device upate**—Click a radio button to choose the failure policy if failure occurs.



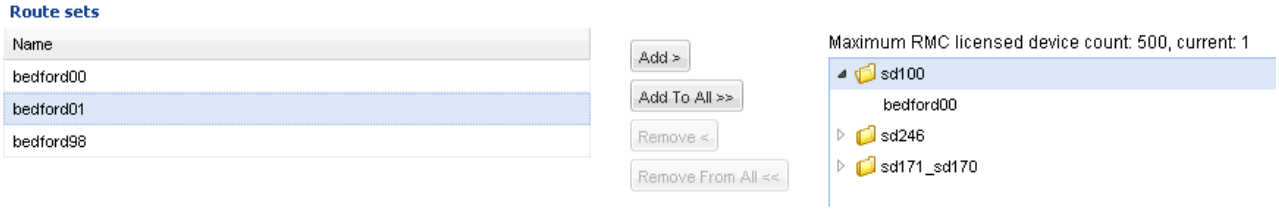
8. Click **OK**.

Associating Route Sets with Devices

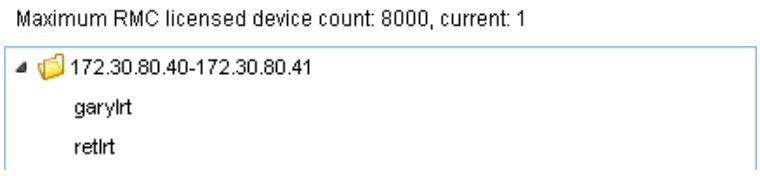
This section explains how to associate route sets with a device. A device can be associated with one or multiple route sets, there is no limit.

To associate route sets with devices:

1. Click the Device Route Sets tab. The route set information appears in the content area.
2. Click a route set in the Route Sets column and either click **Add** or **Add To All** if you want to associate the route set with all devices shown in the devices column. The button(s) are disabled unless the device is selected from the right tree.



3. Repeat step 2 for each individual route set you want to associate with a device.



4. Click **OK**. A message appears indicating the association was updated successfully.
5. Click **OK** to clear the message.

Updating Devices with Route Sets

After you associate route sets with devices, you need to transfer those route sets to the associated devices. You make the transfer by first configuring an update task and then activating the update. While an update task is in progress, the target device is locked to all other updates.

You must then commit the update to the device or roll it back.

Committing an update removes the lock on the target device and the update task from this table, while adding it to the table displayed on the Update Task History tab.

Rolling back an update rolls back any changes made to the target device. (You cannot access the rollback function while an update task is in progress.)

> **Note:** If the update task included multiple target devices and rollback fails on any one device, Net-Net Route Manager continues the rollback on all other devices.

The update-tasks process flow is:

