Oracle® Communications Convergent Charging Controller

Number Portability Service Pack User's Guide

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About This Document

Scope

The scope of this document includes all functionality a user must know in order to effectively operate the Number Portability Service Pack (NP Service Pack) application. It does not include detailed design of the service.

Audience

This guide is written primarily for NP Service Pack administrators. However, the overview sections of the document are useful to anyone requiring an introduction.

Related Documents

The following documents are related to this document:

- *Number Portability Service Pack Technical Guide*

Prerequisites

Although it is not a prerequisite to using this guide, familiarity with the target platform would be an advantage.

This manual describes system tasks that should only be carried out by suitably trained operators.

Document Conventions

Typographical Conventions

The following terms and typographical conventions are used in the Oracle Communications Convergent Charging Controller documentation.

Formatting Convention	Type of Information
Special Bold	Items you must select, such as names of tabs. Names of database tables and fields.
Italics	Name of a document, chapter, topic or other publication. Emphasis within text.
Button	The name of a button to click or a key to press. **Example:** To close the window, either click **Close**, or press **Esc**.
Key+Key	Key combinations for which the user must press and hold down one key and then press another. Example: **Ctrl+P** or **Alt+F4**.
`Monospace`	Examples of code or standard output.
`Monospace Bold`	Text that you must enter.
variable	Used to indicate variables or text that should be replaced with an actual value.
menu option > menu option >	Used to indicate the cascading menu option to be selected. Example: **Operator Functions > Report Functions**
hypertext link	Used to indicate a hypertext link.

Specialized terms and acronyms are defined in the glossary at the end of this guide.

Chapter 1

System Overview

Overview

Introduction

This chapter provides a high-level overview of the application. It explains the basic functionality of the system and lists the main components.

It is not intended to advise on any network or service implications of the product.

In this chapter

This chapter contains the following topics.

What is the NP Service Pack..... 1

What is the NP Service Pack

Introduction

The Number Portability Service Pack (NP Service Pack), accessed through SMS, provides flexibility and control over call routing of subscribers to the network.

Features

Features of NP Service Pack include:

- The ability to configure ported subscriber information from the screens and/or using the NP Provisioning Interface (PI) commands, and supporting control plan nodes to make services NP/MNP aware
- The ability to configure routing information based on operator assigned number prefixes and supporting control plan nodes to allow services to route to appropriate operators
- Functionality to allow the IN platform to satisfy MNP SRF requirements through a MAP based application (MTA) that can trigger a control plan when a supported message is received. The control plan can then perform MNP and through the appropriate node, instruct the MTA on how to respond (for example, relay, ack or error)
- Simple GTT functionality provided in the MTA for performing relay actions
- Call connection using least cost routing based on predefined carrier selection rule sets
- Home routing for calls within the network
- EDR generation for all calls processed by the network. The EDRs can be used for billing and reporting purposes.

NP feature nodes

The following feature nodes are available for the NP Service within the ACS Control Plan Editor (CPE). You access these feature nodes from the Others group on the feature palette in the CPE:

- NP Destination Selection

- NP Least Cost Routing
- NP Home Routing
- NP Map Trigger

For more information on NP feature nodes, see *Feature Nodes Reference Guide*.

For information on using the CPE, see *Control Plan Editor User's Guide*.

Chapter 2

The NP Service Pack Application

Overview

Introduction

This chapter explains how to access the NP Service Pack application and how to use the screens.

In this chapter

This chapter contains the following topics.

Accessing the NP Service Pack Application 3
Using the Different Types of Fields 6
Using the Find Screens 6

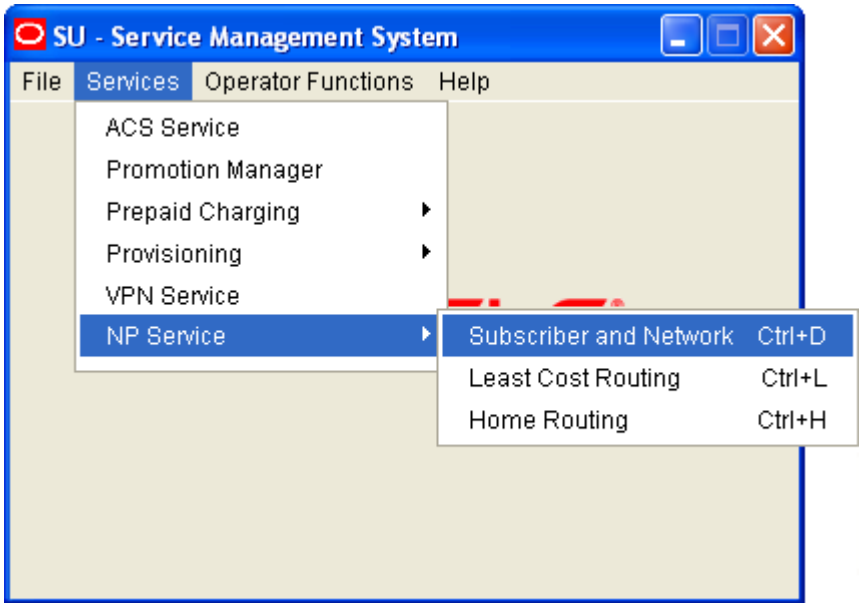
Accessing the NP Service Pack Application

Introduction

The NP Service Pack screens, accessed through SMS, let you configure the database on the SMS. To begin configuring the database, the SMS screens must first be configured and running.

SMS main menu

Here is an example of the Service Management System main menu showing the NP Service Pack menu options.



Accessing the screens

Follow these steps to access the NP Service Pack screens.

Step	Action
1	Select the **Services** menu from the SMS main screen.
2	Select **NP Service**. **Result:** You see the list of NP Service menu options.
3	Choose the menu option you require. **Result:** You see the screen for the chosen option.

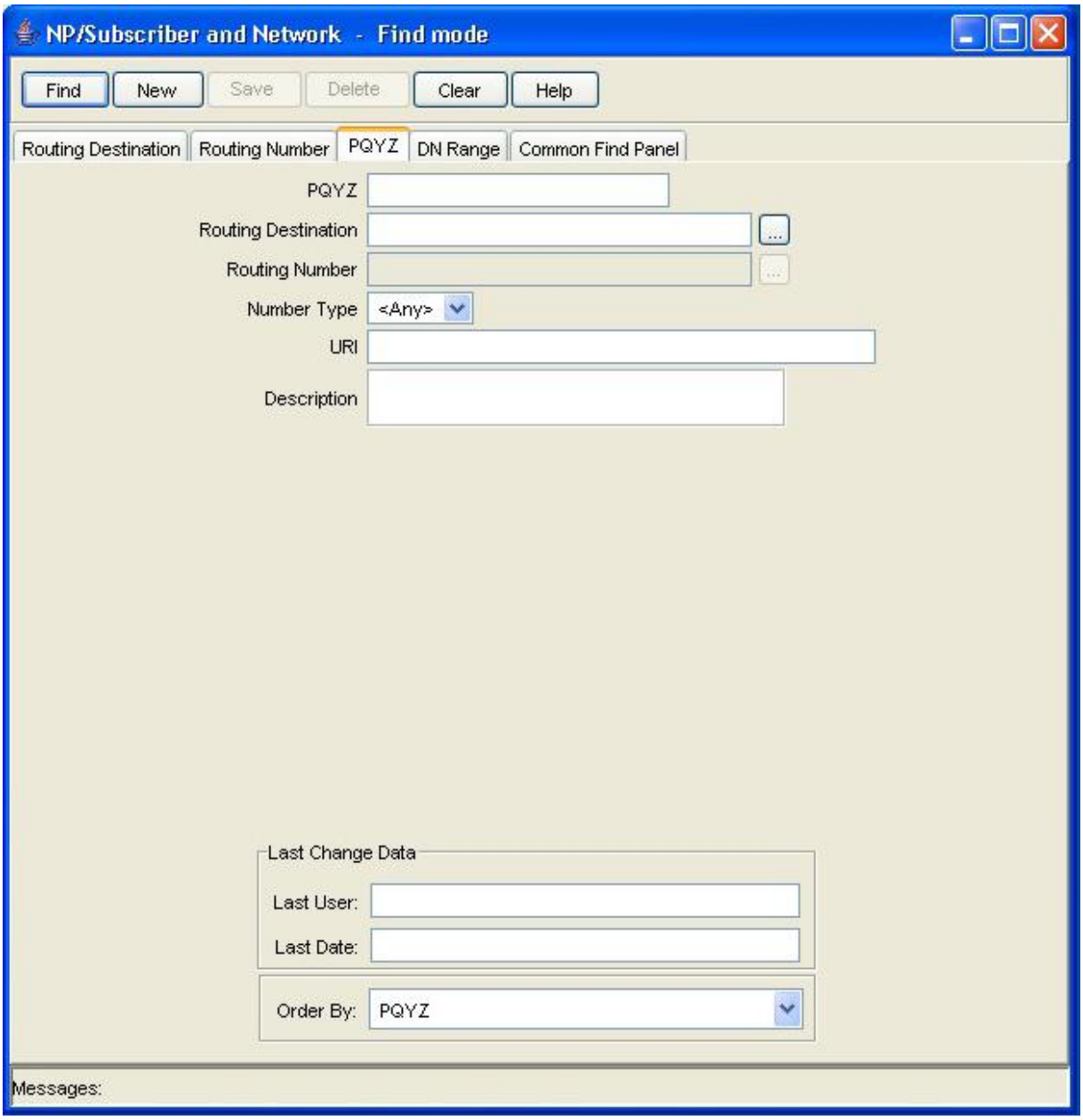
NP Service Pack screens

The NP Service Pack screens let you configure the database. The available screens are:

- *Subscriber and Network* (on page 11)
- *Least Cost Routing* (on page 43)
- *Home Routing* (on page 59)

Example NP screen

Here is an example NP screen, in this case, Subscriber and Network.



On-screen buttons

The application uses a set of buttons to start specific actions within each screen.

The table below describes the function of each button.

Button	Function
Find	Opens the Find window, enabling you to find records that match the search criteria.

Button	Function
	When you click **Find** in the Find screen, an Oracle Like% query is triggered that returns the first 100 records that begin with the selection criteria. For example, if you enter 123 in the Query field, the system will return records such as 123, 1234, 12345, etc.
New	Creates a new record template on the current screen. Click **Save** to save the new record details to the database.
Save	Saves any changes to the record on the current screen to the database.
Delete	Removes the selected record from the database.
Clear	Clears all entries from the screen, enabling you to clear the screen before adding a new record.
Help	Opens context-sensitive Help containing information about the functionality available in the current screen.
Return	Returns you to the previous screen in the screen hierarchy. **Note:** Any changes that have been made on-screen will not be saved (unless **Save** has been clicked previously).

Using the Different Types of Fields

Introduction

The following field types appear on the screens:

- Drop-down lists
- Text boxes

Text box

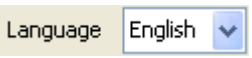
Use text boxes to type data directly on screen.

Drop-down list box

Drop-down lists are identified from text boxes by a small arrow to the right of the field.

When you click on this arrow, you will see a list of values available for this field.

You can then select the appropriate value from this list.



Using the Find Screens

Introduction

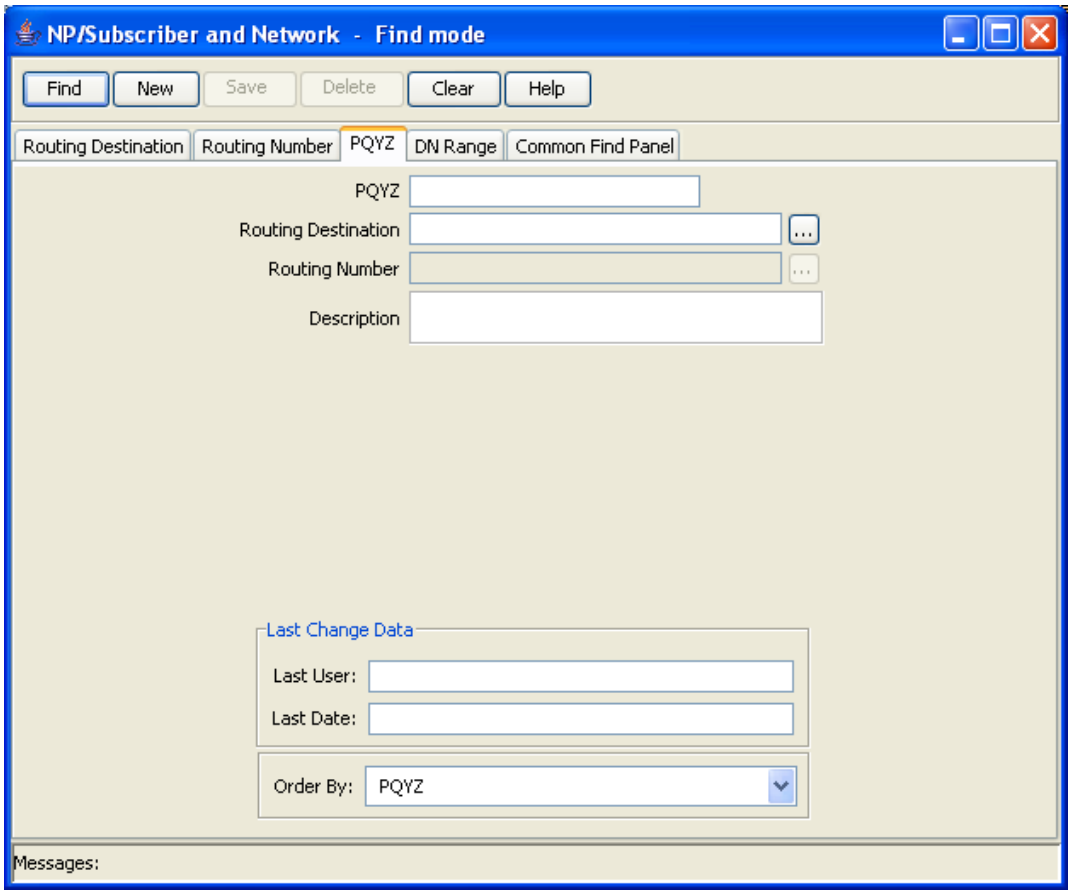
Find screens enable you to find records that match the selection criteria. All find screens contain the following:

- Buttons

- Query fields

Example NP find screen

Here is an example NP screen in Find mode. You see the available query fields in the screen, and the screen title indicates that you are in Find mode.

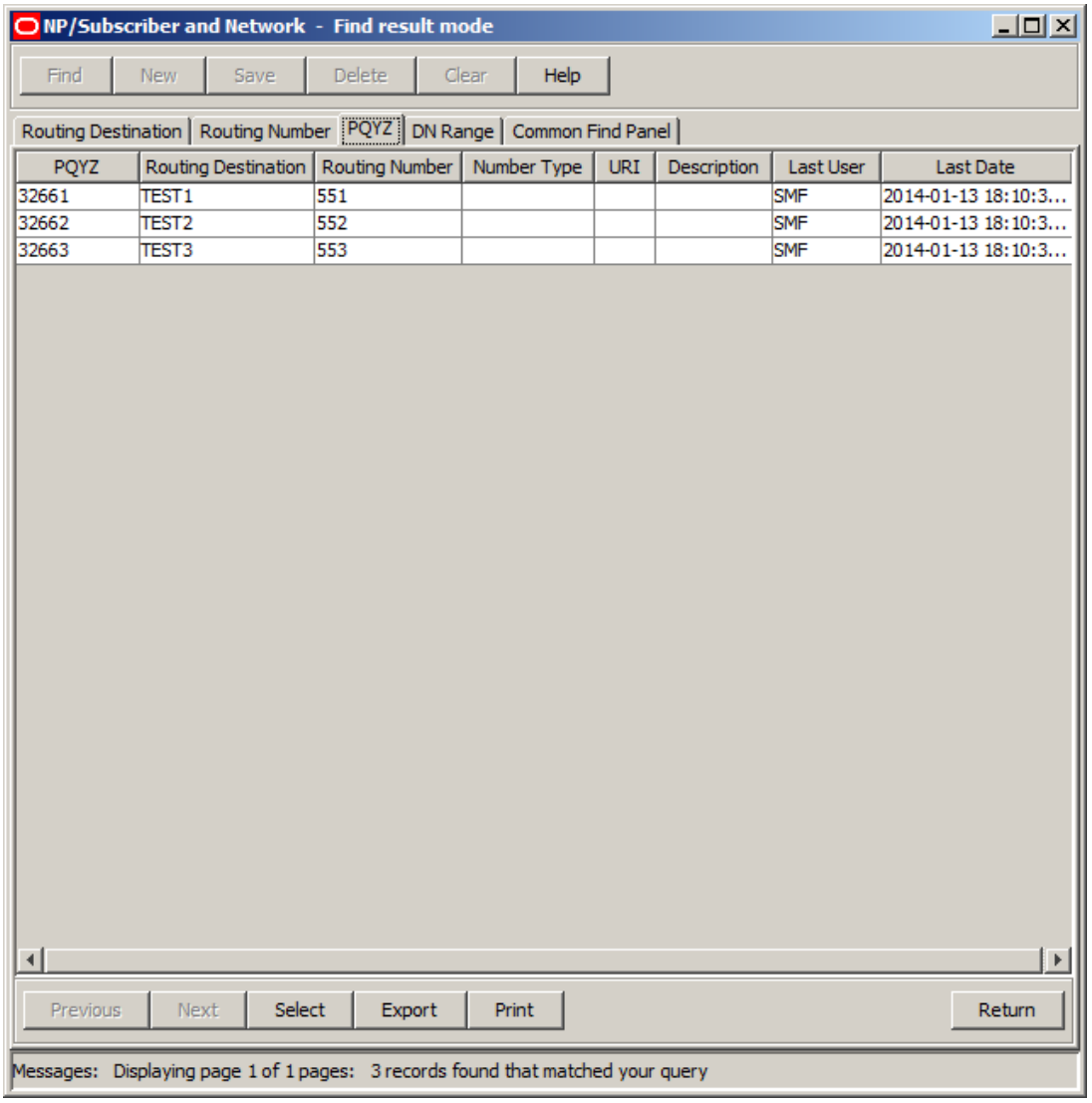


Searching the database

Follow these steps to search the database.

Step	Action
1	Enter selection criteria in one or more query fields and click **Find**. If a field is left empty, the search retrieves all instances of that field. **Result:** This triggers an Oracle Like% query that returns the first 100 records that begin with the selection criteria. For example, if you enter 123 in a query field, the system returns records such as 123, 1234, 12345 ... The results appear in the table on the Find result mode screen.

Step	Action



Note: The first 100 records entered in the database are displayed in no particular order. If you do not find the record you are searching for, conduct a more specific search.

2 To view a record in Update mode, highlight the record line and click **Select**.

Result: You see the record details in Update mode.

3 To delete a record, highlight the record line and click **Delete**.

Find result mode buttons

The table below describes the function of each button displayed at the bottom of the screens when in Find result mode.

Button	Function
Previous	Goes back to the previous set of records in the table, if you have used the **Next** button to display more records.
Next	Displays the next set of records, if all the Find results cannot be displayed in the table at one time.

Button	Function
Select	Selects the record highlighted in the table and displays it on the tab in Update mode.
Export	Exports the Find results to a file.
Print	Prints the Find results.
Return	Returns you to the Find mode screen for the tab.

Chapter 3

Subscriber and Network

Overview

Introduction

This chapter explains how to define information that is used in an NP/MNP environment using the NP Service Pack Subscriber and Network screens.

In this chapter

This chapter contains the following topics.

Subscriber and Network Screen 11
Routing Destination 16
Routing Number 20
PQYZ 24
DN Range 28
Common Find Panel 38

Subscriber and Network Screen

Introduction

The NP/Subscriber and Network screen allows you to define:

- Logical operator names
- The network routing numbers associated with operators
- The operator ranges associated with operators (through prefixes or ranges)
- Ported subscriber information.

It also allows you to map operator names and ported subscribers to routing numbers. It contains the following tabs:

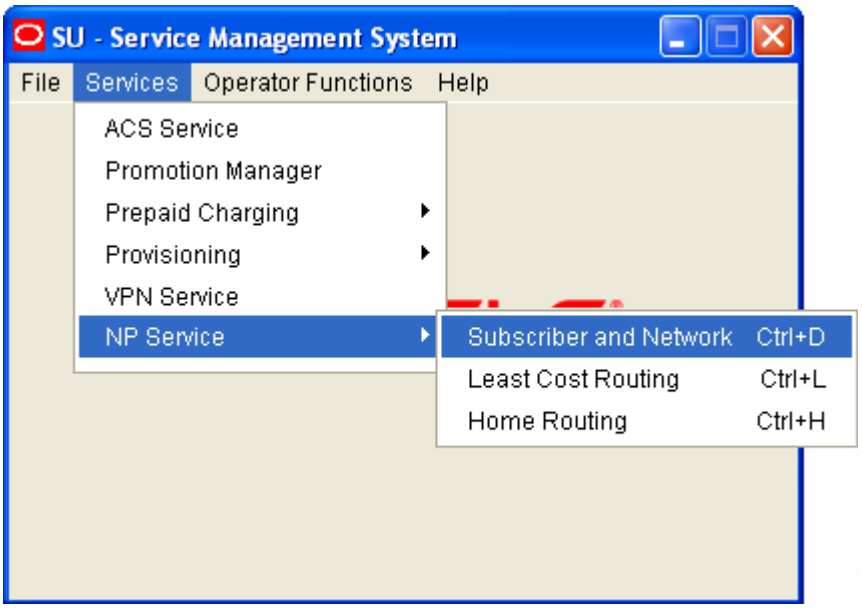
- Routing Destination
- Routing Number
- PQYZ
- DN Range
- Common Find Panel

Accessing the Destination Selection screen

Follow these steps to access the Subscriber and Network screen.

