

Oracle® Communications Network Charging and Control Subscriber Event Service Help



Release 15.0.0
F83510-01
October 2023

The Oracle logo, consisting of a solid red square with the word "ORACLE" in white, uppercase, sans-serif font centered within it.

ORACLE®

Copyright © 2023, Oracle and/or its affiliates.

This software and related documentation are provided under a license agreement containing restrictions on use and disclosure and are protected by intellectual property laws. Except as expressly permitted in your license agreement or allowed by law, you may not use, copy, reproduce, translate, broadcast, modify, license, transmit, distribute, exhibit, perform, publish, or display any part, in any form, or by any means. Reverse engineering, disassembly, or decompilation of this software, unless required by law for interoperability, is prohibited.

The information contained herein is subject to change without notice and is not warranted to be error-free. If you find any errors, please report them to us in writing.

If this is software, software documentation, data (as defined in the Federal Acquisition Regulation), or related documentation that is delivered to the U.S. Government or anyone licensing it on behalf of the U.S. Government, then the following notice is applicable:

U.S. GOVERNMENT END USERS: Oracle programs (including any operating system, integrated software, any programs embedded, installed, or activated on delivered hardware, and modifications of such programs) and Oracle computer documentation or other Oracle data delivered to or accessed by U.S. Government end users are "commercial computer software," "commercial computer software documentation," or "limited rights data" pursuant to the applicable Federal Acquisition Regulation and agency-specific supplemental regulations. As such, the use, reproduction, duplication, release, display, disclosure, modification, preparation of derivative works, and/or adaptation of i) Oracle programs (including any operating system, integrated software, any programs embedded, installed, or activated on delivered hardware, and modifications of such programs), ii) Oracle computer documentation and/or iii) other Oracle data, is subject to the rights and limitations specified in the license contained in the applicable contract. The terms governing the U.S. Government's use of Oracle cloud services are defined by the applicable contract for such services. No other rights are granted to the U.S. Government.

This software or hardware is developed for general use in a variety of information management applications. It is not developed or intended for use in any inherently dangerous applications, including applications that may create a risk of personal injury. If you use this software or hardware in dangerous applications, then you shall be responsible to take all appropriate fail-safe, backup, redundancy, and other measures to ensure its safe use. Oracle Corporation and its affiliates disclaim any liability for any damages caused by use of this software or hardware in dangerous applications.

Oracle®, Java, and MySQL are registered trademarks of Oracle and/or its affiliates. Other names may be trademarks of their respective owners.

Intel and Intel Inside are trademarks or registered trademarks of Intel Corporation. All SPARC trademarks are used under license and are trademarks or registered trademarks of SPARC International, Inc. AMD, Epyc, and the AMD logo are trademarks or registered trademarks of Advanced Micro Devices. UNIX is a registered trademark of The Open Group.

This software or hardware and documentation may provide access to or information about content, products, and services from third parties. Oracle Corporation and its affiliates are not responsible for and expressly disclaim all warranties of any kind with respect to third-party content, products, and services unless otherwise set forth in an applicable agreement between you and Oracle. Oracle Corporation and its affiliates will not be responsible for any loss, costs, or damages incurred due to your access to or use of third-party content, products, or services, except as set forth in an applicable agreement between you and Oracle.

Contents

1 SES Configuration Screens

Messages	1-1
Messages tab columns	1-1
Adding new messages	1-2
Editing messages	1-2
Deleting messages	1-3
Inbound General Messages	1-3
Inbound general messages tab columns	1-3
Adding new inbound general messages	1-3
Editing inbound general messages	1-4
Deleting inbound general messages	1-4
Inbound Messages	1-4
Inbound messages tab columns	1-5
Adding new inbound messages	1-5
Editing inbound messages	1-5
Deleting inbound messages	1-6
Outbound General Messages	1-6
Outbound general messages tab columns	1-6
Adding new outbound general messages	1-6
Editing outbound general messages	1-7
Deleting outbound general messages	1-7
Outbound Messages	1-7
Outbound messages tab columns	1-7
Adding new outbound messages	1-8
Editing outbound messages	1-8
Deleting outbound messages	1-9
Trigger Rules	1-9
Adding new trigger rules	1-10
Editing trigger rules	1-11
Deleting trigger rules	1-11
Contact History	1-12
Contact tab columns	1-12

2 Using SES Feature Nodes

In-Roamer Contact Check	2-1
Node exits - In-Roamer Contact Check	2-1
Using the node - In-Roamer Contact Check	2-1
Configuring the node - In-Roamer Contact Check	2-2
In-Roamer Messages Selection	2-2
Node exits - In-Roamer Messages Selection	2-2
Using the node - In-Roamer Messages Selection	2-2
Editing the node - In-Roamer Messages Selection	2-2
Out-Roamer Contact Check	2-3
Node exits - Out-Roamer Contact Check	2-3
Using the node - Out-Roamer Contact Check	2-3
Configuring the node - Out-Roamer Contact Check	2-3
Out-Roamer Messages Selection	2-3
Node exits - Out-Roamer Messages Selection	2-4
Using the node - Out-Roamer Messages Selection	2-4
Configuring the node - Out-Roamer Messages Selection	2-4

1

SES Configuration Screens

This chapter explains the functions of each SES configuration screen.