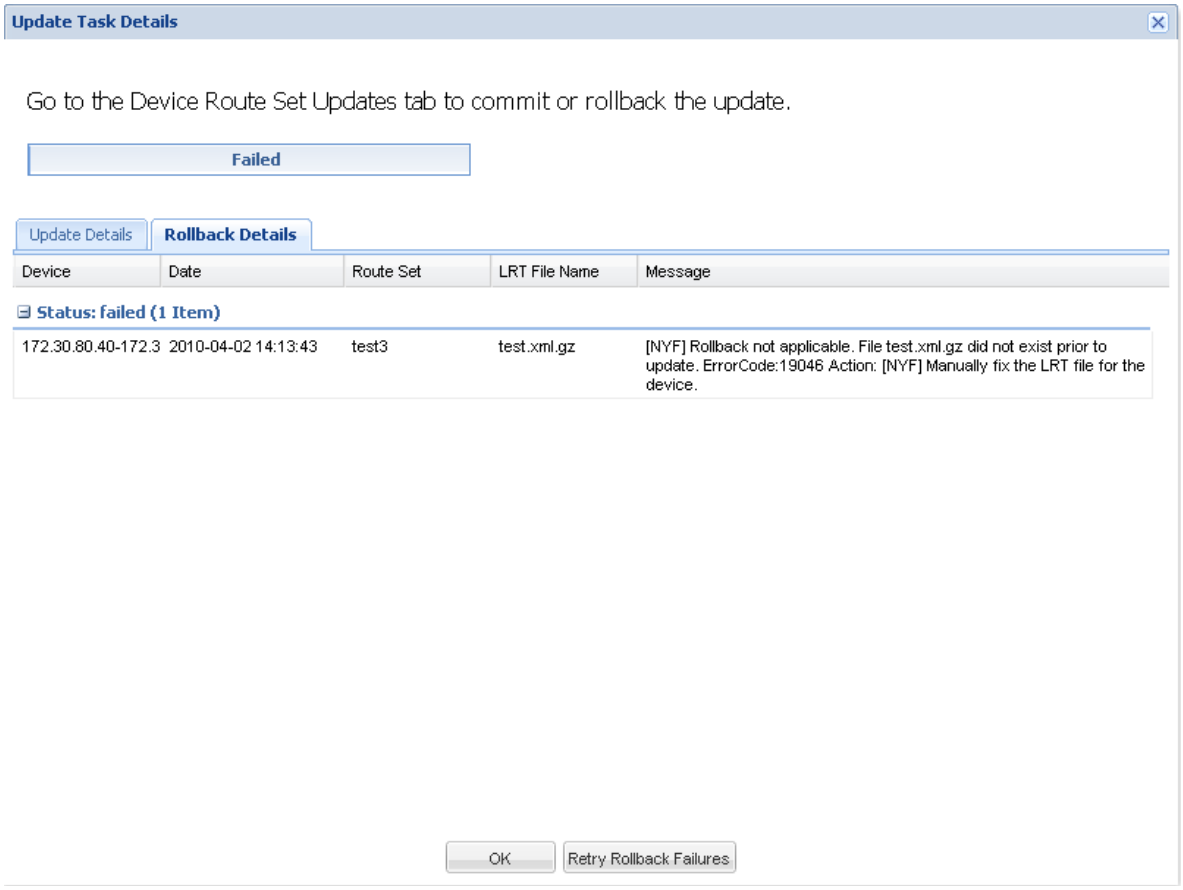
- Name the task
- Select a device(s)
- Choose a failure policy
- Apply updates
- Commit or rollback the update(s)

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

Accessing Update Tasks

To access update tasks:

1. With Devices selected in the Navigation bar, click the Device Route Set Updates tab. The Update Tasks table appears in the content area.
2. Double-click an update task in the table to view details about it. For example:

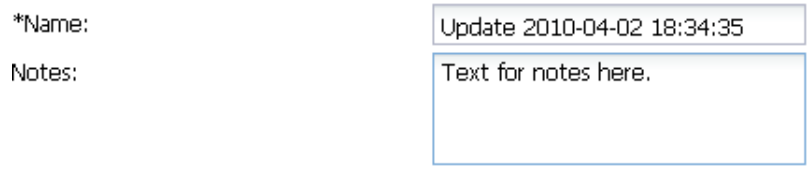


3. Click **OK** to close the window.

Creating Update Tasks

To create an update task:

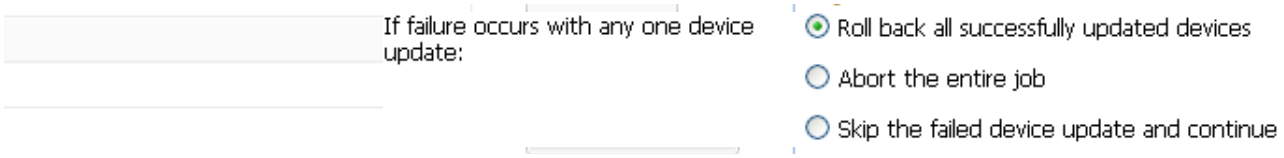
1. In the Device Route Set Updates tab, click **Update**. The Add Update Task information appears in the content area.
2. **Name**—Retain the task name or enter a new one.
3. **Notes**—Add optional text for notes.