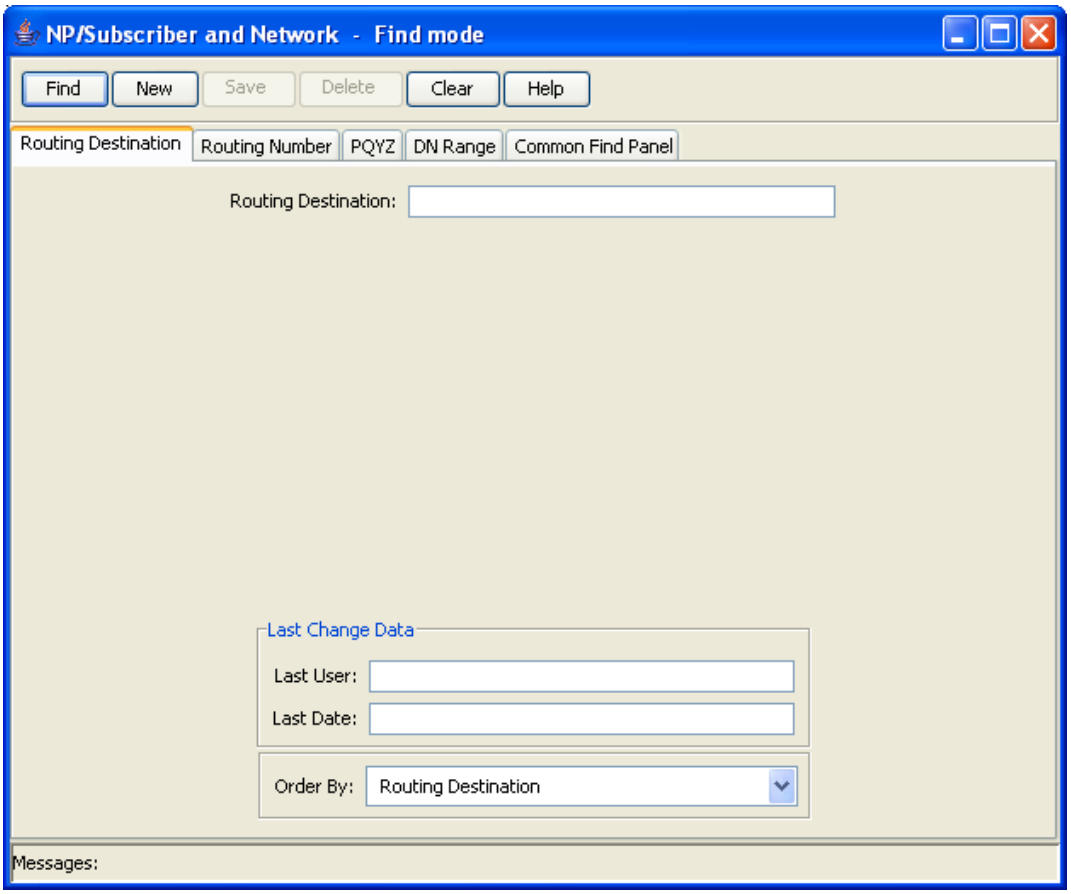
Step	Action
1	Select the **Services** menu from the SMS main screen.
2	Select **NP Service**. **Result:** You see the list of NP Service menu options.

Step	Action



3 Select **Subscriber and Network**.

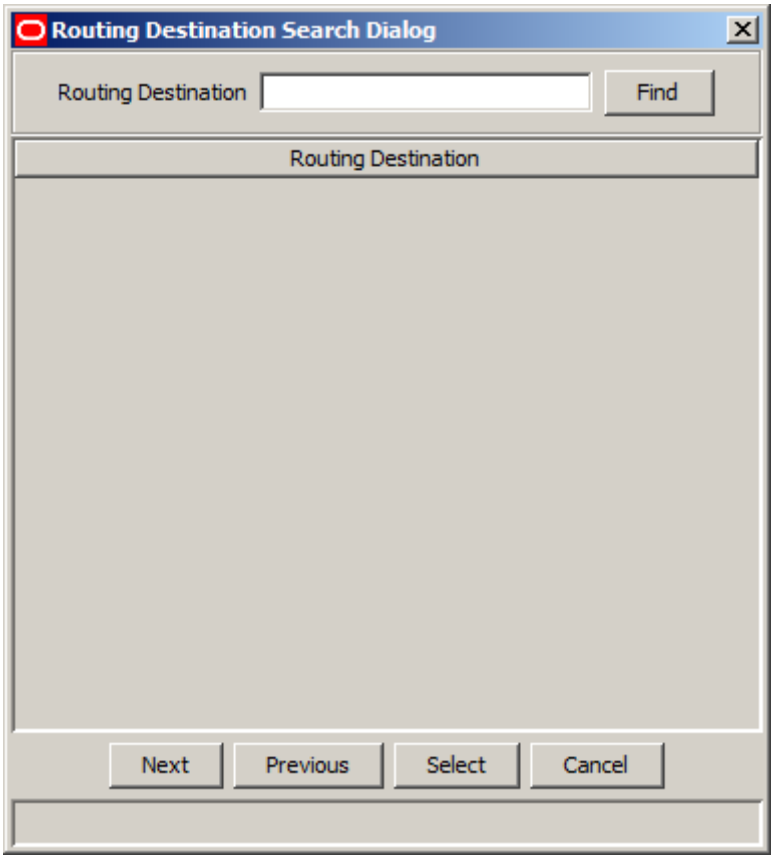
Result: You see the **Routing Destination** tab on the NP/Subscriber and Network screen in Find mode.



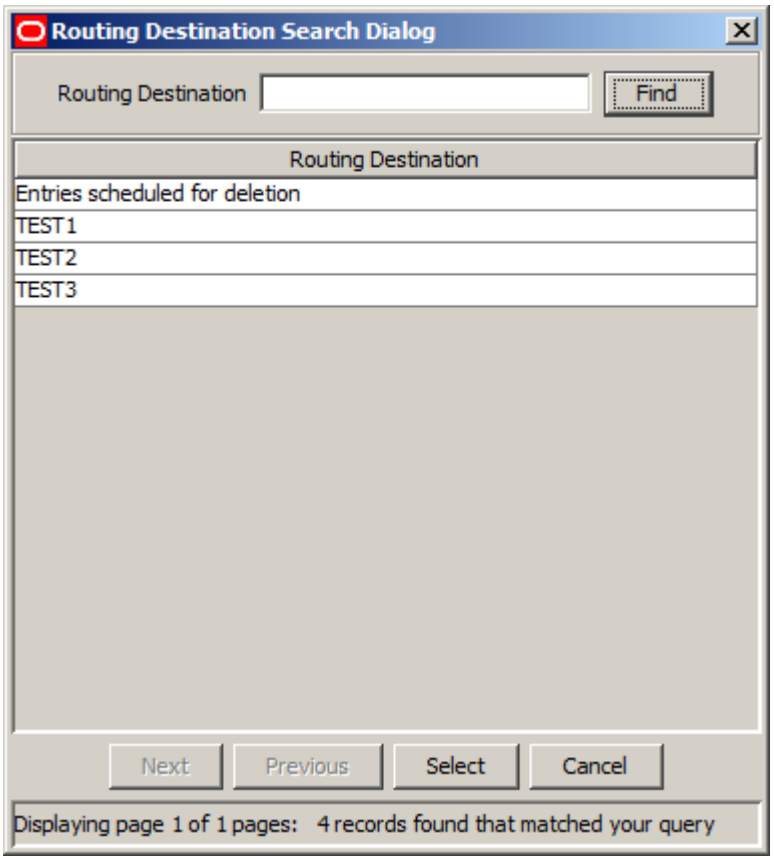
Using the Routing Destination Search Dialog

You can use the Routing Destination Search Dialog to find an existing Routing Destination record on any tab that has a search button next to the **Routing Destination** field.

Follow these steps to search for a Routing Destination in the Routing Destination Search Dialog.

Step	Action
1	Click the button to the right of the **Routing Destination** field. **Result:** You see the Routing Destination Search Dialog. 
2	Enter the search criteria in the **Routing Destination** query field and click **Find**. If the field is left empty, the search retrieves all Routing Destinations. **Result:** All routing destinations that match the search criteria are displayed.

Step	Action



3 To select the Routing Destination you want, highlight it in the table and click **Select**.

Result: Your selection is inserted into the **Routing Destination** field.

Using the Routing Number Search Dialog

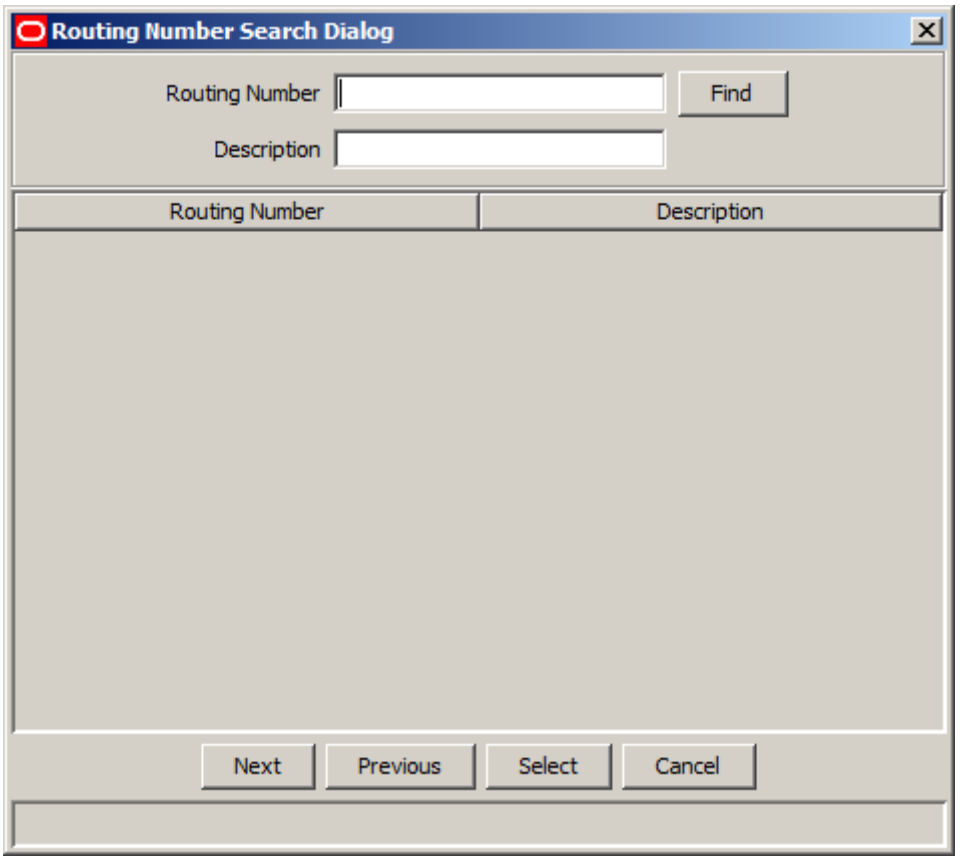
You can use the Routing Number Search Dialog to find an existing Routing Number record on any tab that has a search button next to the **Routing Number** field.

Note: If the Routing Destination field is also present on the tab, the available Routing Numbers depend on the Routing Destination selected.

Follow these steps to search for a Routing Number in the Routing Number Search Dialog.

Step	Action
1	Click the button to the right of the **Routing Number** field. **Result:** You see the Routing Number Search Dialog.

Step	Action

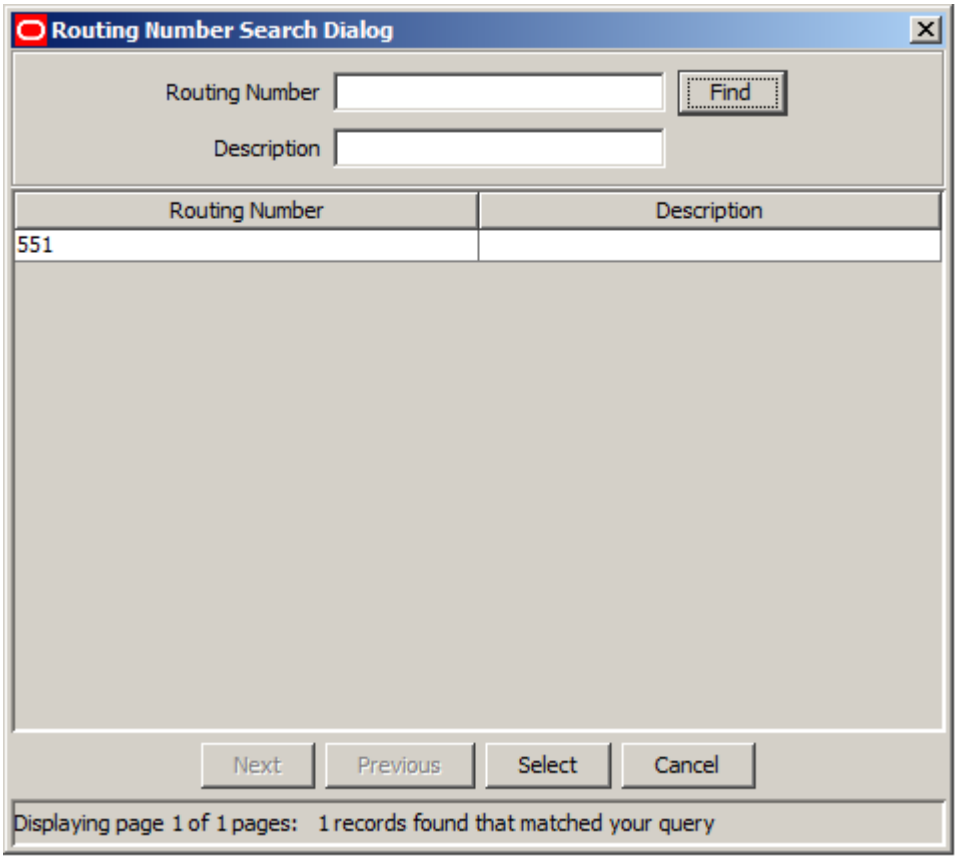


2 Enter the search criteria in the query fields and click **Find**.

If the field is left empty, the search retrieves all instances of that field.

Result: All routing numbers that match the search criteria are displayed.

Step	Action



3 To select a Routing Number, highlight it in the table and click **Select**.

Result: Your selection is inserted into the **Routing Number** field.

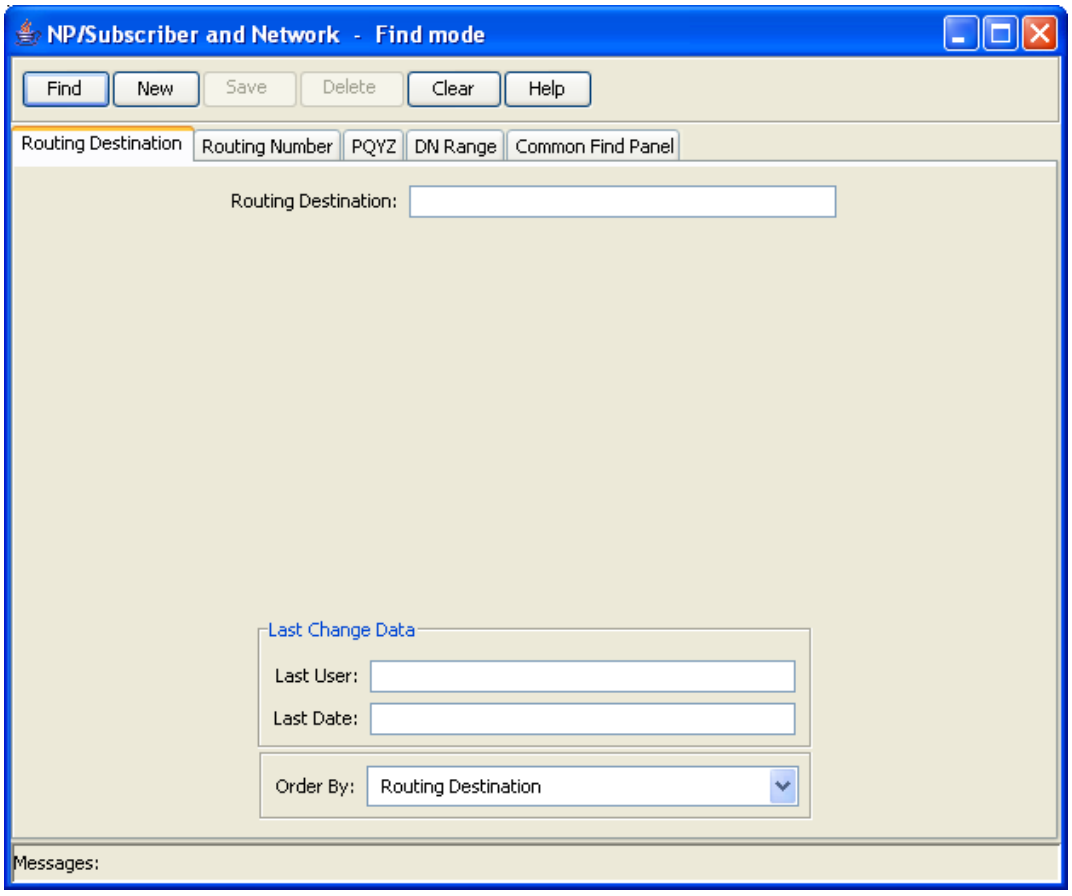
Routing Destination

Introduction

The **Routing Destination** tab allows you to define the names for operators that are relevant in the operator's environment.

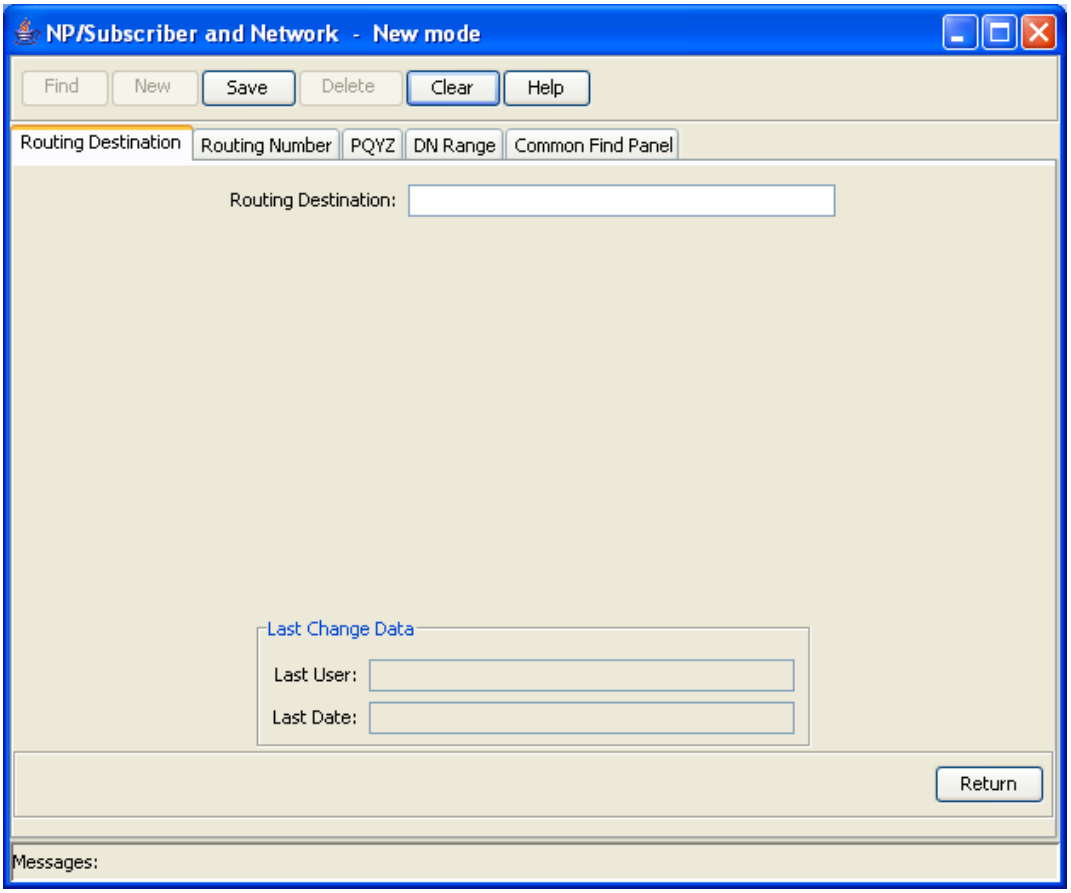
Routing Destination tab

Here is an example **Routing Destination** tab in Find mode on the NP/Subscriber and Network screen.