The topics are presented in the recommended sequence of configuration.

This chapter contains the following topics.

[Messages](#)

[Inbound General Messages](#)

[Inbound Messages](#)

[Outbound General Messages](#)

[Outbound Messages](#)

[Trigger Rules](#)

[Contact History](#)

Messages

This tab is enables you to configure all the messages available within SES, including their availability dates and whether they are priority or not. You must add messages using this tab first, so that they will be available on the other message tabs.

There are two types of messages that a handset roaming into or out of the network can receive:

- General messages: those that can be sent to any handset
- Messages: those that can be sent to country and network specific handsets

Messages tab columns

This table describes the content of each column.

Field	Description
Name	A user friendly message name.
Priority	Indicates if this message is priority or not priority. Note: Priority messages are always looked at first to fulfill the number to send parameter. See In-Roamer Messages Selection and Out-Roamer Messages Selection .
Active	When the message was (will be) available for selection.
Expiry	When the message was (will be) unavailable for selection.

Field	Description
Last Updated	Date and time stamp for the last update to this message.
By	Username of user that made the last update.

Note: The Activity, Expiry and Last Updated times are in relation to the time zone configured for SMS. (See *Service Management System Technical Guide*).

Adding new messages

Follow these steps to add new messages.

1. Select the **Messages** tab.
Result: The current messages are listed.
2. Click **New...**
Result: The New Message screen appears.
3. Enter a message **Name**. This name should be meaningful and descriptive for a user, for example "Free texting".
4. Select the **Priority** check box, if required, to make this a priority message. This means it will be selected before non-priority messages.
5. To:
 - Set an availability date and time for this message, select the **Active** check box.
Result: The **Wait until** date and time boxes become available. Enter or select the relevant values.
 - Make the message available immediately, deselect the **Active** check box.
6. To:
 - Set an expiry date and time for this message, select the **Expiry** check box.
Result: The **Expires on** date and time boxes become available. Enter or select the relevant values.
 - Make the message never expire, deselect the **Expiry** check box. It can be edited later if required.
7. Enter the text of the message that will be sent to a subscriber.
Tip: The maximum message length is 120 ASCII characters.
Result: The **Save** button becomes available.
8. Click **Save**.

Related topic

[Messages](#)

Editing messages

Follow these steps to edit messages.

1. Select the **Messages** tab.
Result: The current messages are listed.
2. In the table, select the message to edit.
3. Click **Edit...**
Result: The Edit Message screen appears.
4. Make the required changes to the fields, as described in [Adding new messages](#).
5. Click **Save**.

Related topic[Messages](#)

Deleting messages

Follow these steps to delete messages.

1. Select the **Messages** tab.
Result: The current messages are listed.
2. In the table, select the message to delete.
Warning: You should only delete messages that have expired.
Expired messages are automatically deleted by dbCleanup after a configured number of days.
3. Click **Delete...**
Result: The Delete Message confirmation screen appears.
4. Click **Delete**.

Inbound General Messages

This tab allows you to set up the available messages that can be sent to any subscriber inbound to the network, as against messages that are matched on country and network codes.

Inbound general messages tab columns

This table describes the content of each column.

Field	Description
Message	The message name.
Last Updated	Date and time stamp for the last update to this message (SMS time zone value).
By	Username of user that made the last update.

Adding new inbound general messages

Follow these steps to add new inbound general messages.

1. Select the **Inbound General Messages** tab.

Result: The current inbound general messages are listed.

2. Click **New...**

Result: The New Inbound General Message screen appears.

3. Select the required **Message** from the drop down list.

Tip: This is the list of messages maintained on the **Messages** tab.

4. Click **Save**.

Related topic

[Inbound General Messages](#)

Editing inbound general messages

Follow these steps to change an existing inbound general message.

1. Select the **Inbound General Messages** tab.

Result: The current inbound general messages are listed.

2. In the table, select the message to edit.

3. Click **Edit...**

Result: The Edit Inbound General Message screen appears.

4. Select the required **Message** from the drop down list.

5. Click **Save**.

Related topic

[Inbound General Messages](#)

Deleting inbound general messages

Follow these steps to delete inbound general messages.

1. Select the **Inbound General Messages** tab.

Result: The current inbound general messages are listed.

2. In the table, select the message to delete.

3. Click **Delete....**

Result: The Delete Inbound General Message screen appears.