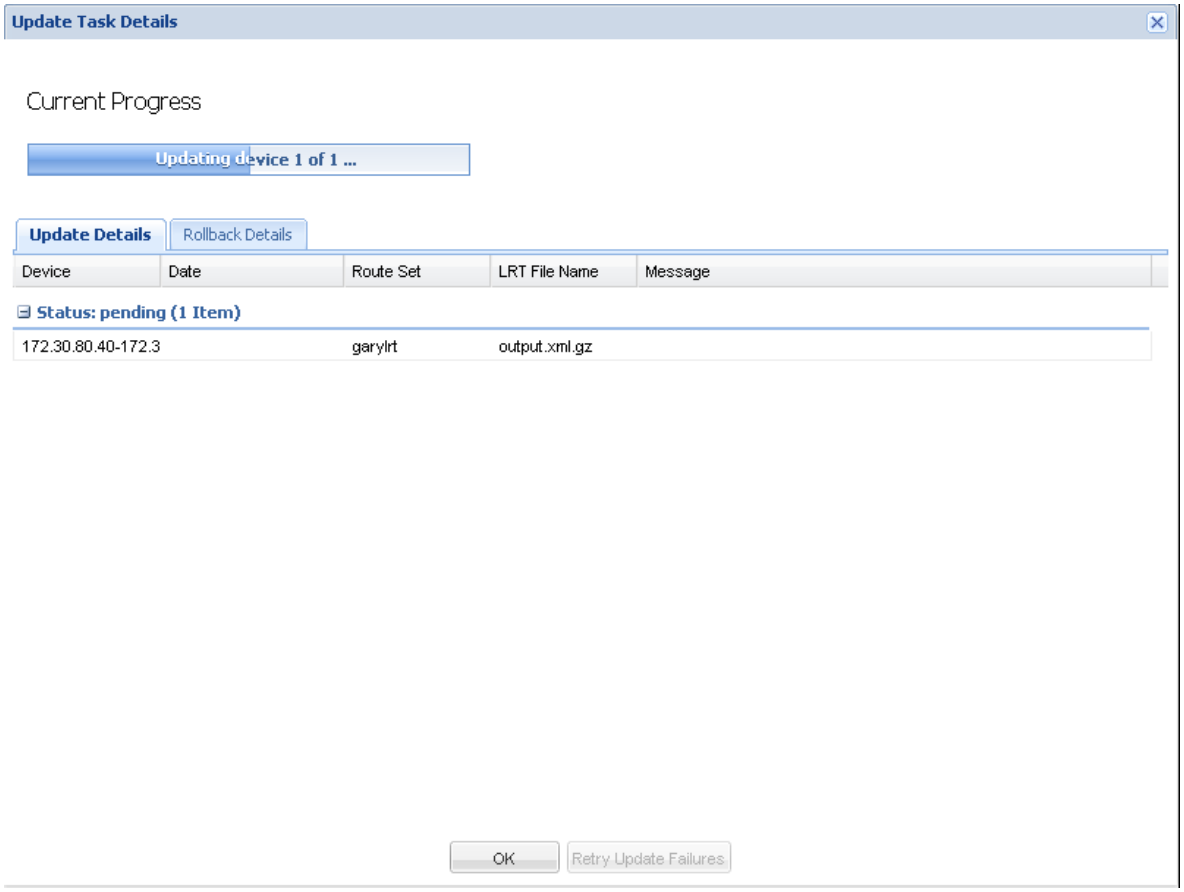
4. Select the device from the Route Set Devices column and click the **Add** or **Add To All** button.

The device is moved to the Devices to Update column.

5. Repeat for each device you want to update.
6. **If failure occurs with any one device update**—Click a radio button to choose the failure policy if failure occurs.



7. Click **OK**. The Update Task Details window appears with a progress bar that indicates the status of the update process.



Also a new update task appears in the Update Tasks table. Once the update tasks completes, the information in the Update Task Details window is refreshed and indicates either update was a success or a failure.

If the update failed and you chose rollback as the action, you can click Retry Failures in the Update Task Details window to try the update again. Otherwise, exit the window and rollback the update.

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

8. Click **OK** to close the Update Task Details window.

Committing an Update

If the update was a success, you can commit the update on the device.

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

Note: You MUST commit or rollback your update(s) in order to remove the locks on the associated device(s).

To commit the update:

1. Click the successful update task in the Update Tasks table.
2. Click **Commit**. The update is committed on the target device and the update task is removed from the Update Tasks table.

   The lock on the target device is removed.

   Also, the table available on the Update Task History table is updated with the successful update task.