Adding a routing destination

Follow these steps to Add a new routing destination.

Step	Action
1	Select the **Routing Destination** tab in the NP/Subscriber and Network - Find mode screen, and click **New**. **Result:** You see the **Routing Destination** tab in New mode. 
2	In the **Routing Destination** field, enter a unique value for the routing destination to add. It can be up to 64 alpha-numeric characters long.
3	Click **Save**.
4	Repeat steps 2 to 3 for each routing destination to add. **Note:** When you click **Save**, the saved values remain on the screen. You can create another new record by typing over these values and clicking **Save** again.
5	Click **Return** to go back to the previous screen.

Editing a routing destination

Follow these steps to edit a routing destination.

Step	Action
1	In Find mode, on the **Routing Destination** tab, find and select the record to edit. For more information on finding and selecting routing destination records, see *Finding a routing destination* (on page 19). **Result:** The selected record appears in Update mode on the **Routing Destination** tab.
2	Edit the details as described in *Adding a routing destination* (on page 18).
3	Click **Save**, and then **Return**, to save your changes and return to the previous screen.

Deleting a routing destination

Follow these steps to delete a routing destination.

Note: You cannot delete routing destinations that are referenced elsewhere in the system, such as in PQYZ or Routing Number records.

Step	Action
1	In Find mode, on the **Routing Destination** tab, find and select the record to delete. For more information about finding and selecting routing destinations, see *Finding a routing destination* (on page 19).
2	Click **Delete**. **Result:** The Confirm Delete Record screen appears.
3	Click **Yes** to confirm. **Result:** The record is removed from the database.
4	Click **Return** to return to the previous screen.

Finding a routing destination

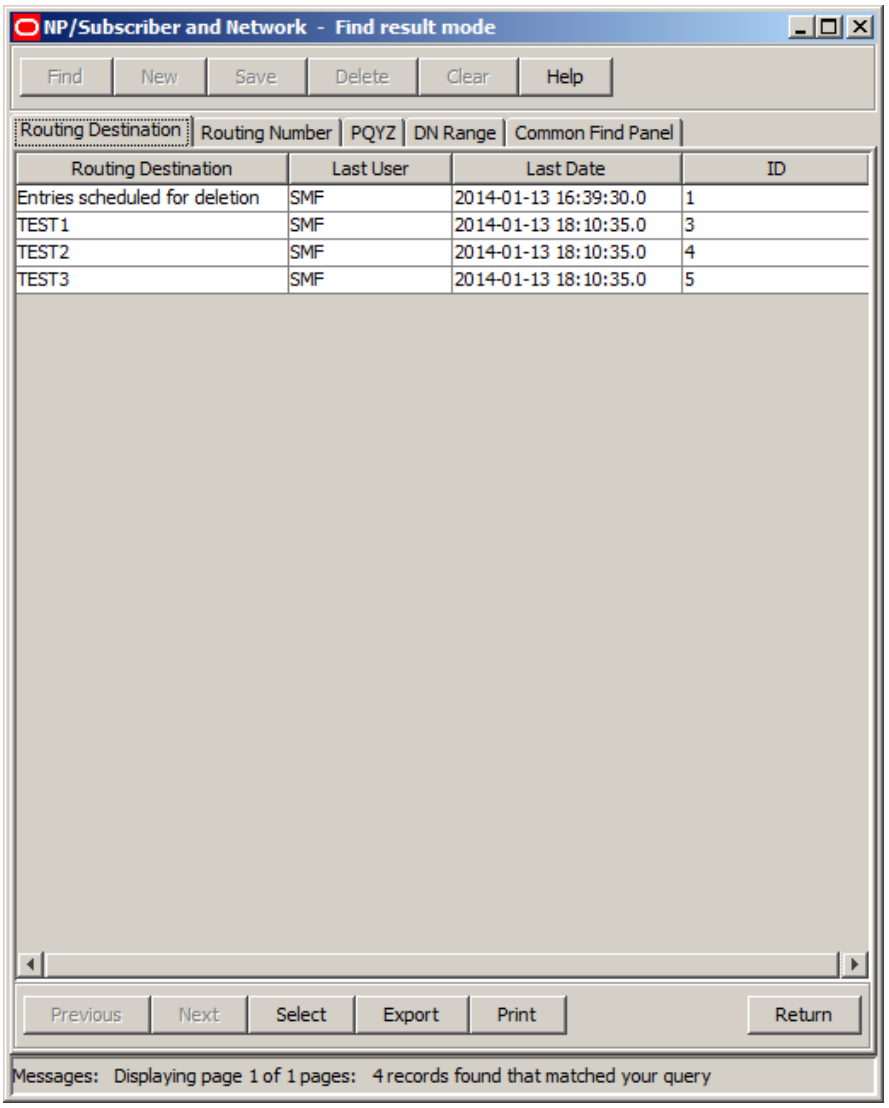
Follow these steps to search the database for a specific routing destination.

Step	Action
1	Ensure you are in Find mode on the **Routing Destination** tab.
2	Enter the selection criteria in one or more query fields and click **Find**. If a field is left empty, the search retrieves all instances of that field.

Step	Action

Result: This triggers an Oracle Like% query that returns the first 100 records that begin with the selection criteria. For example, if you enter 123 in a query field, the system will return records such as 123, 1234, 12345, ...

The search results appear in the table on the **Routing Destination** tab in Find result mode.



Note: The first 100 records entered in the database are displayed in no particular order. If you do not find the record you are searching for, conduct a more specific search.

3 To view a record in Update mode, highlight the record line and click **Select**.

4 To delete a record, highlight the record line and click **Delete**.

Routing Number

Introduction

The **Routing Number** tab allows you to define nationally recognized network routing numbers and logical network element numbers (numbers recognized within a network). You can then assign operator names to the routing numbers by associating them with routing destinations.

Note: The routing destination must have been previously defined on the **Routing Destination** tab.

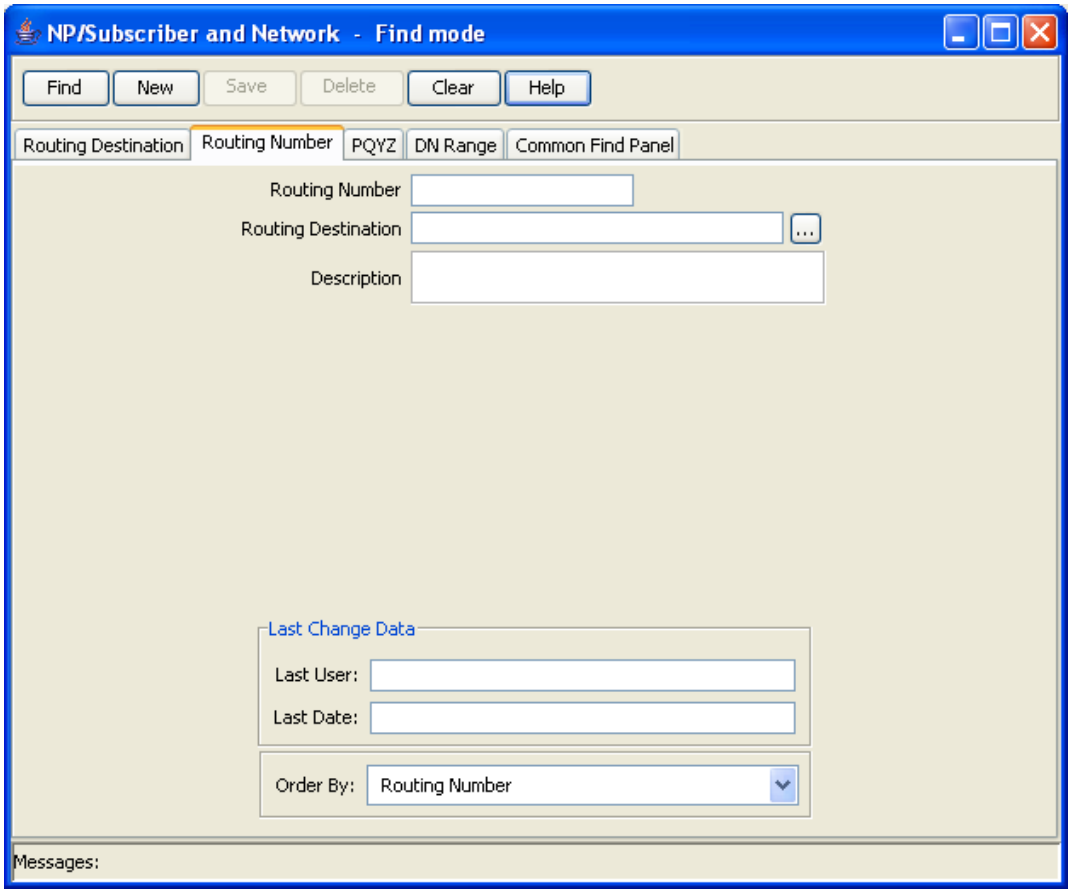
DEAD routing number

The 'DEAD' routing number is created automatically during installation. It is a special routing number which when allocated to a subscriber dn range identifies the dn range entry as being scheduled for purging.

Note: The 'DEAD' routing number cannot be modified or deleted.

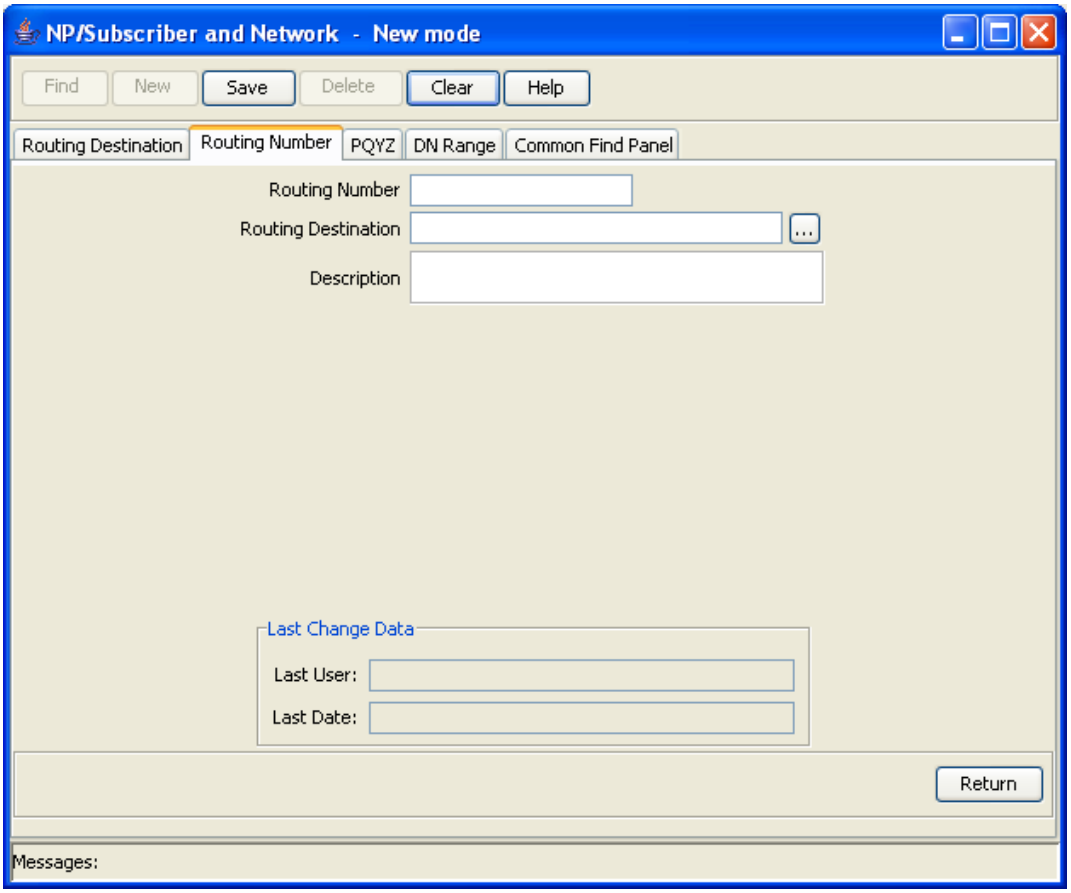
Routing Number tab

Here is an example **Routing Number** tab in Find mode on the NP/Subscriber and Network screen.



Adding a routing number

Follow these steps to Add a new routing number.

Step	Action
1	Select the **Routing Number** tab in the NP/Subscriber and Network - Find mode screen, and click **New**. **Result:** You see the **Routing Number** tab in New mode. 
2	In the **Routing Number** field, enter a unique value for the routing number to add. It can be up to eight hexadecimal characters long.
3	In the **Routing Destination** field, enter the routing destination for the routing number. You must enter a valid routing destination (one that already exists in the database). **Note:** If you do not know the routing destination, you can click the button to the right of this field to search for it using the Routing Destination Search Dialog. See *Using the Routing Destination Search Dialog* (on page 13) for details.
4	If required, in the **Description** field enter a description for the routing number.
5	Click **Save**.
6	Repeat steps 2 to 5 for each routing number to add. **Note:** When you click **Save**, the saved values remain on the screen. You can create another new record by typing over these values and clicking **Save** again.
7	Click **Return** to go back to the previous screen.

Editing a routing number

Follow these steps to edit a routing number.

Step	Action
1	In Find mode, on the **Routing Number** tab, find and select the record to edit. For more information about finding and selecting routing numbers, see Finding a routing number. **Result:** The selected record appears in Update mode on the Routing Number tab.
2	Edit the details as described in Adding a routing number.
3	Click **Save** and then **Return** to save your changes and return to the previous screen.

Deleting a routing number

Follow these steps to delete a routing number.

Note: You cannot delete routing numbers that are referenced elsewhere in the system, such as in DN Range records.

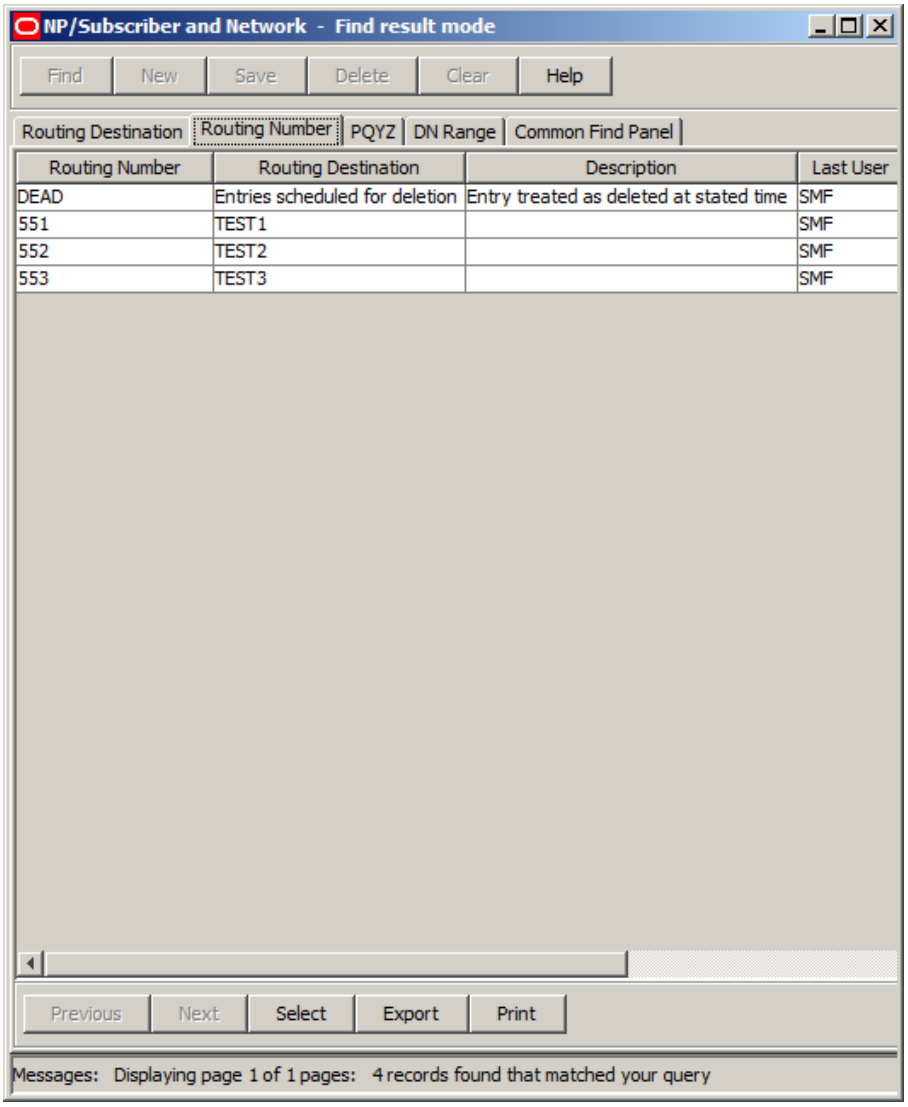
Step	Action
1	In Find mode, on the **Routing Number** tab, find and select the record to delete. For more information about finding and selecting routing numbers, see Finding a routing number.
2	Click **Delete**. **Result:** The Confirm Delete Record screen appears.
3	Click **Yes** to confirm. **Result:** The record is removed from the database.
4	Click **Return** to return to the previous screen.

Finding a routing number

Follow these steps to search the database for a specific routing number.

Step	Action
1	Ensure you are in Find mode on the **Routing Number** tab.
2	Enter the selection criteria in one or more query fields and click **Find**. If a field is left empty, the search retrieves all instances of that field. **Result:** This triggers an Oracle Like% query that returns the first 100 records that begin with the selection criteria. For example, if you enter 123 in a query field, the system returns records such as 123, 1234, 12345. The search results appear in a table on the Routing Number tab in Find result mode.

Step	Action



Note: The first 100 records entered in the database are displayed in no particular order. If you do not find the record you are searching for, conduct a more specific search.

3 To view a record in Update mode, highlight the record line and click **Select**.

4 To delete a record, highlight the record line and click **Delete**.

PQYZ

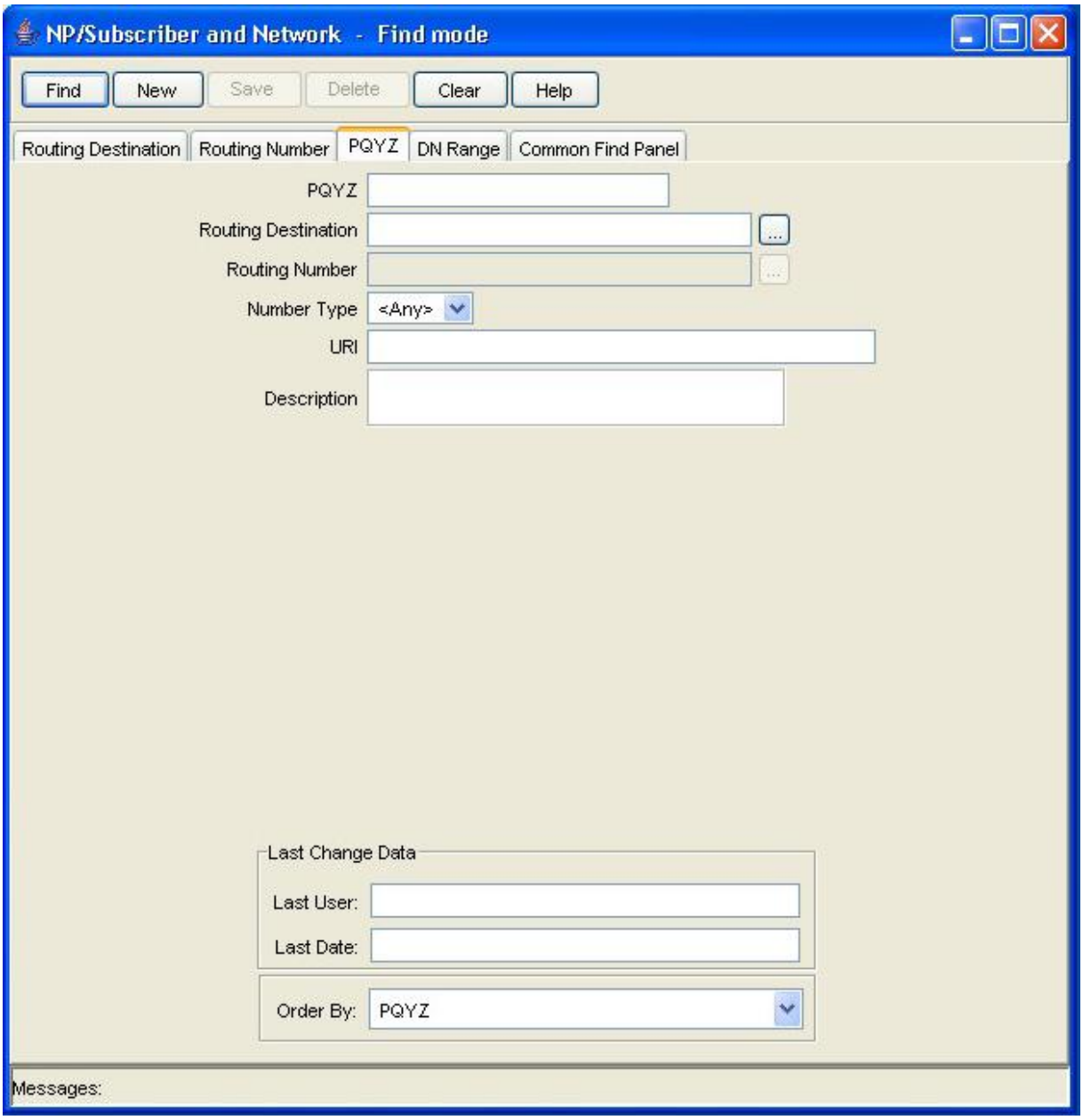
Introduction

You use the **PQYZ** tab to map operator range prefixes to the operator names configured in routing destinations.