4. Click **Delete**.

Related topic

[Inbound General Messages](#)

Inbound Messages

This tab allows you to set up the available messages that can be sent to a subscriber inbound to the network from a specific country and network, as against general messages that are not matched on country and network codes.

Inbound messages tab columns

This table describes the content of each column.

Field	Description
Country	The country code the subscriber has just roamed from.
Network	The network the subscriber has just roamed from.
Message	The message name.
Last Updated	Date and time stamp for the last update to this message (SMS time zone value).
By	Username of user that made the last update.

Adding new inbound messages

Follow these steps to add new inbound messages.

1. Select the **Inbound Messages** tab.
Result: The current inbound messages are listed.
2. Click **New...**
Result: The New Inbound Network Specific Message screen appears.
3. Enter the **Country Code** (MCC) to associate with the message.
4. Enter the **Network Code** (MNC) to associate with the message.
Warning: You must input the code with the correct number of leading zeroes, for example 01 (2-digit MNC), or 123 (3 digit MNC)
Result: The **Save** button becomes available.
5. Select the **Message** to associate with the Country and Network Code from the drop down list.
Tip: This is the list of messages maintained on the **Messages** tab.
6. Click **Save**.
Note: For a list of MCC and MNC, refer to ITU E.212 ("Land Mobile Numbering Plan") documentation.

Related topic

[Inbound Messages](#)

Editing inbound messages

Follow these steps to edit an existing inbound message.

1. Select the **Inbound Messages** tab.
Result: The current inbound messages are listed.
2. In the table, select the Inbound Message to edit.
3. Click **Edit...**

Result: The Edit Inbound Network Specific Message screen appears.

4. Make the required changes to the fields, as described in [Adding new inbound messages](#).
5. Click **Save**.

Related topic

[Inbound Messages](#)

Deleting inbound messages

Follow these steps to delete inbound messages.

1. Select the **Inbound Messages** tab.

Result: The current inbound messages are listed.

2. In the table, select the inbound message to delete.
3. Click **Delete...**

Result: The Delete Inbound Network Specific Message confirmation screen appears.

4. Click **Delete**.

Related topic

[Inbound Messages](#)

Outbound General Messages

This tab lists the available messages that can be sent to any subscriber out bound from the network, as against messages that are matched on country and network codes.

Outbound general messages tab columns

This table describes the content of each column.

Field	Description
Message	The message name.
Last Updated	Date and time stamp for the last update to this message (SMS time zone value).
By	Username of user that made the last update.

Adding new outbound general messages

Follow these steps to add new outbound general messages.

1. Select the **Outbound General Messages** tab.

Result: The current outbound general messages are listed.

2. Click **New...**

Result: The New Outbound General Message screen appears.

3. Select the **Message** from the drop down list.
Tip: This is the list of messages maintained on the **Messages** tab.
The default is the first message in the list.
4. Click **Save**.

Related topic

[Outbound General Messages](#)

Editing outbound general messages

Follow these steps to change an outbound general message.

1. Select the **Outbound General Messages** tab.
Result: The current outbound general messages are listed.
2. In the table, select the message you want to edit.
3. Click **Edit...**
Result: The Edit Outbound General Message screen appears.
4. Select the **Message** from the drop down list.
5. Click **Save**.

Related topic

[Outbound General Messages](#)

Deleting outbound general messages

Follow these steps to delete outbound general messages.

1. Select the **Outbound General Messages** tab.
Result: The current outbound general messages are listed.
2. In the table, select the general outbound message to delete.
3. Click **Delete....**
Result: The Delete Outbound General Message confirmation screen appears.
4. Click **Delete**.

Related topic

[Outbound General Messages](#)

Outbound Messages

This tab lists the available messages that can be sent to any subscriber out bound from the network to a specific country and network, as against general messages that are not matched on country and network codes.

Outbound messages tab columns

This table describes the content of each column.

Field	Description
Country	The country code the subscriber is roaming to.
Network	The network the subscriber is roaming to.
Message	The message name.
Last Updated	Date and time stamp for the last update to this message (SMS time zone value).
By	Username of user that made the last update.

Adding new outbound messages

Follow these steps to add new outbound messages.

1. Select the **Outbound Messages** tab.
Result: The current outbound messages are listed.
2. Click **New...**
Result: The New Outbound Network Specific Message screen appears.
3. Enter the **Mobile Country Code** (MCC) to associate with the message.
4. Enter the **Mobile Network Code** (MNC) to associate with the message.
Result: The **Save** button becomes available.
5. Select the **Message** to associate with the Country and Network Code from the drop down list.
Tip: This is the list of messages maintained on the **Messages** tab.
6. Click **Save**.
Note: For a list of MCC and MNC, refer to ITU E.212 ("Land Mobile Numbering Plan") documentation.