Rolling Back an Update

If the update failed and you chose rollback as the action upon failure, you can rollback the update.

Note: You must own the lock on the route set to rollback for this device.

Note: You MUST commit or rollback your update(s) in order to remove the locks on the associated device(s).

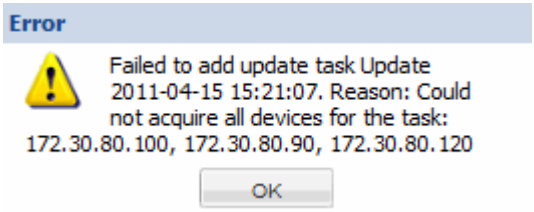
To rollback an update:

1. Click the failed update task you want to rollback in the Update Tasks table.
2. Click **Rollback**. The rollback 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.

   Also, the table available on the Update Task History table is updated with the update task.

If you do not commit or rollback your updates, an error message displays similar to the example below when you attempt to perform another update on a device(s) associated with this previous update.

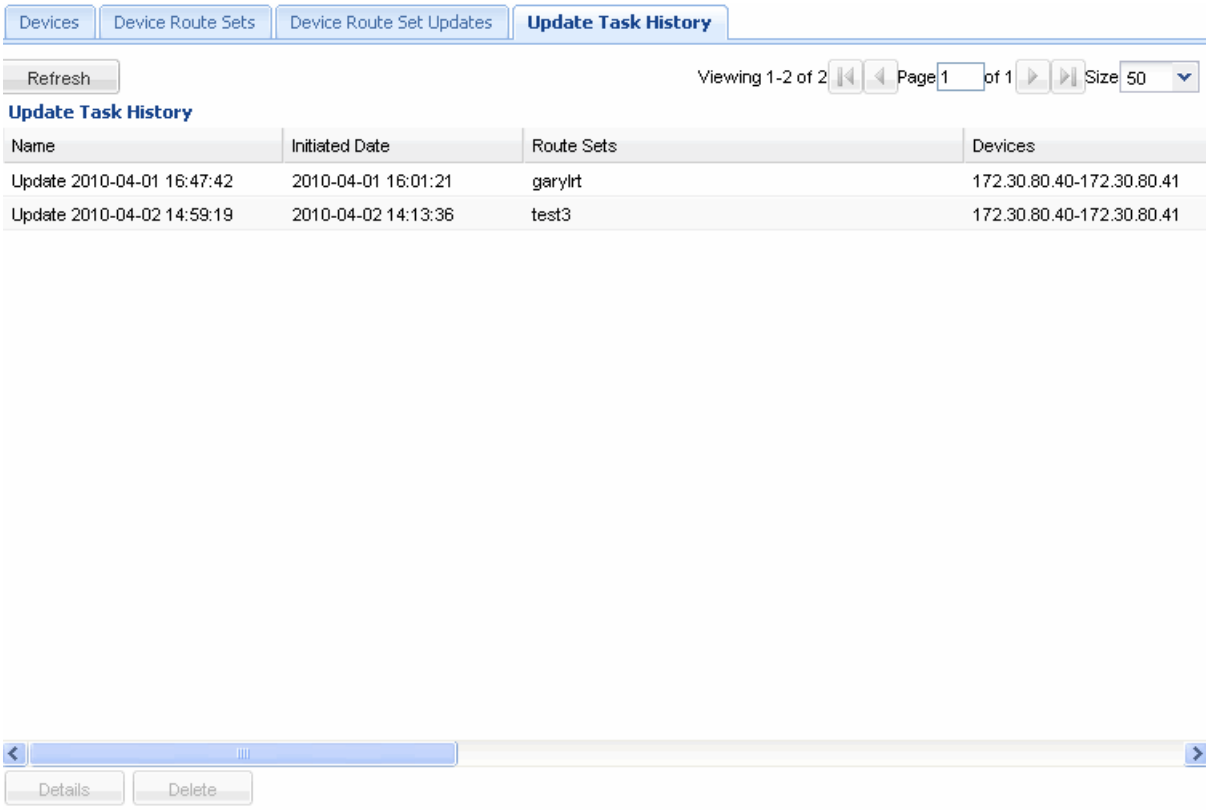


Viewing Update Task History

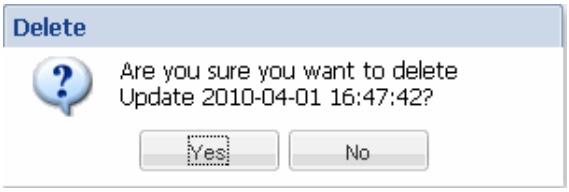
You can view a history of all route updates made to devices and delete tasks from the history.