You can map one or more prefixes to the same routing destination. The routing destination must have been previously defined on the **Routing Destination** tab.

PQYZ tab

Here is an example **PQYZ** tab.

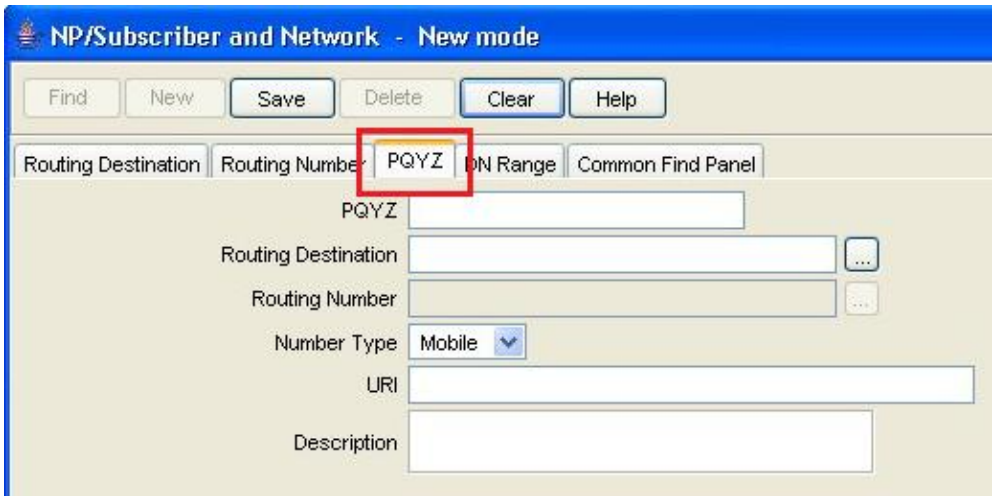


Adding a PQYZ mapping

Follow these steps to Add a new PQYZ routing destination mapping.

Step	Action
1	On the **PQYZ** tab in the NP/Subscriber and Network - Find mode screen, click **New**. **Result:** You see the **PQYZ** tab in the NP/Subscriber and Network screen in New mode.

Step	Action



2 In the **PQYZ** field, enter the international called number prefix to map to a routing destination.

3 In the **Routing Destination** field, enter the routing destination for the PQYZ prefix. You must enter a valid routing destination (one that already exists in the database).

Note: If you do not know the routing destination, you can click the button to the right of this field to search for it using the Routing Destination Search Dialog. See *Using the Routing Destination Search Dialog* (on page 13) for details.

4 If required, click the button to the right of the **Routing Number** field to search for and select the routing number for the PQYZ prefix. See *Using the Routing Number Search Dialog* (on page 14) for details.

Note: You cannot enter in the routing number directly.

5 From the **Number Type** drop down list, select the number type for the PQYZ entry

6 If required, enter a **URI** to associate with the PQYZ entry.

7 Click **Save**.

8 Repeat steps 2 to 7 for all the PQYZ routing destination mappings you require.

Note: When you click **Save**, the saved values remain on the screen. You can create another new record by typing over these values and clicking **Save** again.

9 Click **Return** to go back to the previous screen.

Editing a PQYZ mapping

Follow these steps to edit a PQYZ routing destination mapping.

Step	Action
1	In Find mode, on the **PQYZ** tab, find and select the record to edit. For more information about finding and selecting a PQYZ record, see *Finding a PQYZ mapping* (on page 27). **Result:** The selected record appears in Update mode on the PQYZ tab.
2	Edit the details as described in Adding a PQYZ mapping. **Tip:** To delete the routing number from the PQYZ mapping, you must first delete the current value for the routing destination field.
3	Click **Save**, and then **Return**, to save your changes and return to the previous screen.

Deleting a PQYZ mapping

Follow these steps to delete a PQYZ routing destination mapping.

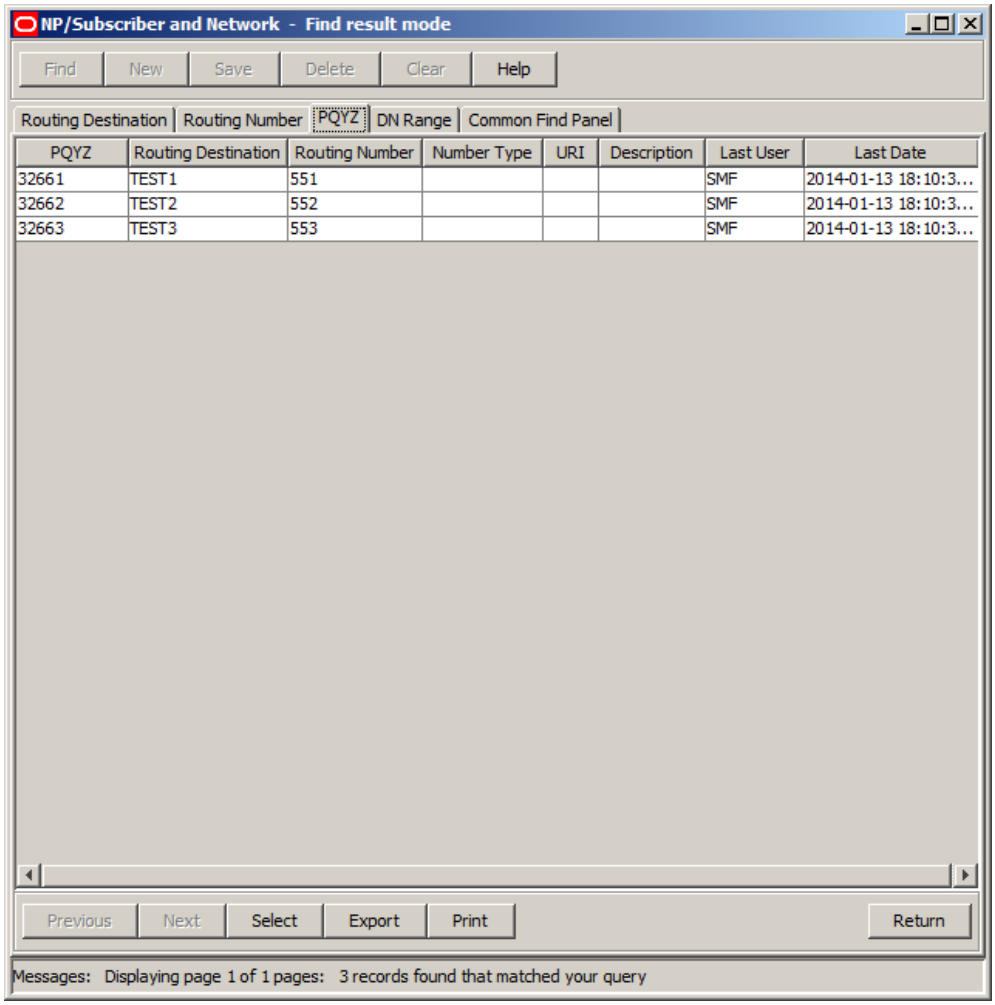
Step	Action
1	In Find mode, on the **PQYZ** tab, find and select the record to delete. For more information about finding and selecting PQYZ records, see *Finding a PQYZ mapping* (on page 27).
2	Click **Delete**. **Result:** The Confirm Delete Record screen appears.
3	Click **Yes** to confirm. **Result:** The record is removed from the database.
4	Click **Return** to return to the previous screen.

Finding a PQYZ mapping

Follow these steps to search the database for a specific PQYZ record.

Step	Action
1	Ensure you are on the **PQYZ** tab in Find mode.
2	Enter the selection criteria in one or more query fields and click **Find**. If a field is left empty, the search retrieves all instances of that field. **Result:** This triggers an Oracle Like% query that returns the first 100 records that begin with the selection criteria. For example, if you enter 123 in a query field, the system returns records such as 123, 1234, 12345, ... The search results appear in the table on the **PQYZ** tab in Find result mode. **Note:** The first 100 records entered in the database are displayed in no particular order. If you do not find the record you are searching for, conduct a more specific search.

Step	Action



3 To view a record in Update mode, highlight the record line and click **Select**.

4 To delete a record, highlight the record line and click **Delete**.

DN Range

Introduction

You use the **DN Range** tab to represent an individual ported subscriber or range of ported subscribers (such as PBX users) by entering a DN number range and associating it to a specific routing number. This tab can also be used for stating operator ranges.

Rules

These rules apply to DN Ranges:

1. A DN Range can be either an operator type or a subscriber type
2. Additional Routing Numbers, Donor ID Numbers, and Port ID Numbers may only be defined for subscriber DN Ranges
3. The DN Start and DN End values must be of equal length
4. The DN End value must be greater than or equal to the DN Start value

5 The combination of DN Range and Activation Date must be unique and not overlap an existing DN Range, unless the DN Ranges are equal but there is a different Activation Date

6 The Routing Number and the Additional Routing Number must have been previously defined on the **Routing Number** tab

7 For a particular subscriber range only the most recent 10 activation date entries will be considered during runtime (enforced in service), therefore when provisioning you should not define more than 10 entries per subscriber range.

Note: Rule 7 is not enforced in the database.

Purging subscriber dn ranges

Periodically a purge facility will run on the database to delete any subscriber DN ranges which are no longer active. The following DN ranges will be deleted:

1 All entries associated with a unique subscriber (that is, entries for the same subscriber but with different activation dates) that are no longer active due to there being an active entry for the subscriber with a more recent activation date.

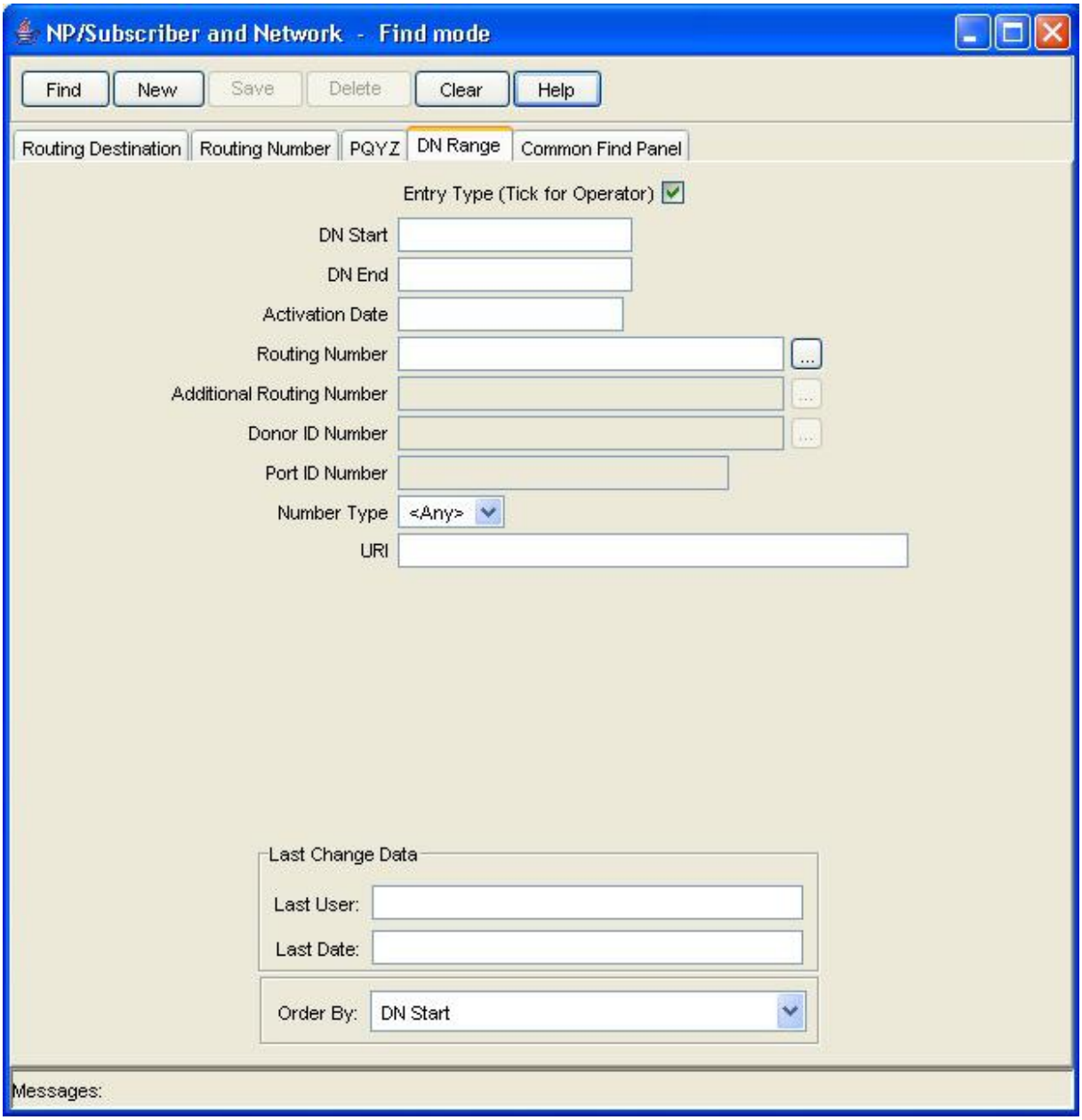
2 Subscriber entries that are currently active where:
   - The routing number has been set to DEAD
   - There are no entries for the subscriber with activation dates in the future

For more information on the purge facility, refer to the *Tools and Utilities* chapter in *Number Portability Service Pack Technical Guide*.

Note: The purge facility will not remove operator DN ranges.

DN Range tab

Here is an example **DN Range** tab.

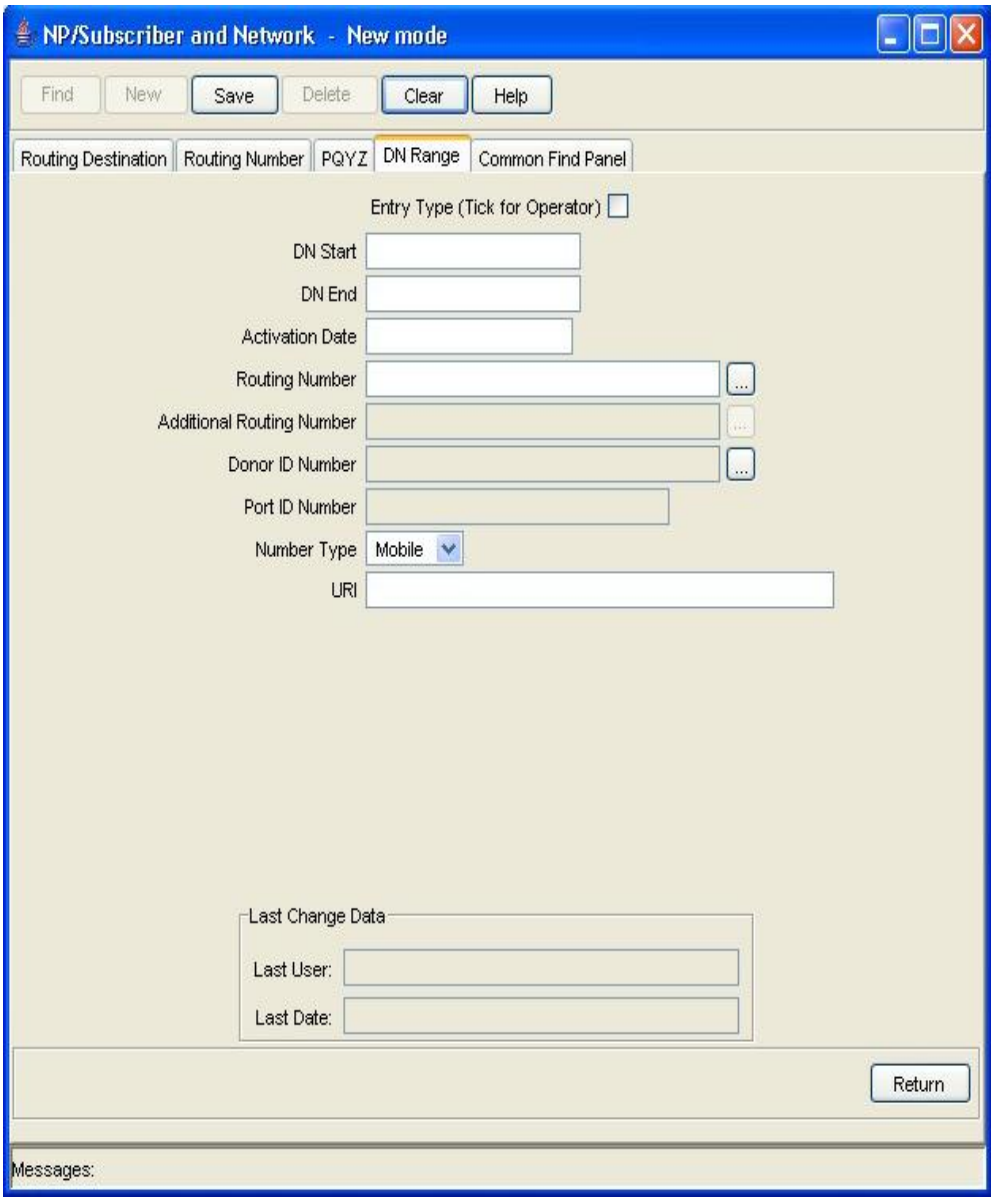


Adding a DN range

Follow these steps to add a new DN range.

Step	Action
1	On the **DN Range** tab in the NP/Subscriber and Network - Find mode screen, click **New**. **Result:** You see the DN Range tab in the NP/Subscriber and Network screen in New mode.

Step	Action



2 If this DN range provides additional routing for external operator ranges then select the **Entry Type (Tick for Operator)** check box. Leave deselected if this is a subscriber DN range.

Note: When this check box is selected you will not be able to specify an:

- Additional Routing Number
- Donor ID Number
- Port ID Number

3 In the **DN Start** field, enter the starting number for the DN range. The number must be between four and 18 digits long.

4 In the **DN End** field, enter the end number for the DN range. The number must be greater than or equal to the DN Start number and must be the same length.

5 In the **Activation Date** field, enter the activation date using this format: DD/MM/YYYY

Step	Action
	HH:MM:SS. **Example:** "01/15/2008 10:00:00"
6	In the **Routing Number** field, enter the routing number associated to the recipient network that the subscriber is being ported to. You must enter a routing number that has been previously defined in the database. **Note**: If you do not know the routing number, you can click the button to the right of this field to search for it using the Routing Number Search Dialog. See *Using the Routing Number Search Dialog* (on page 14) for details.
7	If required, in the **Additional Routing Number** field, specify the additional routing number the DN range maps to. This is the logical routing number for the network element that holds the subscriber information in the recipient network. **Note**: You cannot enter in an additional routing number directly. Click the button to the right of this field to search for it using the Additional Routing Number Search Dialog. See *Using the Additional Routing Number Search Dialog* (on page 34) for details.
8	If required, in the **Donor ID Number** field specify the donor ID number. **Note:** To search for a valid number using the Donor ID Search Dialog, click the button to the right of this field. See *Using the Donor ID Search Dialog* (on page 36) for details.
9	If required, in the **Port ID Number** field enter the number of the port ID for the DN range. **Note:** This field is used for auditing purposes (if available) to hold the administrative ID for the port request.
10	From the **Number Type** drop down list, select the number type for the DN range.
11	If required, enter a URI to associate with the DN Range.
12	Click **Save**. **Note:** If the DN range rules are broken, a "Save operation failed" error message detailing the problem will be displayed.
13	Repeat steps 2 to 12 to add all the DN ranges you require. **Note:** When you click **Save**, the saved values remain on the screen. You can create another new record by typing over these values and clicking **Save** again.
14	Click **Return** to go back to the previous screen.

Editing a dn range

Follow these steps to edit a DN range.

Step	Action
1	In Find mode, on the **DN Range** tab, find and select the record to edit. For more information about finding and selecting DN ranges, see *Finding a dn range* (on page 33). **Result:** The selected record appears in Update mode on the DN Range tab.
2	Edit the details as described in Adding a DN range. **Tips:** • To remove the additional routing number for a DN range, you must first remove the current value in the Routing Number field. This resets the additional routing number to

Step	Action
	blank. • To mark a DN range for purging, set the Routing Number field to 'DEAD'.
3	Click **Save** and then **Return** to save your changes and return to the previous screen.

Deleting a dn range

Follow these steps to delete a DN range.

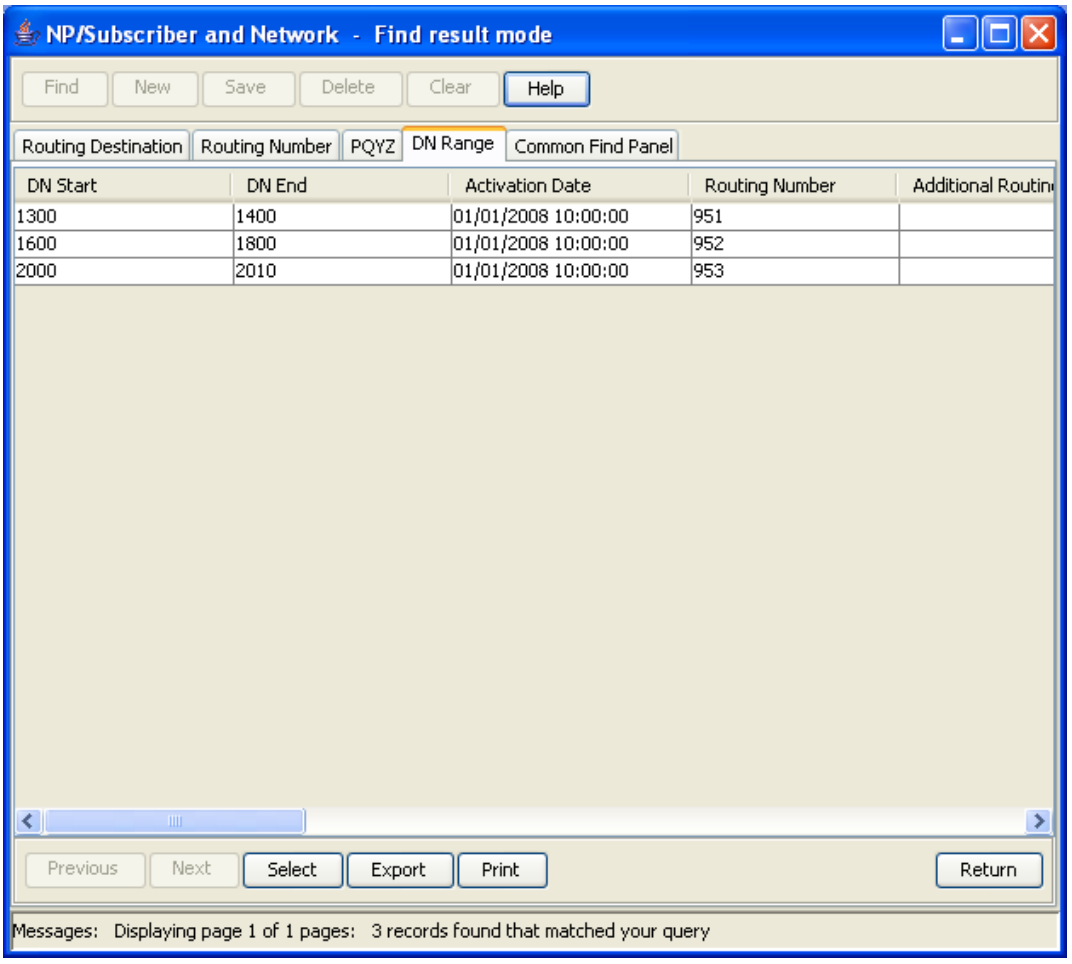
Step	Action
1	In Find mode, on the **DN Range** tab, find and select the record to delete. For more information about finding and selecting DN ranges, see *Finding a dn range* (on page 33).
2	Click **Delete**. **Result:** The Confirm Delete Record screen appears.
3	Click **Yes** to confirm. **Result:** The record is removed from the database.
4	Click **Return** to return to the previous screen.

Finding a dn range

Follow these steps to search the database for a specific DN range.

Step	Action
1	Ensure you are on the **DN Range** tab in Find mode.
2	Enter selection criteria in one or more query fields and click **Find**. If a field is left empty, the search retrieves all instances of that field. **Result:** This triggers an Oracle Like% query that returns the first 100 records that begin with the selection criteria. For example, if you enter 123 in a query field, the system returns records such as 123, 1234, 12345, ... The results appear in the table on the DN Range tab in Find result mode.

Step	Action



Note: Te first 100 records entered in the database are displayed in no particular order. If you do not find the record you are searching for, conduct a more specific search.

3 To view a record in Update mode, highlight the record line and click **Select**.

4 To delete a record, highlight the record line and click **Delete**.

Using the Additional Routing Number Search Dialog

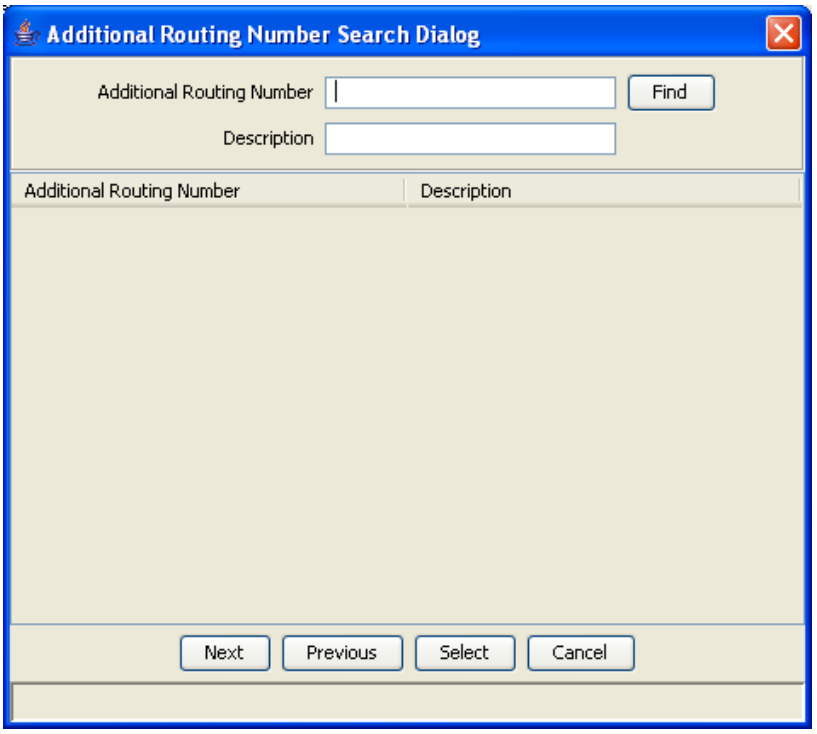
You can use the Additional Routing Number Search Dialog to find an additional routing number record on any tab that has a search button next to the **Additional Routing Number** field.

Note: The additional routing numbers listed in the search results will depend on the value previously specified in the **Routing Number** field.

Follow these steps to search for an additional Routing Number in the Additional Routing Number Search Dialog.

Step	Action
1	Click the button to the right of the **Additional Routing Number** field. **Result:** You see the Additional Routing Number Search Dialog.

Step	Action

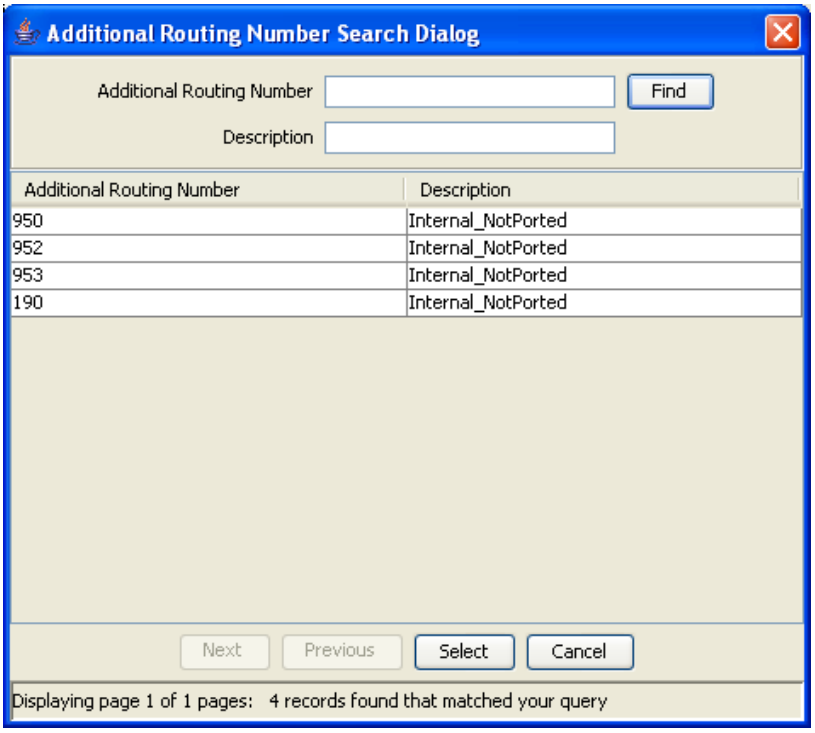


2 Enter the search criteria in the query fields and click **Find**.

If the field is left empty, then the search retrieves all instances of that field.

Result: The search finds all the available additional routing numbers for the previously specified routing number and that match the search criteria. The results are displayed in the grid in the Additional Routing Number Search Dialog.

Step	Action



3 To select an additional routing number, highlight it in the grid and click **Select**.

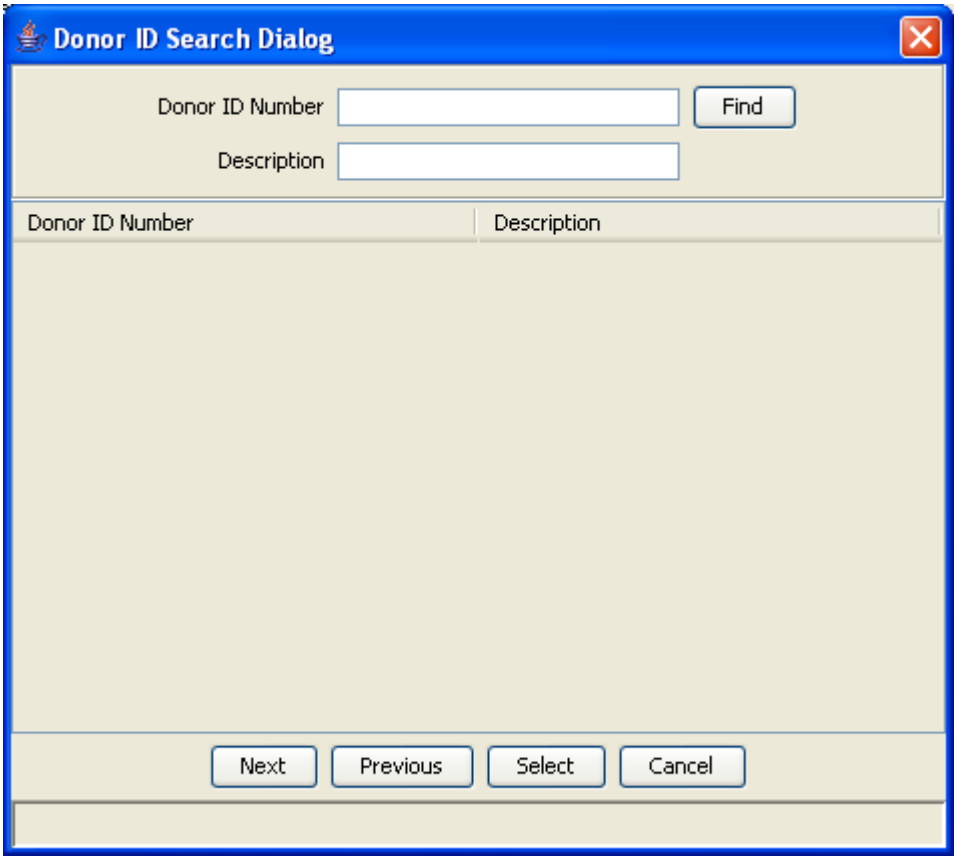
Result: Your selection is inserted into the **Additional Routing Number** field.

Using the Donor ID Search Dialog

You can use the Donor ID Search Dialog to find a donor id number record on any tab that has a search button next to the **Donor ID Number** field.

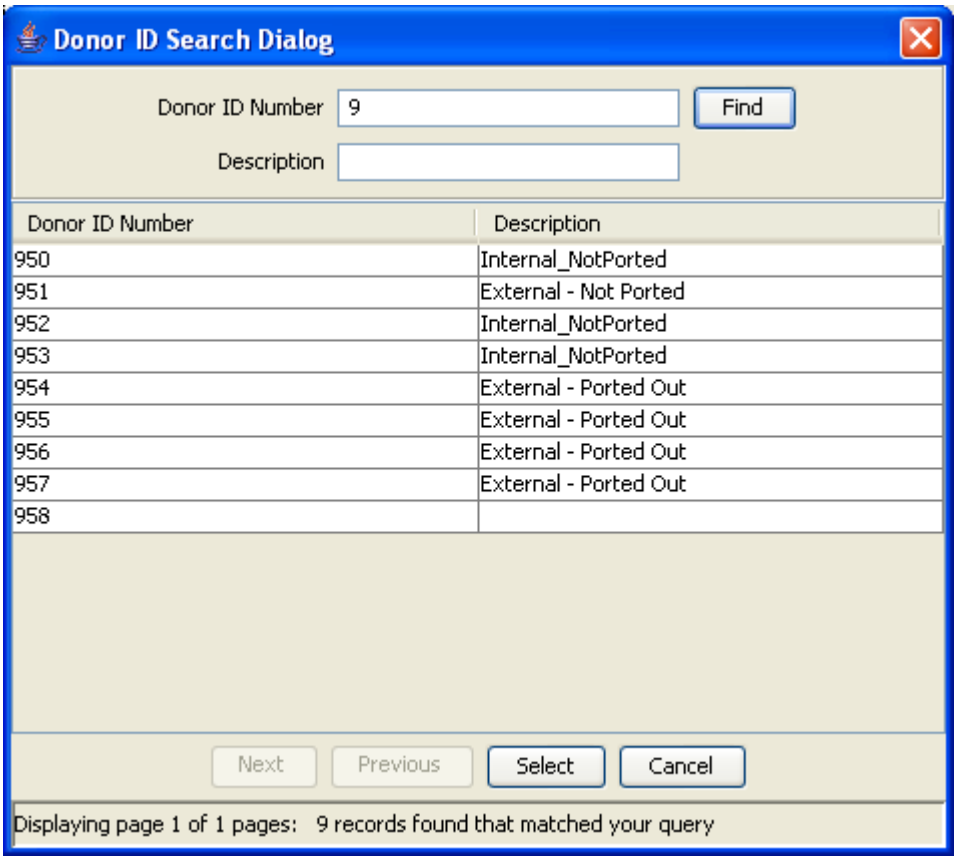
Follow these steps to search for a donor ID number in the Donor ID Search Dialog.

Step	Action
1	Click the button to the right of the **Donor ID Number** field. **Result:** You see the Donor ID Search Dialog.



2	Enter the search criteria in the query fields and click **Find**. If the field is left empty, then the search retrieves all instances of that field. **Result:** The search finds all the donor id numbers that match the search criteria and displays the results in the table in the Donor ID Search Dialog.

Step	Action



3 To select a donor ID number, highlight it in the table and click **Select**.

Result: Your selection is inserted into the **Donor ID Number** field.

Common Find Panel

Introduction

The **Common Find Panel** allows you to look for commonly required data from the following tables and view the results on the same screen:

- DN Range
- Routing Number
- PQYZ
- Routing Destination

Common Find Panel logic

The search is based on the prefix you enter in the **Find Number** field. If it:

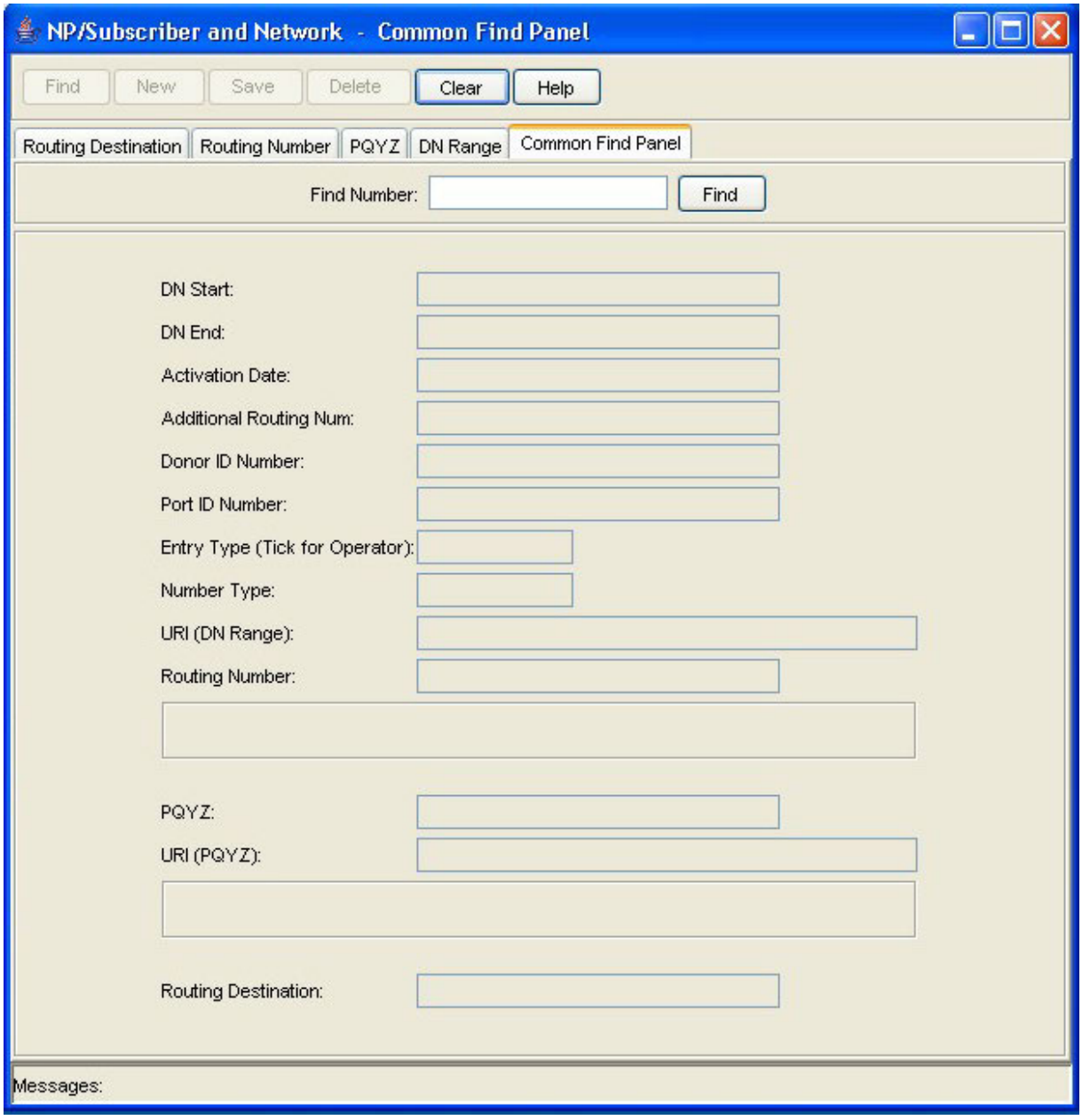
- *Matches* at least one defined DN range with an Activation Date in the past, then the following data will be displayed:
  - Start and End of the matched DN range with the newest Activation Date
  - Activation Date of the matched DN range
  - Additional Routing Number, Donor ID Number, Port ID Number and Routing Number that is linked to the matched DN range

  - Entry Type of the matched DN Range
  - Number Type of the matched DN Range
  - Routing Destination that is linked to this Routing Number
  - PQYZ information shall be displayed as “Not Applicable”
  - URI of the matched DN Range
- *Does not match* any range in the conditions described above (because there is no range match or because the matched ranges have their Activation Date in the future), then the PQYZ is queried. If a match is found the following data will be displayed:
  - PQYZ of the matching PQYZ entry
  - Routing Destination that is linked to the matching PQYZ entry
  - DN range information shall be displayed as “Not found”
  - Activation Date information shall be displayed as “Not found”
  - Routing Number information shall be displayed as “Not applicable”
  - Number Type of the matching PQYZ entry
  - URI of the matching PQYZ entry

In any other case all the information fields will be displayed as “Not found”

Common Find Panel tab

Here is an example **Common Find Panel** tab in the NP/Subscriber and Network screen.