To view update task history:

1. With Devices selected in the Navigation bar, click the Update Task History tab. A table of update tasks appears in the content area.



2. To delete an update task from the history, click it in the table and click **Delete**. You are prompted for confirmation.

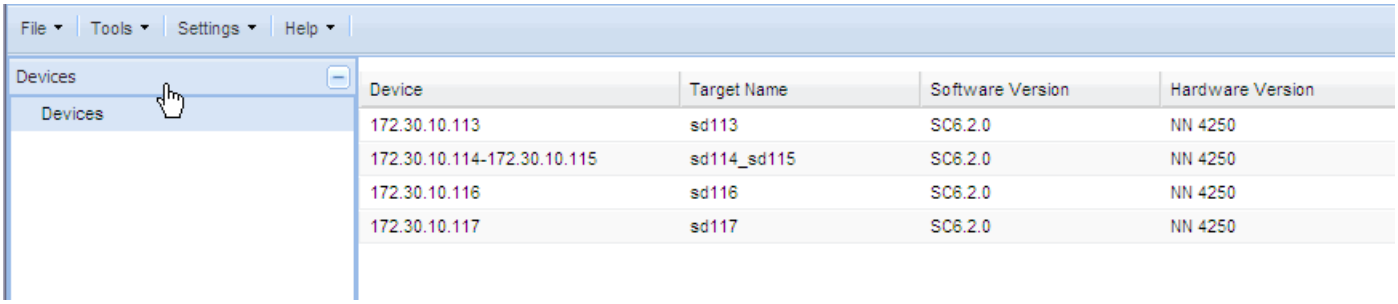


3. Click **Yes** to delete the task, **No** to exit without deleting.

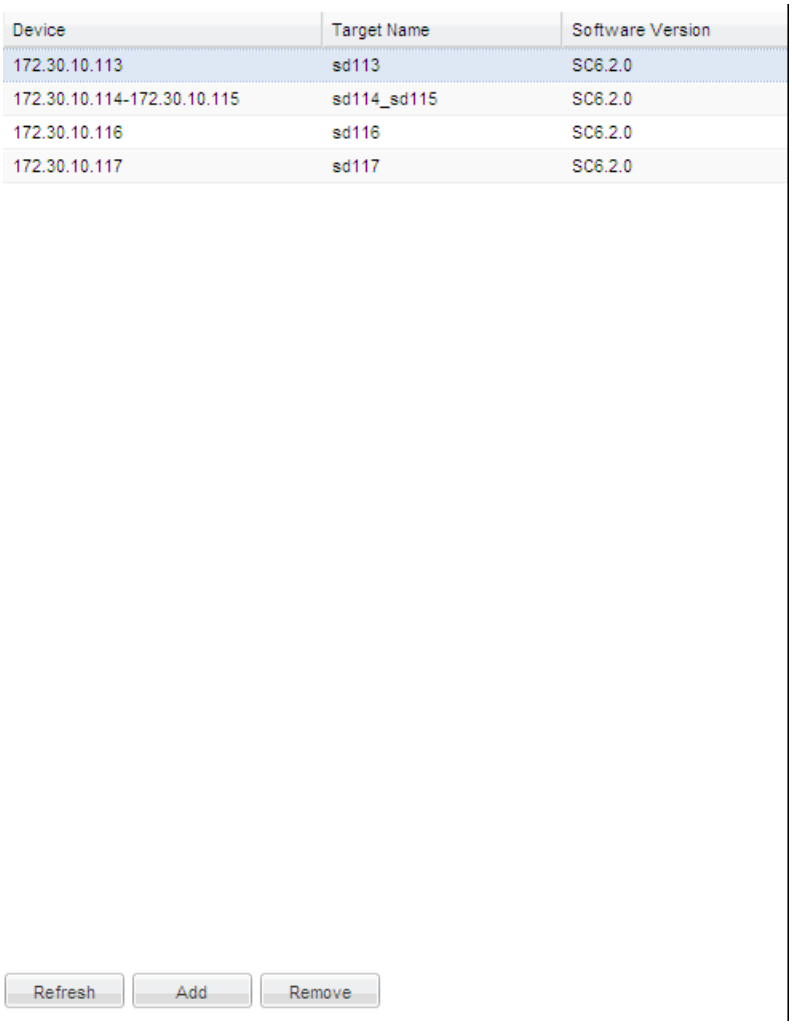
Removing Managed Devices

To remove a managed device:

1. In the navigation bar, click Devices.

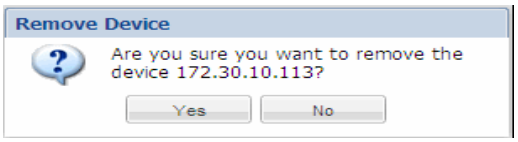


2. In the content area, click the row in the Device table corresponding to the device you want to remove. The row is highlighted to show your selection, and the Remove button displays in the content area.



3. Click **Remove**.

4. A dialog box appears, asking you to confirm the removal. Click **Yes** to proceed with the removal. Click **No** if you do not want to remove the device.



Proceeding with device removal will not interrupt an RM update of routing information or any administration device command in progress. If such an operation is in progress, an error message appears and the device will not be removed.