Common Find Panel fields

This table describes the function of each field in the Common Find Panel.

Field	Description
Find Number	The number to look for in the PQYZ, DN Range, Routing Number and Routing Destination tables.
DN Start	Displays the start of the matched DN range with the newest activation date.
DN End	Displays the end of the matched DN range with the newest activation date.
Activation Date	Displays the activation date of the matched DN range.

Field	Description
Additional Routing Num	Displays the additional routing number of the matched DN range.
Donor ID Number	Displays the donor id of the matched DN range.
Port ID Number	Displays the port id of the matched DN range.
Entry Type (Tick for Operator)	Displays the entry type for the matched DN range. Valid values are: O - external operator range S - subscriber range
Number Type	Displays the number type for the matched DN range or PQYZ entry. Valid values are: • F - fixed • M - mobile • E - empty (not used)
URI (DN Range)	Displays the URI of the matched DN range.
Routing Number	Displays the Routing Number that is linked to the matched DN range and shows its description in the text box below.
PQYZ	Displays the PQYZ prefix that matches the Find Number value and shows its description in the text box below.
URI (PQYZ)	Displays the URI of the matching PQYZ entry.
Routing Destination	Displays the routing destination for the matching PQYZ prefix or Routing Number.

Using the Common Find Panel

Follow these steps to find and view data using a common number prefix.

Step	Action
1	Select the **Common Find Panel** in the NP/Subscriber and Network screen.
2	In the **Find Number** field, enter the number to search for, and click **Find**. **Result:** A list of the records that match the Find Number value displays.

Chapter 4

Least Cost Routing

Overview

Introduction

This chapter explains how to define least cost routing rules and carriers.

In this chapter

This chapter contains the following topics.

Least Cost Routing Screen 43
Rule Set 45
Rule 48
Carrier 53

Least Cost Routing Screen

Introduction

The NP/Least Cost Routing screen allows you to define the carriers for least cost routing and the rules that determine which carrier will be used. The least cost routing functionality is optionally used after destination selection has been performed.

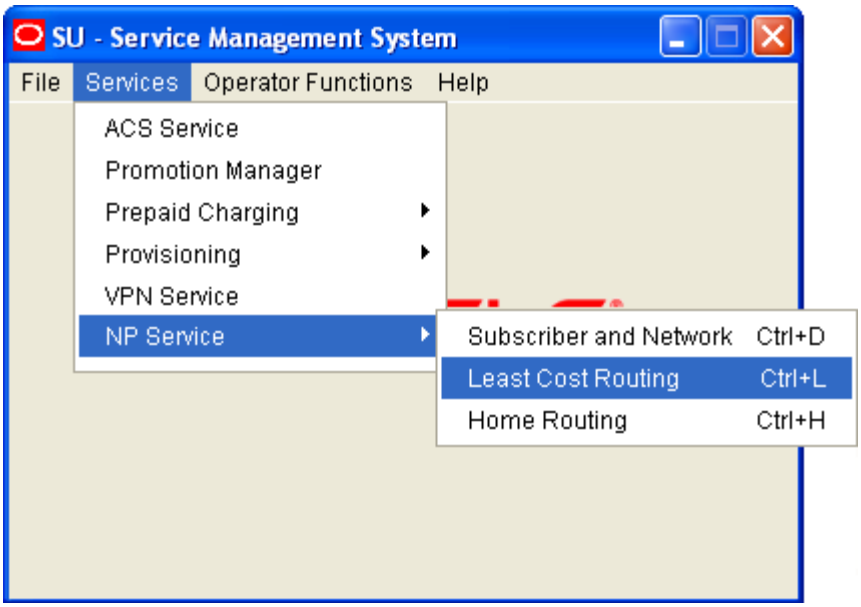
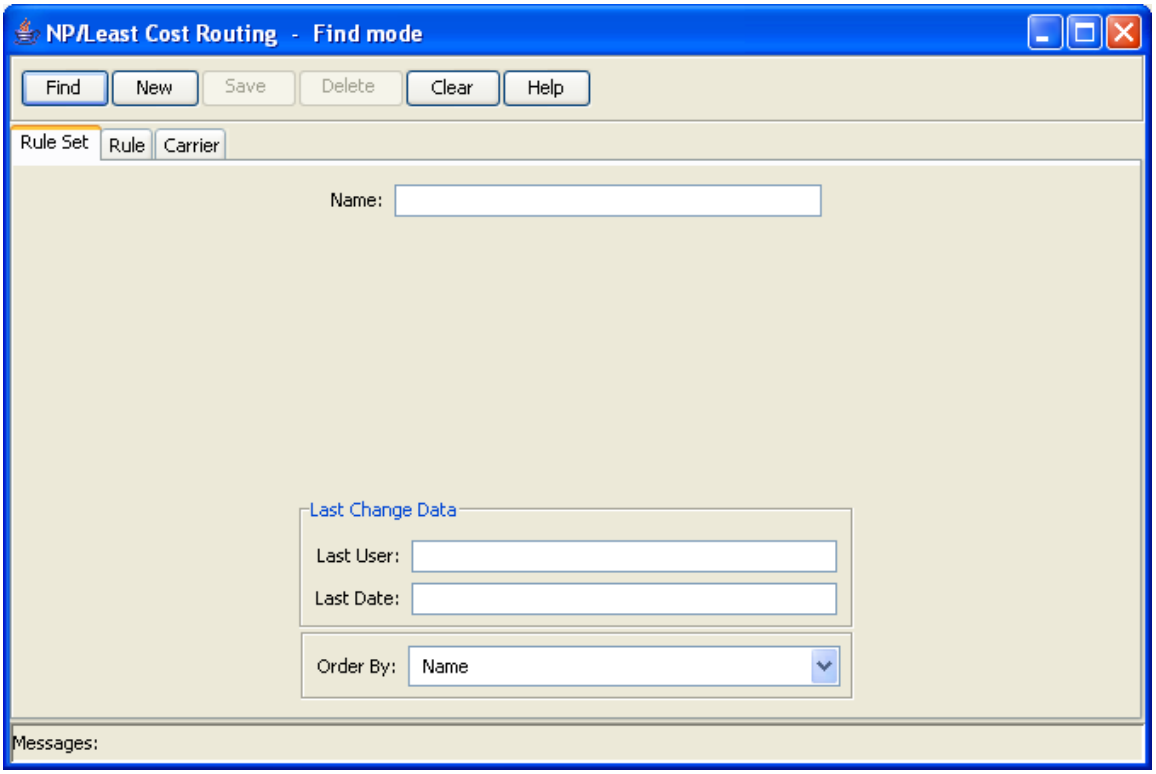
It contains the following tabs:

- Rule Set
- Rule
- Carrier

Accessing the Least Cost Routing screen

Follow these steps to access the Least Cost Routing screen.

Step	Action
1	Select **Services** from the SMS main screen.

Step	Action
2	Select **NP Service**. **Result:** You see the list of NP Service menu options. 
3	Select **Least Cost Routing**. **Result:** You see the **Rule Set** tab in the NP/Least Cost Routing screen in Find mode. 

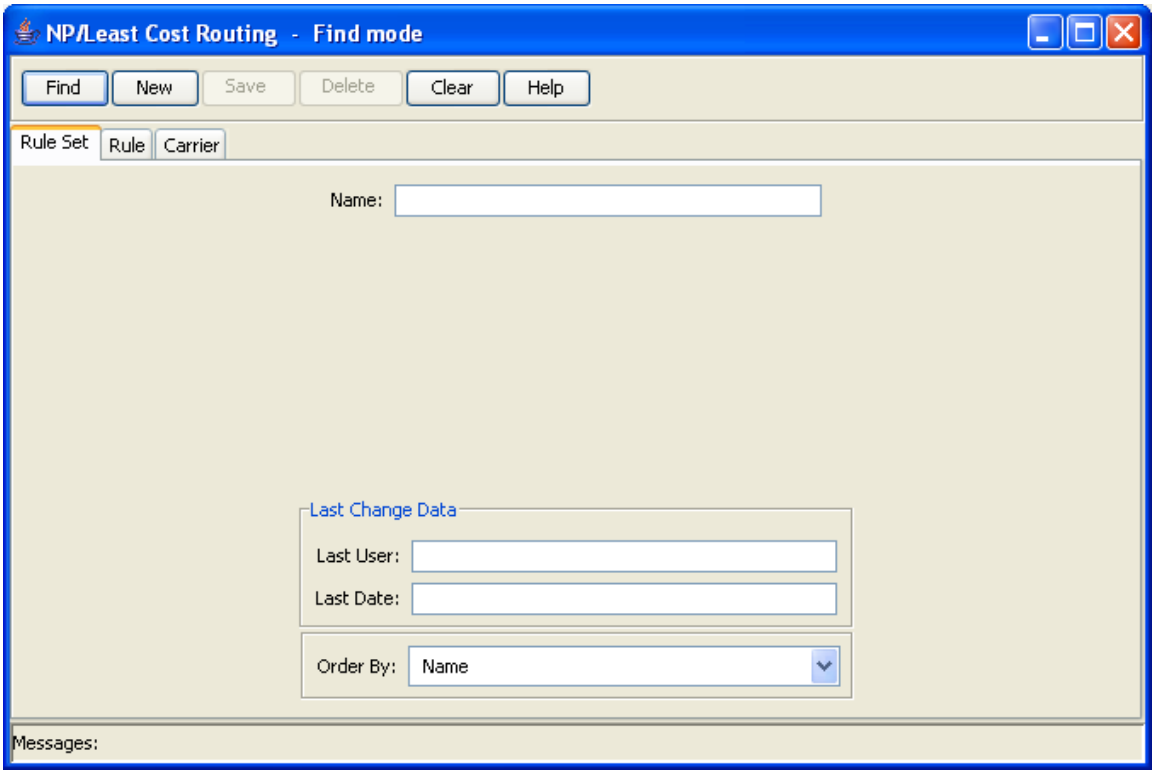
Rule Set

Introduction

You use the **Rule Set** tab to define the available rule sets for least cost routing.

Rule Set tab

Here is an example **Rule Set** tab in Find mode in the NP/Least Cost Routing screen.

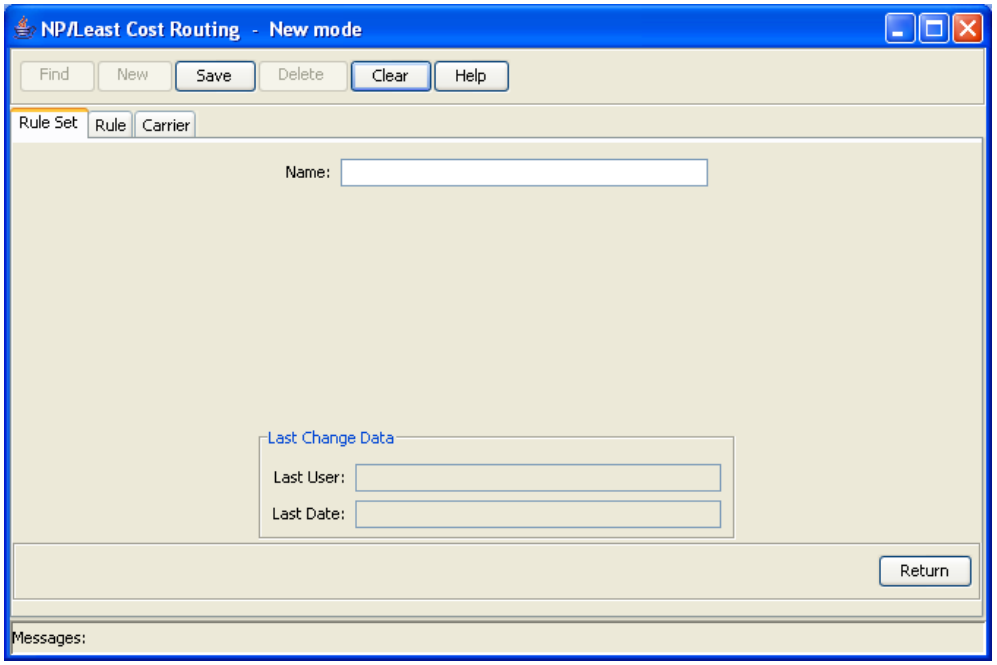


Adding a rule set

Follow these steps to Add a new rule set.

Step	Action
1	Select the **Rule Set** tab in the NP/Least Cost Routing - Find mode screen, and click **New**. **Result:** You see the **Rule Set** tab in New mode.

Step	Action



2 In the **Name** field, enter a unique name for the new rule set. The rule set name can be up to 30 alphanumeric characters long and is required.

3 Click **Save**.

4 Repeat steps 2 to 3 for each rule set to add.

Note: When you click **Save**, the saved values remain on the screen. You can create another new record by typing over these values and clicking **Save** again.

5 Click **Return** to go back to the previous screen.

Editing a rule set

Follow these steps to edit a rule set.

Step	Action
1	In Find mode, on the **Rule Set** tab, find and select the record to edit. For more information about finding and selecting rule sets, see *Finding a rule set* (on page 47). **Result:** The selected record appears in Update mode on the **Rule Set** tab.
2	Edit the details as described in *Adding a rule set* (on page 45).
3	Click **Save** then **Return** to save your changes and return to the previous screen.

Deleting a rule set

Follow these steps to delete a rule set.

Note: You cannot delete rule sets that are referenced elsewhere in the system, such as in Rule records.

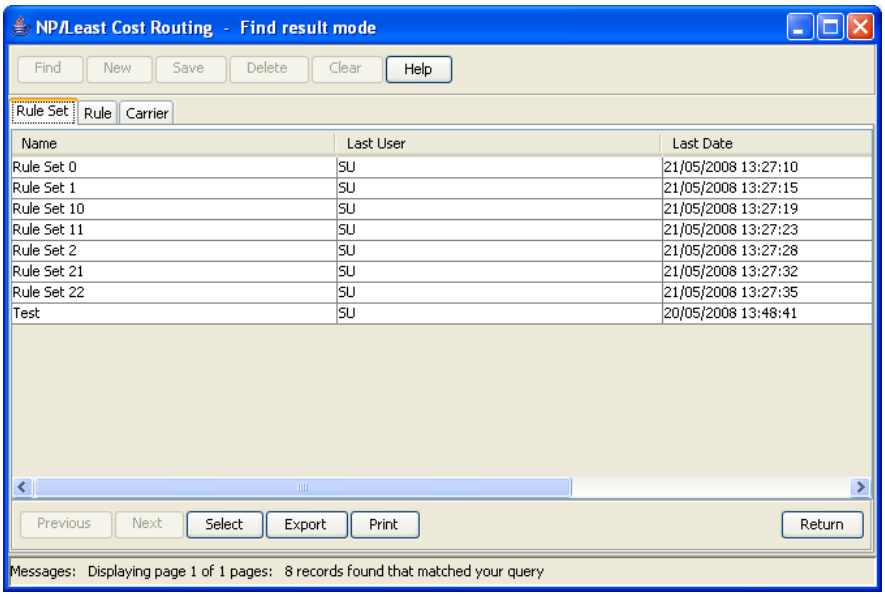
Step	Action
1	In Find mode, on the **Rule Set** tab, find and select the record to delete. For more information on finding and selecting rule sets, see *Finding a rule set* (on page 47).

Step	Action
2	Click **Delete**. **Result:** The Confirm Delete Record screen appears
3	Click **Yes** to confirm. **Result:** The record is removed from the database.
4	Click **Return** to return to the previous screen.

Finding a rule set

Follow these steps to search the database for a specific rule set.

Step	Action
1	Ensure you are in Find mode on the **Rule Set** tab.
2	Enter the selection criteria in one or more query fields and click **Find**. If a field is left empty, the search retrieves all instances of that field. **Result:** This triggers an Oracle Like% query that returns the first 100 records that begin with the selection criteria. For example, if you enter 123 in a query field, the system returns records such as 123, 1234, 12345. The results appear in the table on the Find result mode screen for the type of record you are querying. **Note:** The first 100 records entered in the database are displayed in no particular order. If you do not find the record you are searching for, conduct a more specific search.



3	To view a record in Update mode, highlight the record line and click **Select**.
4	To delete a record, highlight the record line and click **Delete**.

Rule

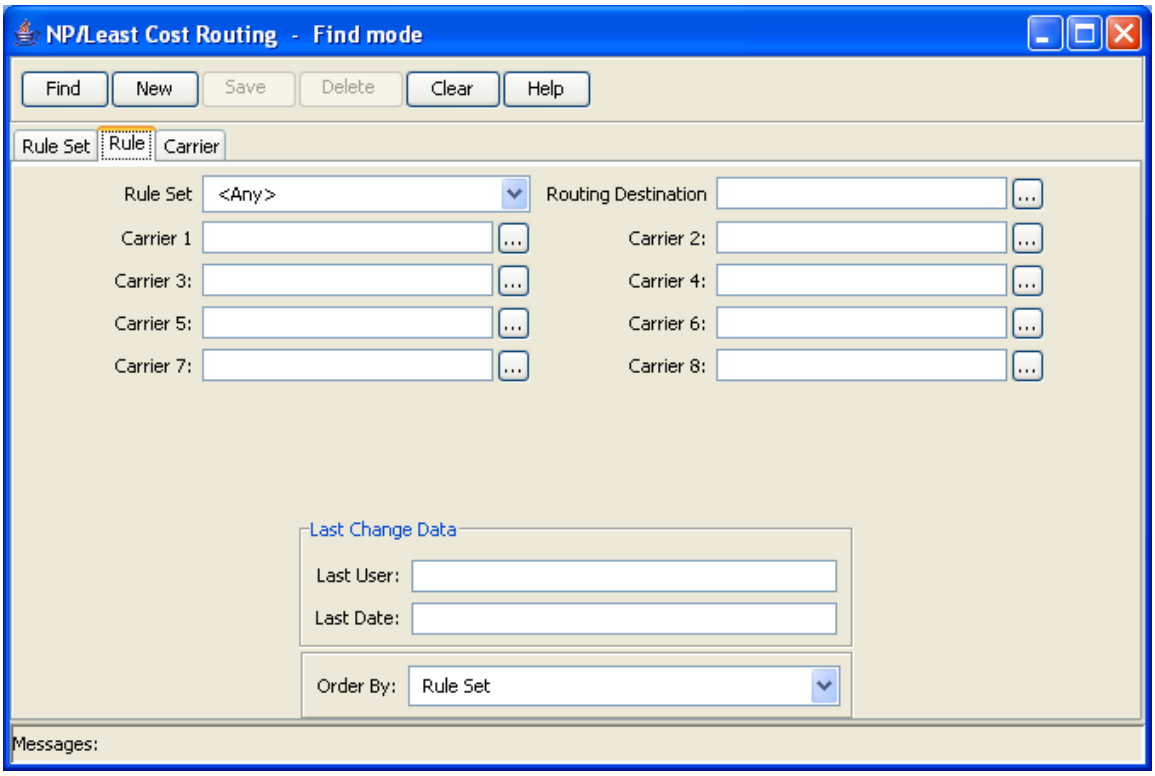
Introduction

You use the **Rule** tab to specify the rules associated with each rule set. You can specify more than one rule per rule set. Each rule consists of:

- Rule set itself
- List of carriers and the order in which they should be tried
- Routing destination

Rule tab

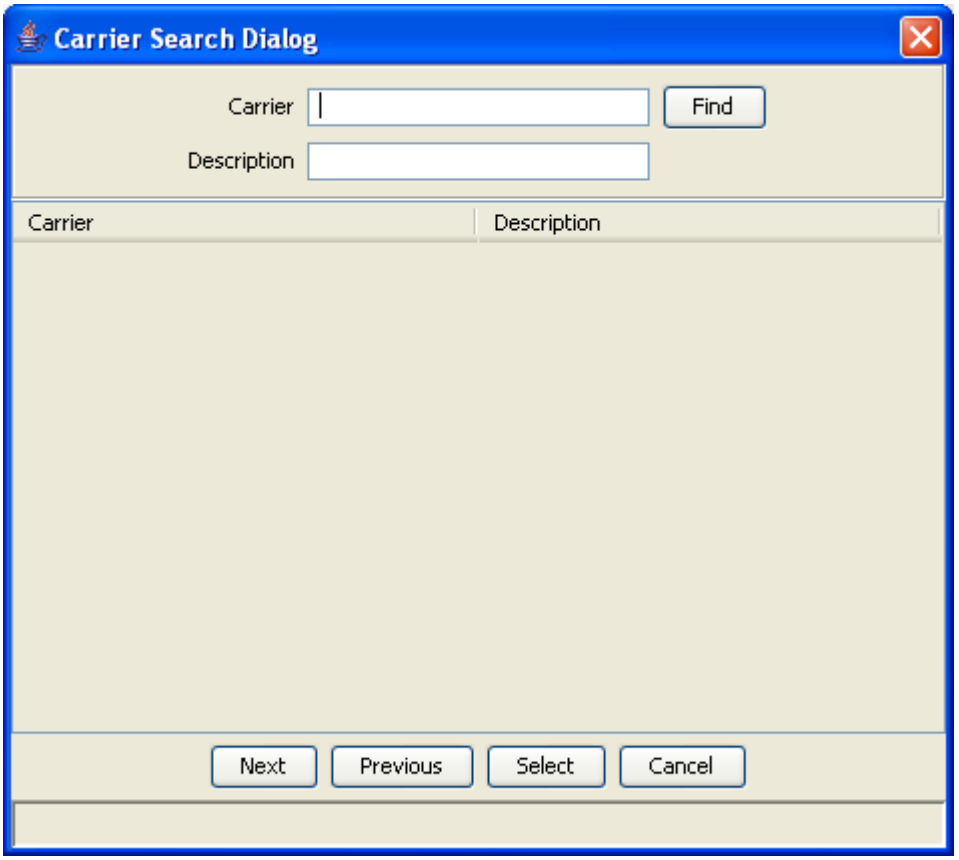
Here is an example **Rule** tab in Find mode in the NP/Least Cost Routing screen.