4 Backup and Restore Route Sets

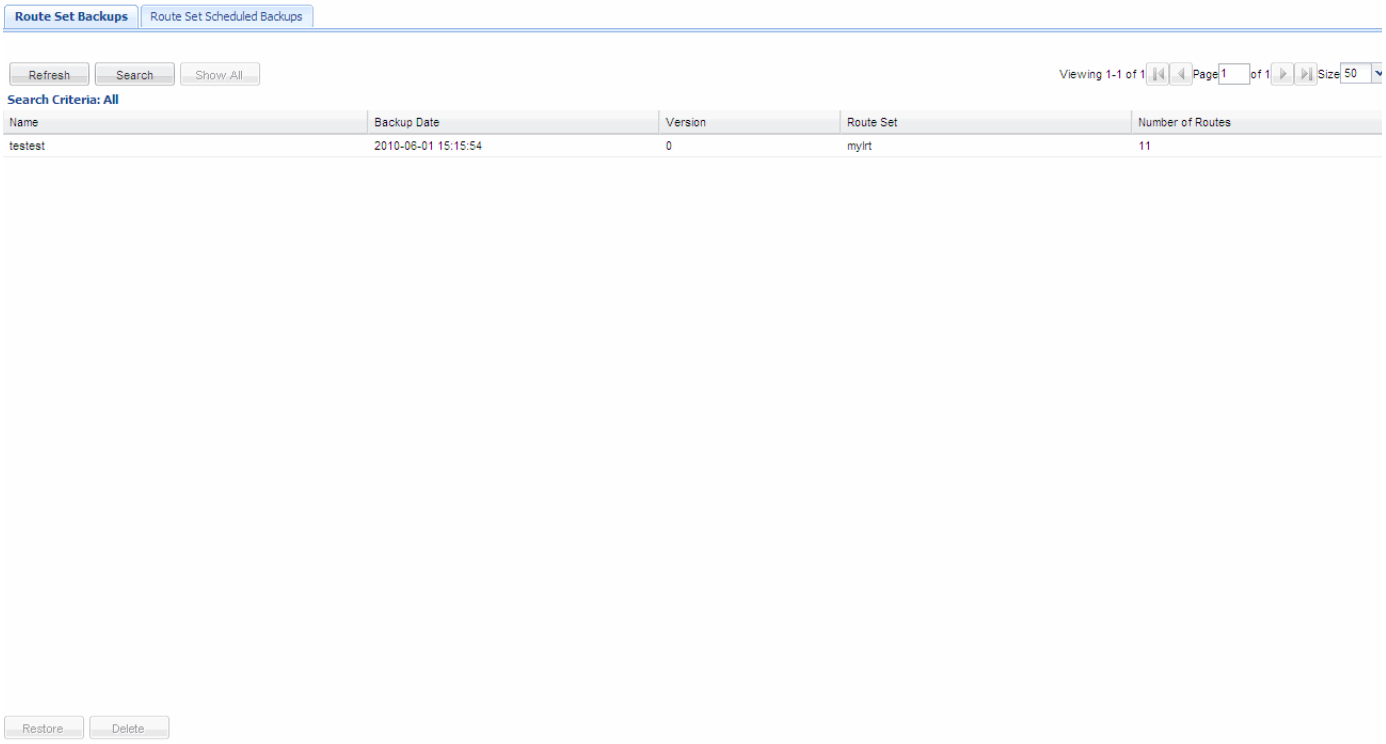
Overview

This chapter contains information about how to backup and restore your route sets. When you restore a route set backup, you remove all edits made to the route set after the backup was made.

Accessing Route Set Backups

To access route set backups:

1. In the Navigation bar, click Backup/Restore. The Route Set Backups information appears in the content area.



2. Click **Refresh** to refresh the table display.

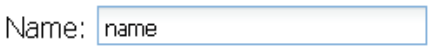
Searching for Backups

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

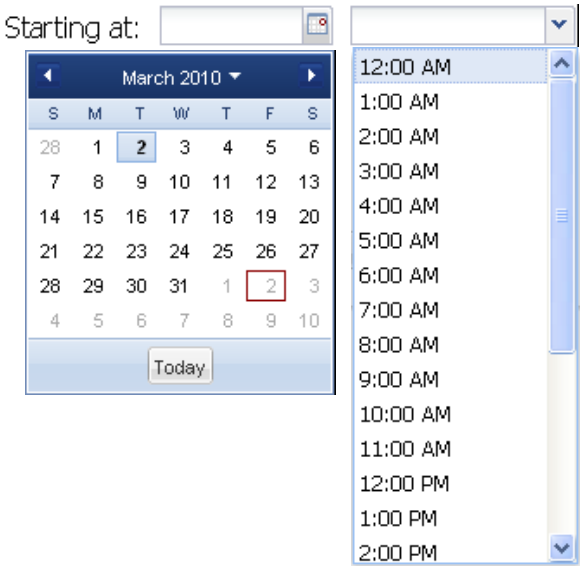
To search for route set backups:

1. Click **Search**. The Backup Search dialog box appears.

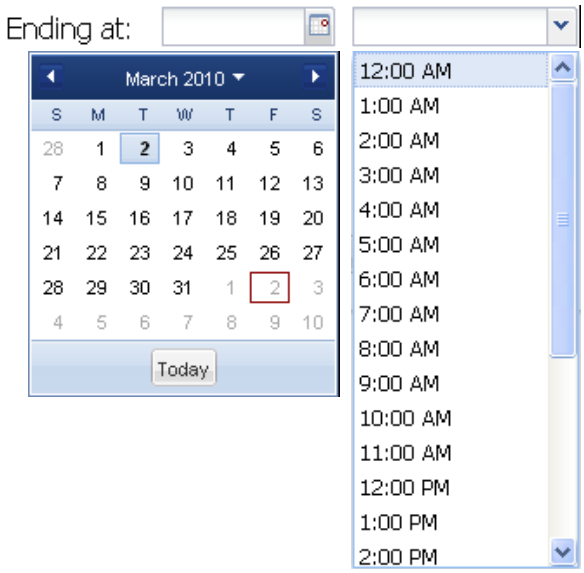
2. **Name**—Enter the name of the route set backup.



3. **Starting at**—Choose the date from the calendar and the time from the drop down list.



4. **Ending at**—Choose the date from the calendar and the time from the drop down list.



5. Click **Search**. The results are displayed in the table.
6. **Click Show All** to re-display all backups.

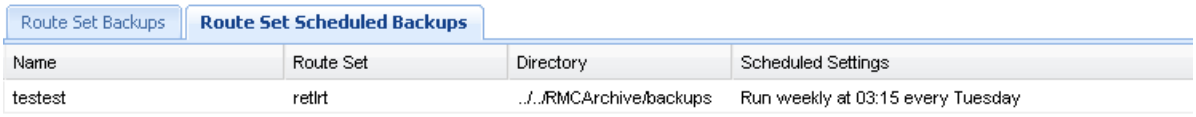
Scheduling Backups

You can schedule backups 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.