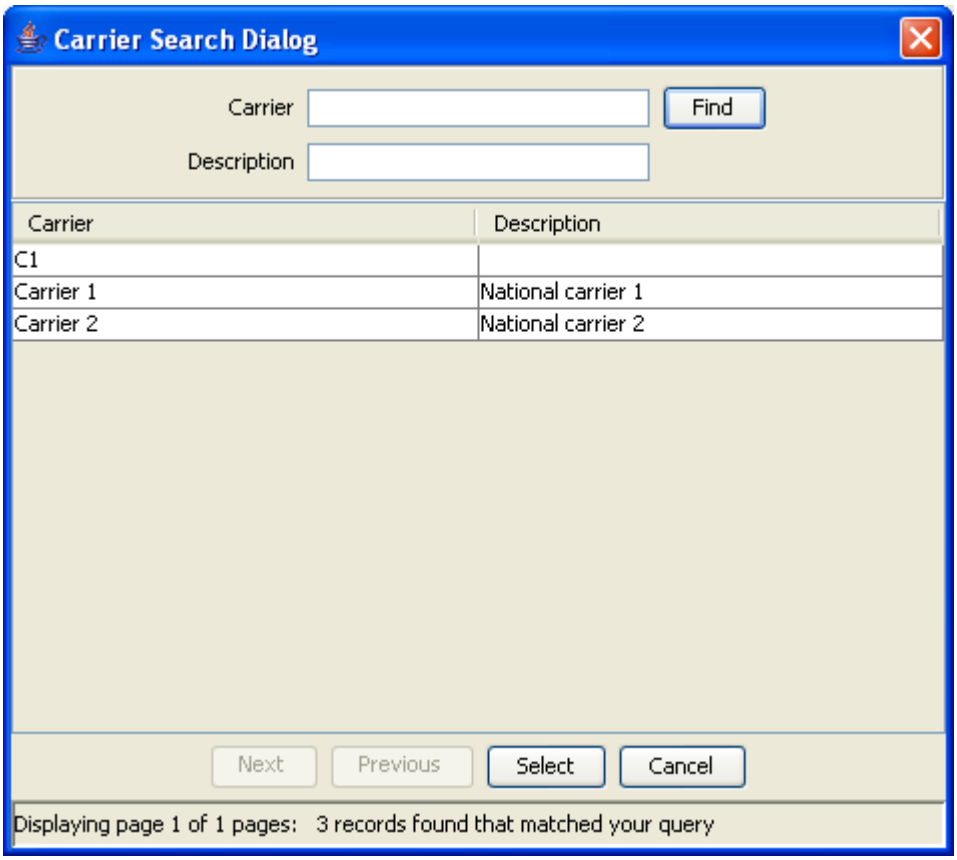
Using the Carrier Search Dialog

You can invoke the Carrier Search Dialog from the **Rule** tab in the Least Cost Routing screen in Find, New, or Update mode. You use it to find a carrier, when you do not know the carrier name.

Follow these steps to search for a carrier in the Carrier Search Dialog.

Step	Action
1	On the **Rule** tab, click the button to the right of the relevant **Carrier** field. **Result:** You see the Carrier Search Dialog. 
2	Enter the search criteria in the **Carrier** and **Description** query fields and click **Find**. If a field is left empty, then the search retrieves all instances of that field. **Result:** The search finds all the carriers that match the search criteria and displays them in a table in the Carrier Search Dialog.

Step	Action



3 To select the carrier you want, highlight it in the table and click **Select**.

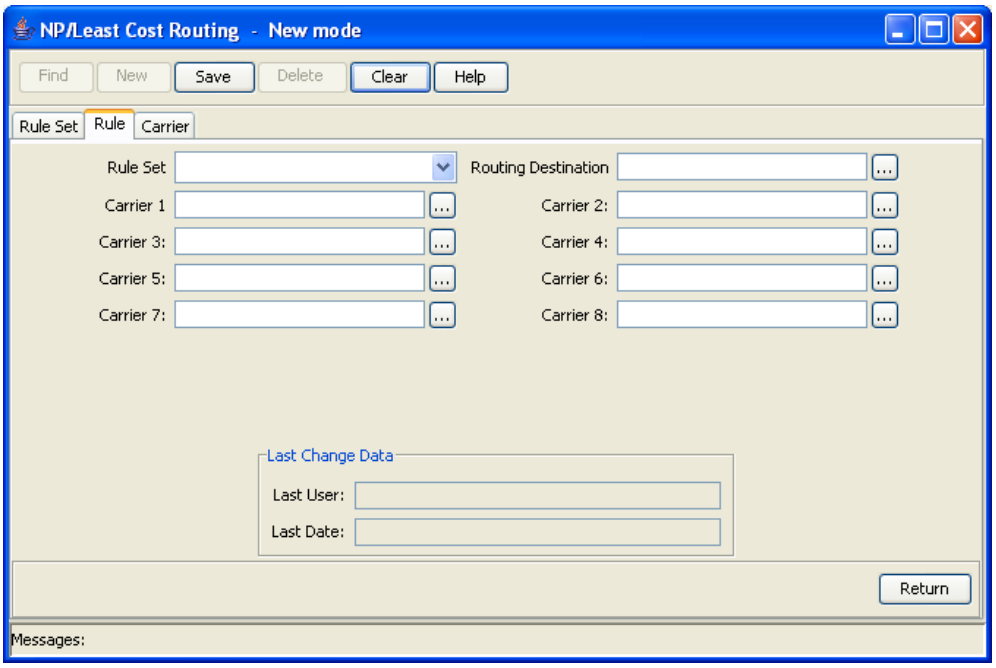
Result: You are returned to the **Rule** tab and the selected carrier name is inserted into relevant Carrier field.

Adding a rule

Follow these steps to Add a new rule to a rule set.

Step	Action
1	Select the **Rule** tab in the NP/Destination Selection - Find mode screen, and click **New**. **Result:** You see the **Rule** tab in New mode.

Step	Action



2 In the **Rule Set** field, select the rule set to assign the rule to.

3 In the **Routing Destination** field, enter the routing destination for the rule. You must enter a valid routing destination (one that already exists in the database).

Note: If you do not know the routing destination, you can click the button to the right of this field to search for it using the Routing Destination Search Dialog. See *Using the Routing Destination Search Dialog* (on page 13) for details.

4 In the **Carrier 1** field, enter the first carrier to try when the rule is invoked. This is a required field.

Note: You must enter a valid carrier (one that already exists in the database). To search for a carrier, click the button to the right of the Carrier field. See *Using the Carrier Search Dialog* (on page 48) for details.

5 In the other **Carrier** fields, enter the carriers to try, in the sequence in which they should be tried, if the first carrier is unavailable.

Note: You must supply at least one carrier.

6 Click **Save**.

7 Repeat steps 2 to 6 for each rule to add.

Note: When you click **Save**, the saved values remain on the screen. You can create another new record by typing over these values and clicking **Save** again.

8 Click **Return** to go back to the previous screen.

Editing a rule

Follow these steps to edit a rule.

Step	Action
1	In Find mode, on the **Rule** tab, find and select the record to edit. For more information on finding and selecting rule records, see *Finding a rule* (on page 52). **Result:** The selected record appears in Update mode on the Rule tab.
2	Edit the details as described in *Adding a rule* (on page 50).
3	Click **Save**, then **Return**, to save your changes and return to the previous screen.

Deleting a rule

Follow these steps to delete a rule.

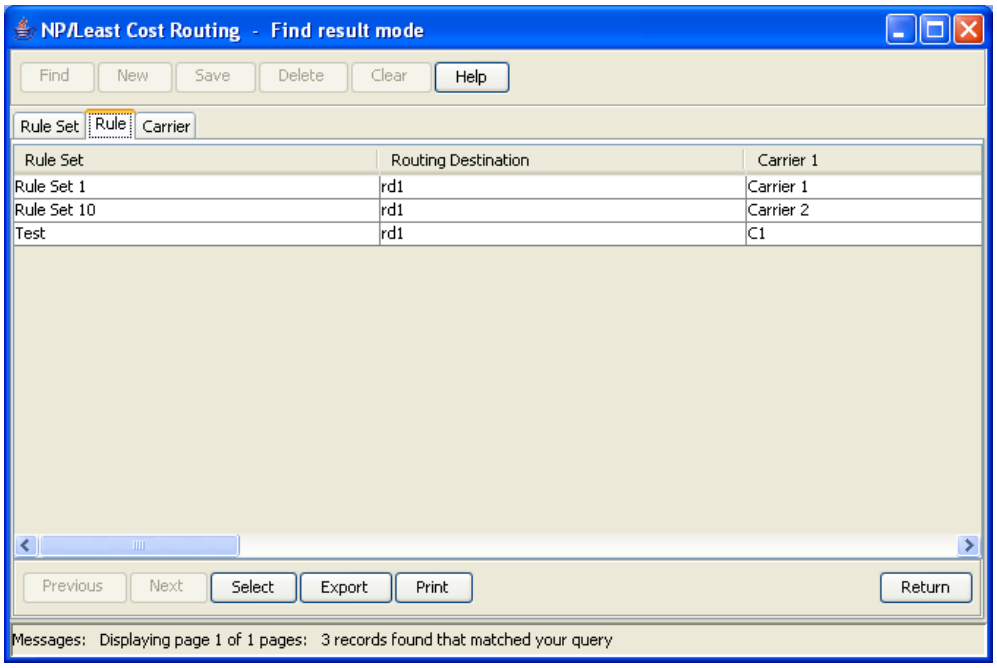
Step	Action
1	In Find mode, on the **Rule** tab, find and select the record to delete. For more information on finding and selecting rule records, see *Finding a rule* (on page 52).
2	Click **Delete**. **Result:** The Confirm Delete Record screen appears.
3	Click **Yes** to confirm. **Result:** The record is removed from the database.
4	Click **Return** to return to the previous screen.

Finding a rule

Follow these steps to search the database for a specific rule.

Step	Action
1	Ensure you are in Find mode on the **Rule** tab.
2	Enter the selection criteria in one or more query fields and click **Find**. If a field is left empty, then the search will retrieve all instances of that field. **Result:** This triggers an Oracle Like% query that returns the first 100 records that begin with the selection criteria. For example, if you enter 123 in a query field, the system will return records such as 123, 1234, 12345, ... The results appear in the table on the **Rule** tab in Find result mode. **Note:** These are the first 100 records entered in the database, and they display in no particular order. If you do not find the record you are searching for, you need to conduct a more specific search.

Step	Action



3 To view a record in Update mode, highlight the record line and click **Select**.

4 To delete a record, highlight the record line and click **Delete**.

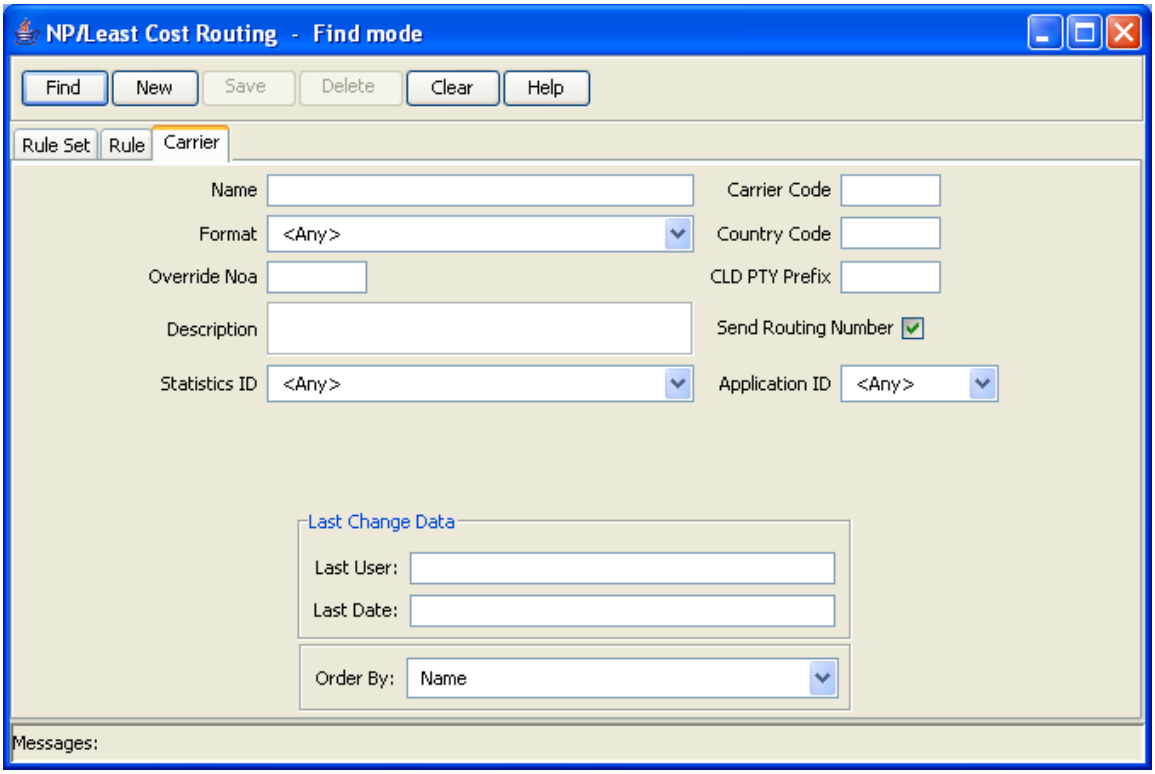
Carrier

Introduction

The **Carrier** tab allows you to define the carriers for least cost routing rules.

Carrier tab

Here is an example **Carrier** tab in Find mode in the NP/Least Cost Routing screen.

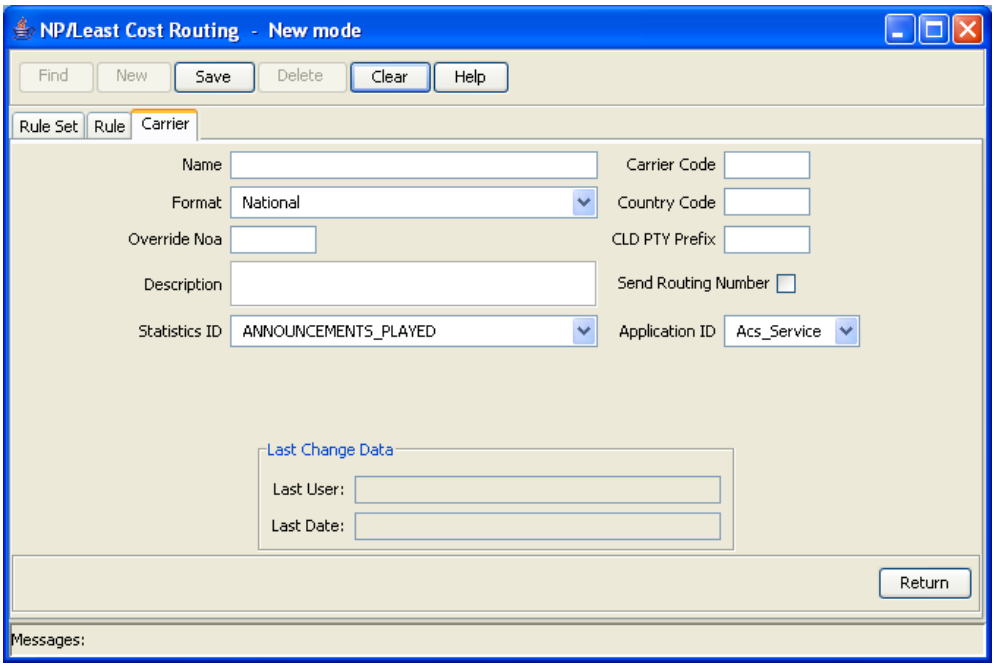


Adding a carrier

Follow these steps to add a new carrier.

Step	Action
1	Select the **Carrier** tab in the NP/Least Cost Routing - Find mode screen, and click **New**. **Result:** You see the Carrier tab in New mode.

Step	Action



2 In the **Name** field, enter a unique name for the new carrier. The carrier name can be up to 30 alphanumeric characters long and is required.

3 In the **Format** field select the preferred format for the carrier.

4 In the **Override Noa** field, enter the appropriate value. Valid values are a single digit in the range 0 through 7.

5 In the **Description** field, enter a description for the carrier, if required. The description can be up to 64 alphanumeric characters long.

In the **Statistics ID** field, select the relevant statistic.

4 In the **Carrier Code** field, enter the carrier code. The carrier code must be four characters long and is required.

5 In the **Country Code** field, enter the country code for the carrier. The country code can be up to four decimal digits long and is required.

6 In the **CLD PTY Prefix** field, enter the CLD PTY prefix if required. The CLD PTY prefix can be up to four hexadecimal digits long.

7 Select the **Send Routing Number** check box to send the routing number when using this carrier.

8 In the **Application ID** field, select the ID of the application used by the carrier.

9 Click **Save**.

10 Repeat steps 2 through 9 for each carrier to add.

Note: When you click **Save**, the saved values remain on the screen. You can create another new record by typing over these values and clicking **Save** again.

11 Click **Return** to go back to the previous screen.

Editing a carrier

Follow these steps to edit carrier details.

Step	Action
1	In Find mode, on the **Carrier** tab, find and select the record to edit. For more information on finding and selecting Carriers, see *Finding a carrier* (on page 56). **Result:** The selected record appears in Update mode on the **Carrier** tab.
2	Edit the details as described in *Adding a carrier* (on page 54).
3	Click **Save**, and then **Return**, to save your changes and return to the previous screen.

Deleting a carrier

Follow these steps to delete a Carrier.

Note: You cannot delete carriers that are referenced elsewhere in the system, such as in Rule records.

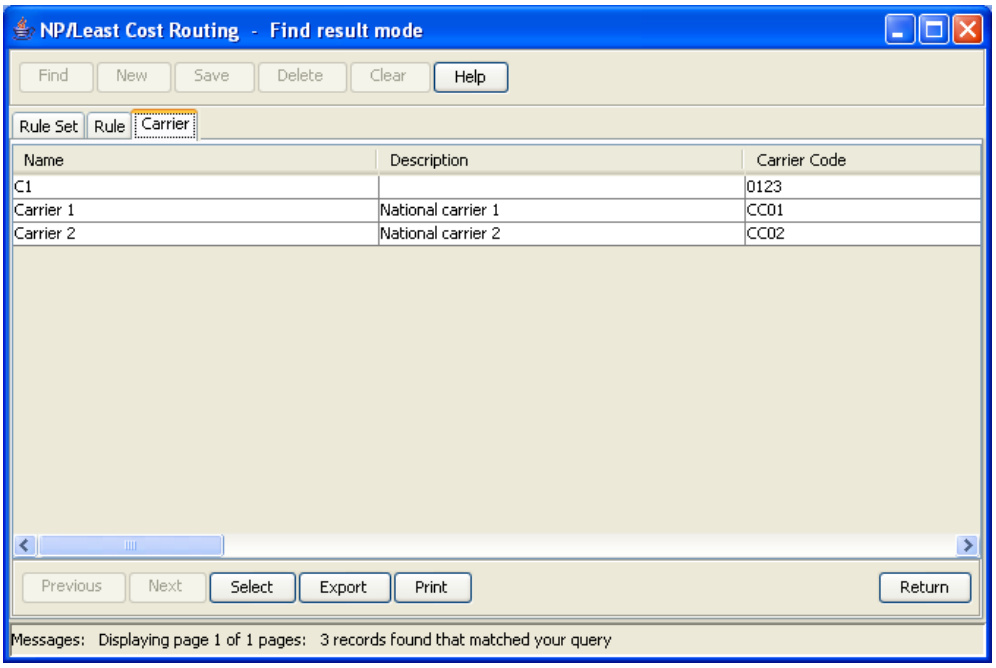
Step	Action
1	In Find mode, on the **Carrier** tab, find and select the record to delete. For more information on finding and selecting Carriers, see *Finding a carrier* (on page 56).
2	Click **Delete**. **Result:** The Confirm Delete Record screen appears.
3	Click **Yes** to confirm. **Result:** The record is removed from the database.
4	Click **Return** to return to the previous screen.

Finding a carrier

Follow these steps to search the database for a specific carrier.

Step	Action
1	Ensure you are on the **Carrier** tab in Find mode.
2	Enter the selection criteria in one or more query fields and click **Find**. If a field is left empty, then the search will retrieve all instances of that field. **Result:** This triggers an Oracle Like% query that returns the first 100 records that begin with the selection criteria. For example, if you enter 123 in a query field, the system will return records such as 123, 1234, 12345, ... The results appear in the table on Carrier tab in Find result mode. **Note:** These are the first 100 records entered in the database, and they display in no particular order. If you do not find the record you are searching for, you need to conduct a more specific search.

Step	Action



3 To view a record in Update mode, highlight the record line and click **Select**.

4 To delete a record, highlight the record line and click **Delete**.

Chapter 5

Home Routing

Overview

Introduction

This chapter explains how to define home routing destinations.

In this chapter

This chapter contains the following topics.

Home Routing Screen 59
Home Routing 61
Home Routing Search 64

Home Routing Screen

Introduction

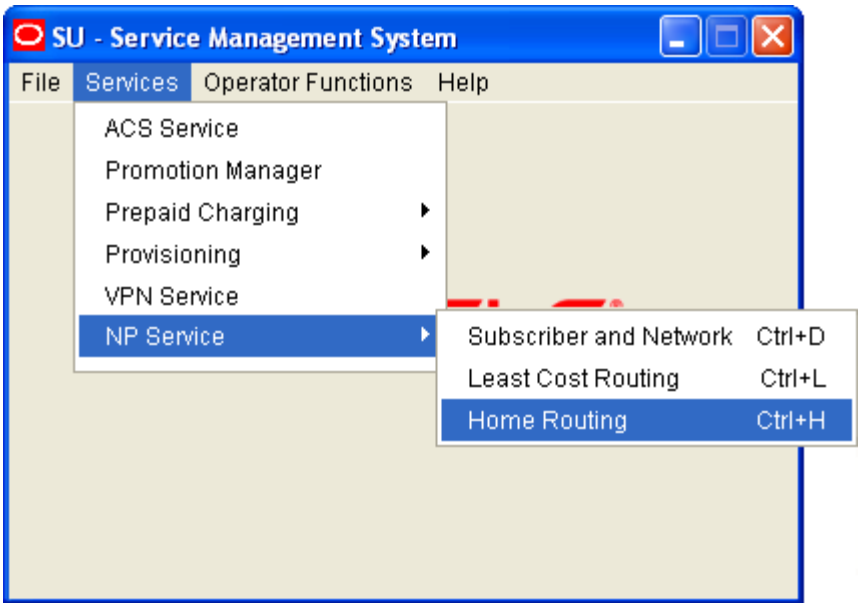
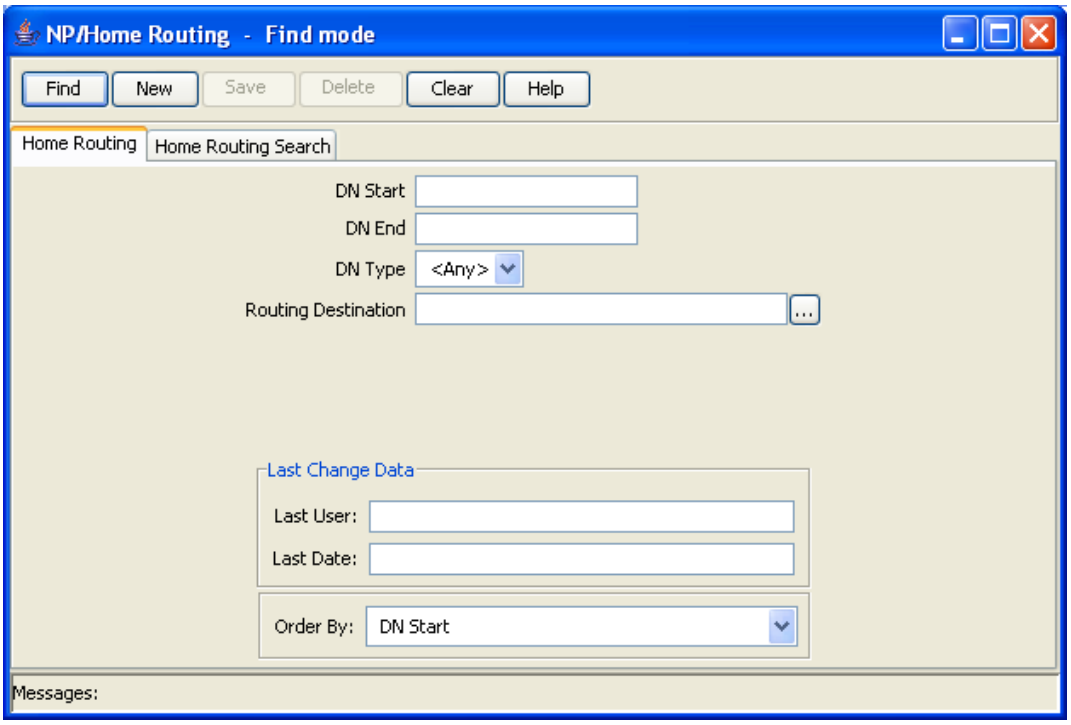
The NP/Home Routing screen allows you to define the range of called numbers and routing destinations for calls within the network. It also allows you to search for home routing. It contains the following tabs:

- Home Routing
- Home Routing Search

Accessing the Home Routing screen

Follow these steps to access the Home Routing screen.

Step	Action
1	Select **Services** from the SMS main screen.

Step	Action
2	Select **NP Service**. **Result:** You see the list of NP Service menu options. 
3	Select **Home Routing**. **Result:** You see the **Home Routing** tab on the NP/Home Routing screen in Find mode. 

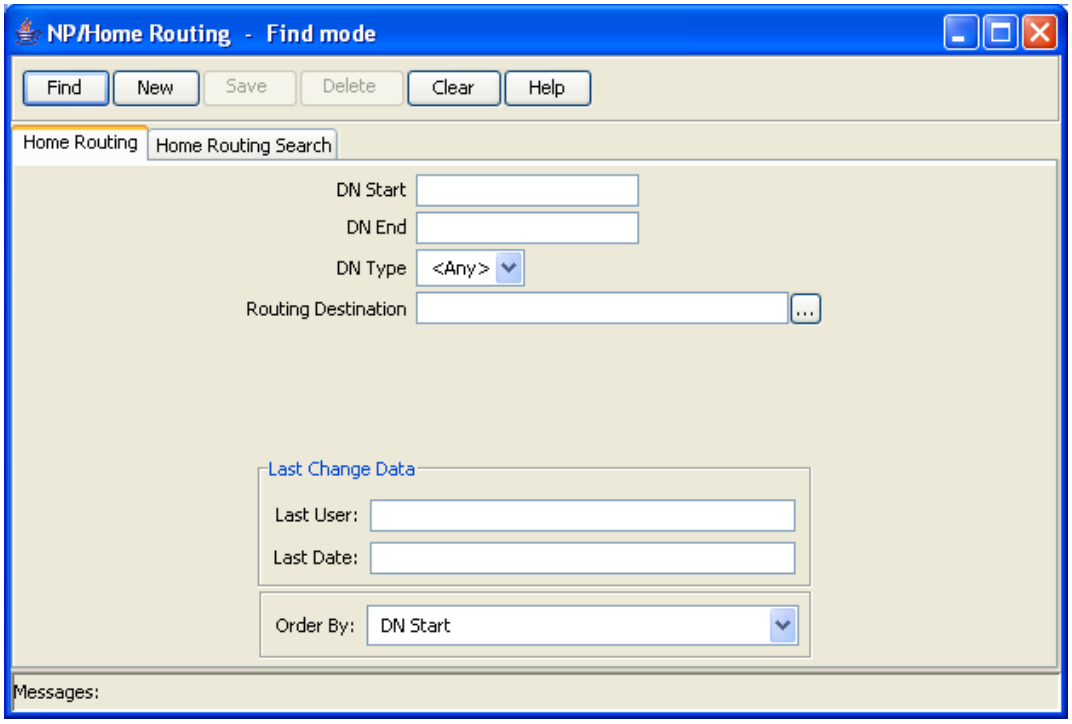
Home Routing

Introduction

You use the **Home Routing** tab to define the range of called numbers and routing destinations for calls within your network.

Home Routing tab

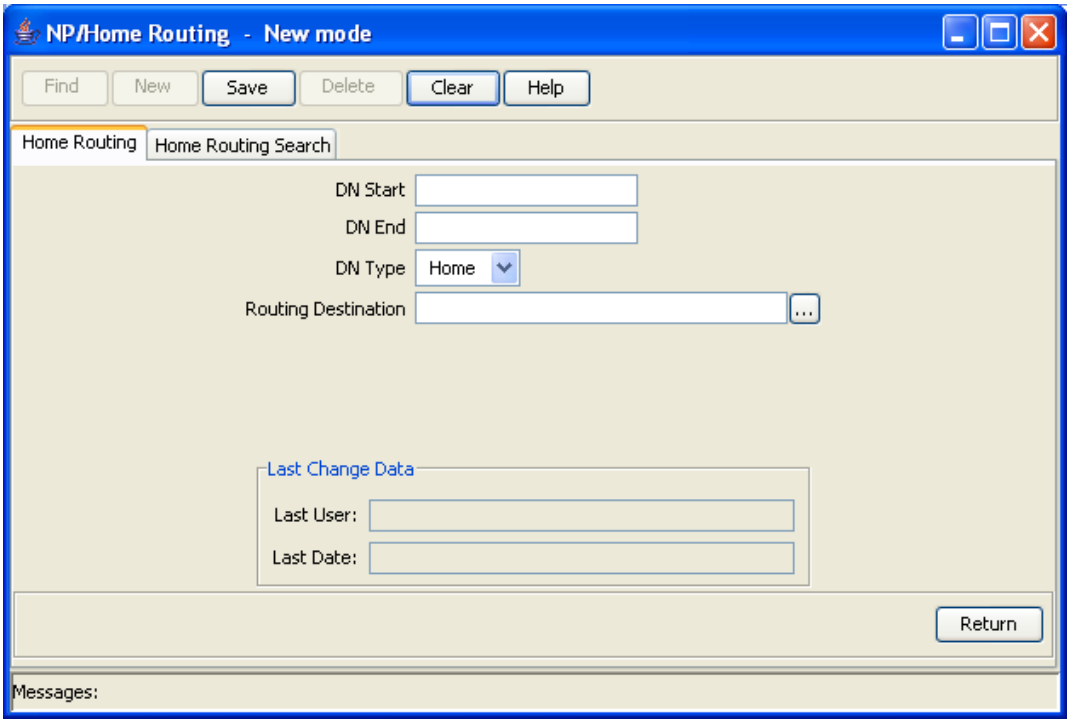
Here is an example **Home Routing** tab in Find mode in the NP/Home Routing screen.



Adding a home routing

Follow these steps to Add a new home routing definition.

Note: When specifying the DN Start and DN End fields, you must enter a range that does not overlap an existing DN range.

Step	Action
1	Select the **Home Routing** tab in the NP/Home Routing - Find mode screen, and click **New**. **Result:** You see the **Home Routing** tab in New mode. 
2	In the **DN Start** field enter the start number for the DN range. The DN Start number must be between four and 18 digits long, and is required.
3	In the **DN End** field enter the end number for the DN range. The DN End number must be greater than the DN Start number, and the same length. It is a required field.
4	In the **DN Type** field, select one of the following: • HOME - for destinations within your network • SPECIAL - for called numbers outside the network with special status
5	In the **Routing Destination** field, enter the routing destination. It is a required field. **Note**: If you do not know the routing destination, click the button to the right of this field to search for it using the Routing Destination Search Dialog. See *Using the Routing Destination Search Dialog* (on page 13) for details.
6	Click **Save**.
7	Repeat steps 2 through 6 for each home routing to add. **Note:** When you click **Save**, the saved values remain on the screen. You can create another new record by typing over these values and clicking **Save** again.
8	Click **Return** to go back to the previous screen.

Editing a home routing

Follow these steps to edit a home routing definition.

Step	Action
1	In Find mode, on the **Home Routing** tab, find and select the record to edit. For more information on finding and selecting home routing records, see *Finding a home routing record* (on page 63). **Result:** The selected record appears in Update mode on the Home Routing tab.
2	Edit the details as described in *Adding a home routing* (on page 61).
3	Click **Save**, and then **Return**, to save your changes and return to the previous screen.

Deleting a home routing

Follow these steps to delete a home routing.

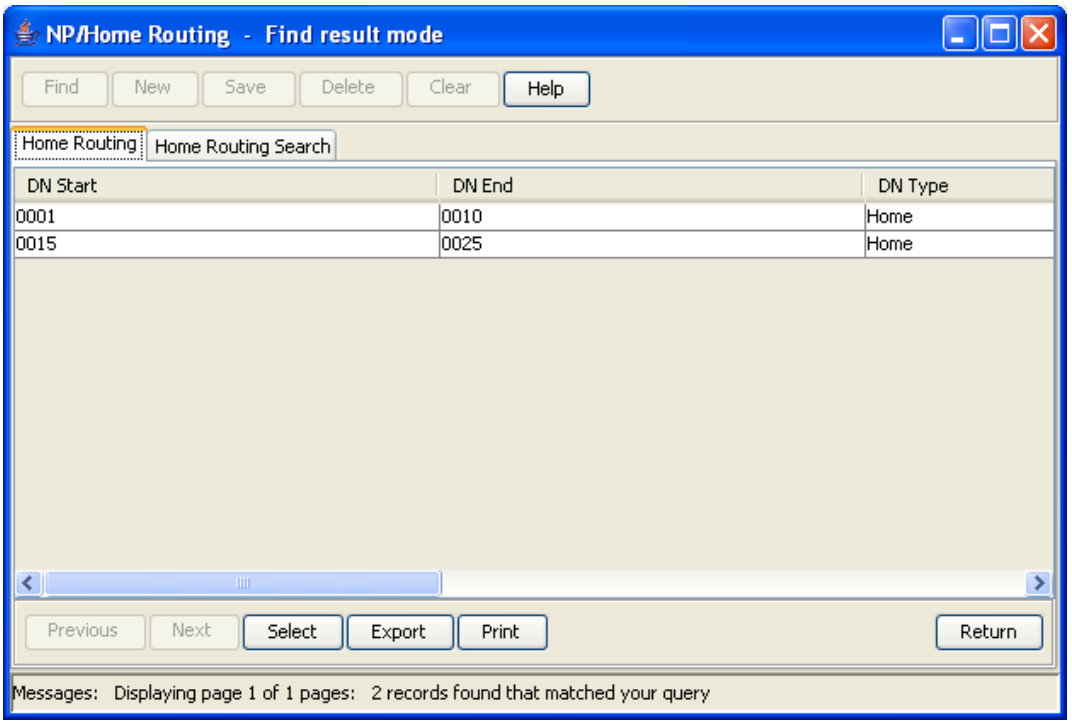
Step	Action
1	In Find mode, on the **Home Routing** tab, find and select the record to delete. For more information on finding and selecting home routing records, see *Finding a home routing record* (on page 63).
2	Click **Delete**. **Result:** The Confirm Delete Record screen appears.
3	Click **Yes** to confirm. **Result:** The record is removed from the database.
4	Click **Return** to return to the previous screen.

Finding a home routing record

Follow these steps to search the database for a specific home routing record.

Step	Action
1	Ensure you are in Find mode on the **Home Routing** tab.
2	Enter the selection criteria in one or more query fields and click **Find**. If a field is left empty, the search retrieves all instances of that field. **Result:** This triggers an Oracle Like% query that returns the first 100 records that begin with the selection criteria. For example, if you enter 123 in a query field, the system returns records such as 123, 1234, 12345, ... The results appear in the table on **Home Routing** tab in Find result mode.

Step	Action



Note: The first 100 records entered in the database are displayed in no particular order. If you do not find the record you are searching for, conduct a more specific search.

2 To view a record in Update mode, highlight the record line and click **Select**.

Result: You see the record details on the tab for the selected record type, in Update mode.

3 To delete a record, highlight the record line and click **Delete**.

Home Routing Search

Introduction

You use the **Home Routing Search** tab to find the home routing details for a specified number.

Home Routing Search tab

Here is an example **Home Routing Search** tab in the NP/Home Routing screen.

Finding home routing details

Follow these steps to find the home routing details for a specified number.

Step	Action
1	Select the **Home Routing Search** tab in the NP/Home Routing screen.
2	In the **Find Number** field, enter the number for which to find home routing details and click **Find**. **Result:** If home routing has been defined for a DN range that includes the specified find number, the details are displayed in the screen. Otherwise, `No match found` is displayed.

Glossary of Terms

ACS

Advanced Control Services configuration platform.

AS

Application Server. The logical entity serving a SUA routing key. An AS is equivalent to an SS7 end point (for example, HLR, MSC,…). An AS contains, at least, one ASP.

Convergent

Also “convergent billing”. Describes the scenario where post-paid and pre-paid calls are handed by the same service platform and the same billing system. Under strict converged billing, post-paid subscribers are essentially treated as “limited credit pre-paid”.

CPE

Control Plan Editor (previously Call Plan Editor) - software used to define the logic and data associated with a call -for example, "if the subscriber calls 0800 *nnnnnn* from a phone at location *xxx* then put the call through to *bb bbb bbbb*".

cron

Unix utility for scheduling tasks.

DTMF

Dual Tone Multi-Frequency - system used by touch tone telephones where one high and one low frequency, or tone, is assigned to each touch tone button on the phone.

GPRS

General Packet Radio Service - employed to connect mobile cellular users to PDN (Public Data Network- for example the Internet).

GUI

Graphical User Interface

HLR

The Home Location Register is a database within the HPLMN (Home Public Land Mobile Network). It provides routing information for MT calls and SMS. It is also responsible for the maintenance of user subscription information. This is distributed to the relevant VLR, or SGSN (Serving GPRS Support Node) through the attach process and mobility management procedures such as Location Area and Routing Area updates.

HPLMN

Home PLMN

IN

Intelligent Network

IP

1) Internet Protocol

2) Intelligent Peripheral - This is a node in an Intelligent Network containing a Specialized Resource Function (SRF).

MAP

Mobile Application Part - a protocol which enables real time communication between nodes in a mobile cellular network. A typical usage of the protocol would be for the transfer of location information from the VLR to the HLR.

Messaging Manager

The Messaging Manager service and the Short Message Service components of Oracle Communications Convergent Charging Controller product. Component acronym is MM (formerly MMX).

MM

Messaging Manager. Formerly MMX, see also *XMS* (on page 69) and *Messaging Manager* (on page 68).

MNP

Mobile Number Portability

MS

Mobile Station

MT

Mobile Terminated

NP

Number Portability

PI

Provisioning Interface - used for bulk database updates/configuration instead of GUI based configuration.

PLMN

Public Land Mobile Network

SGSN

Serving GPRS Support Node

SLC

Service Logic Controller (formerly UAS).

SMS

Depending on context, can be:

- Service Management System hardware platform
- Short Message Service
- Service Management System platform
- Convergent Charging Controller Service Management System application

SN

Service Number

SRF

Specialized Resource Function – This is a node on an IN which can connect to both the SSP and the SLC and delivers additional special resources into the call, mostly related to voice data, for example play voice announcements or collect DTMF tones from the user. Can be present on an SSP or an Intelligent Peripheral (IP).

SSP

Service Switching Point

Switching Point

Anything that can send and receive C7 messages.

URI

Uniform Resource Identifier.

VLR

Visitor Location Register - contains all subscriber data required for call handling and mobility management for mobile subscribers currently located in the area controlled by the VLR.

XMS

Three letter code used to designate some components and path locations used by the Oracle Communications Convergent Charging Controller *Messaging Manager* (on page 68) service and the Short Message Service. The published code is *MM* (on page 68) (formerly MMX).

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