You can schedule a maximum of three backups for each type of backup. 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.

To schedule backups:

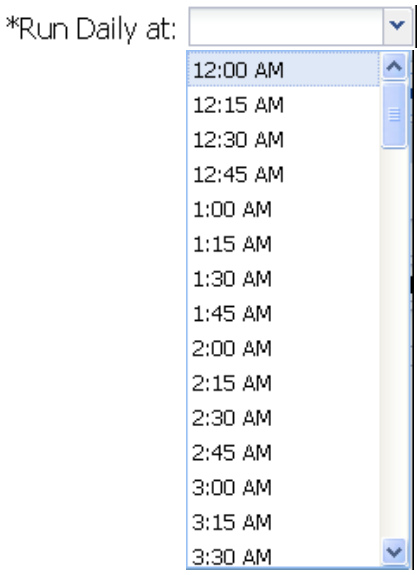
1. Click the Route Set Scheduled Backups tab. The scheduled backups table appears.



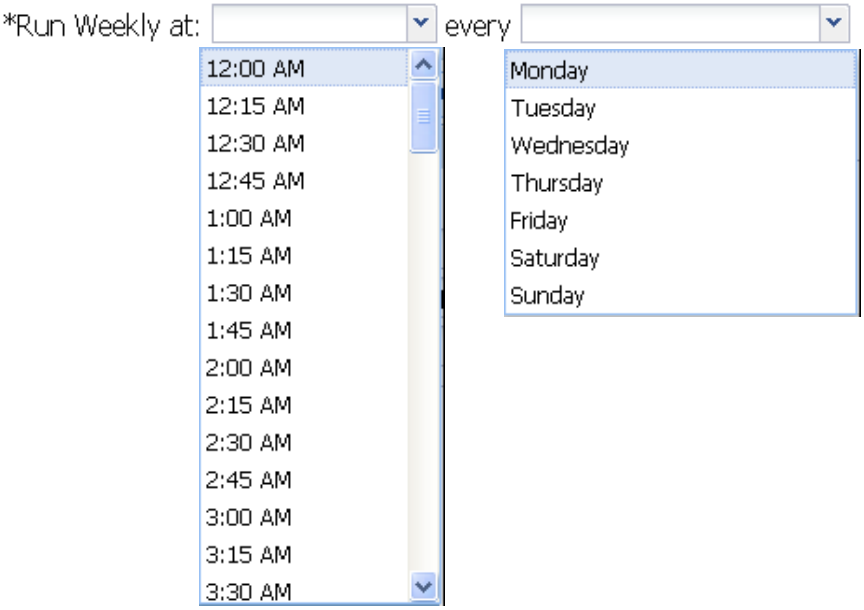
2. Click **Add**. The Add Scheduled Backups dialog box appears.
3. **Name**—Enter the name of the route set backup.
4. **Route Set**—Choose the route set you want to backup from the drop-down list.

5. **Scheduled Settings**—Click **Now** to create a backup task that will run immediately.

6. Click **Daily** to create a backup task that runs daily at the time you choose from the drop-down list.



7. Click **Weekly** to create a backup task that runs weekly at the time and on the day of the week you choose from the drop-down lists.



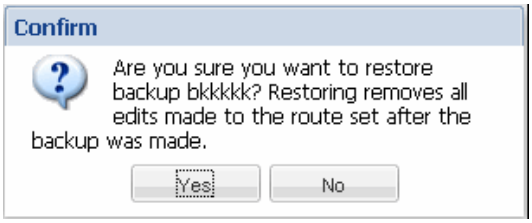
8. Click **OK**. The backup task is added to the table. If it is scheduled to run now, it is deleted from the table after the process completes.

Restoring Backups

When your restore a route set backup, you lose any edits made after the backup was done.

To restore route set backups:

1. On the Route Set backups tab, choose a route set from the table and click **Restore**. You are prompted about continuing with the backup.



2. Click **Yes** to continue and **No** to cancel.

   If you click **Yes**, a progress bar appears indicating the restore is occurring. After the restoration is complete, the route set version number increments.