Related topic

[Outbound Messages](#)

Editing outbound messages

Follow these steps to edit an outbound message.

1. Select the **Outbound Messages** tab.
Result: The current outbound messages are listed.
2. In the table, select the Outbound Message to edit.
3. Click **Edit...**
Result: The Edit Outbound Network Specific Message screen appears.
4. Make the required changes to the fields, as described in [Adding new outbound messages](#).
5. Click **Save**.

Related topic

[Outbound Messages](#)

Deleting outbound messages

Follow these steps to delete outbound messages.

1. Select the **Outbound Messages** tab.
Result: The current outbound messages are listed.
2. In the table, select the outbound message to delete.
3. Click **Delete...**
Result: The Delete Outbound Network Specific Message confirmation screen appears.
4. Click **Delete**.

Related topic

[Outbound Messages](#)

Trigger Rules

This table describes the content of each column.

Field	Description
Event Class	The basic type of event. Currently just CAMEL Mobility Management is supported.
Event Type	The exact type of message.
Service Key	This is a parameter of the CAMEL Mobility Management event that allows different services to be treated differently.
Country Code	The MCC the subscriber is roaming to or from. Note: For a list of MCC, refer to ITU E.212 ("Land Mobile Numbering Plan") documentation.
Network Code	The home network (MNC) for the subscriber. The Country Code and Network Code are both used as prefixes in the IMSI and CAMEL Mobility Management events. These two codes identify the subscriber home network. Note: For a list of MNC, refer to ITU E.212 ("Land Mobile Numbering Plan") documentation.
MSISDN	Mobile Station ISDN number.
Enabled	This rule is active indicator (selected = active),
Last Updated	Date and time stamp for the last update to this message (SMS time zone value).
By	Username of user that made the last update.

Not visible on this tab, but required when adding or editing a trigger rule.

Field	Description
Service Provider	The telco providing the SES service/ACS customer.

Field	Description
Control Plan	The control plan to execute once a trigger match has occurred.

Adding new trigger rules

Follow these steps to add new trigger rules.

1. Select the **Trigger Rules** tab.
Result: The Trigger Rules are listed.
2. Click **New...**
Result: The New Trigger Rule screen appears.
Tip: A blank field results in a match against everything for that field and is therefore optional.
3. Select the **Event Class** from the drop down.
Warning: This field is mandatory.
4. Select the **Event Type** from the drop down list.
Can be one of:
 - Any
 - Location update in the same VLR service area
 - Location update to another VLR service area
 - IMSI attach
 - MS initiated IMSI detach (explicit detach)
 - Network initiated IMSI detach (implicit detach)
 - Subscriber Busy
 - Subscriber Idle
5. **Warning:** This field is mandatory.
6. Enter the **Service Key** if required.
7. Enter the **Country Code** (MCC) if required.
8. Enter the **Network Code** (MNC) if required.
9. Enter the **MSISDN** if required.
10. Select the **Enabled** check box to make this trigger available.
11. Perform one of the following:
 - Select the **Service Provider** from the drop down list, or, if the list is blank
 - Enter the initial digits and press **Enter** to search and validate the entry. If you leave the field blank and press **Enter** the drop down list will be populated with all available Service Providers.
12. **Result:** The Service Provider value is validated and selected as valid and the control plan drop down list is populated.

Warning: This field is mandatory.

13. Perform one of the following:

- Select the **Control Plan** from the drop down list
- Enter the initial digits and press **Enter** to search and validate the entry

14. **Result:** The control plan value is validated and ticked as valid, and the **Save** button becomes available.

Warning: This field is mandatory.

15. Click **Save**.

Note: For a list of MCC and MNC, refer to ITU E.212 ("Land Mobile Numbering Plan") documentation.

Related topic

[Trigger Rules](#)

Editing trigger rules

Follow these steps to edit trigger rules.

1. Select the **Trigger Rules** tab.

Result: The Trigger Rules are listed.

2. In the table, select the Trigger Rule to edit.

3. Click **Edit...**

Result: The Edit Trigger Rule screen appears.

4. Make the required changes to the fields, as described in [Adding new trigger rules](#).

5. Click **Save**.

Related topic

[Trigger Rules](#)

Deleting trigger rules

Follow these steps to delete trigger rules.

1. Select the **Trigger Rules** tab.

Result: The Trigger Rules are listed.

2. In the table, select the trigger rule to delete.

3. Click **Delete....**

Result: The Delete Trigger Rule confirmation screen appears.

4. Click **Delete**.

Related topic

[Trigger Rules](#)

Contact History

This tab enables you to view the roaming subscriber's history of messages sent. The available history is governed by the number of days history messages are kept in the database (defined in `dbCleanup` configuration).

The contact history is added to every time a message is successfully sent to an in-roaming or out-roaming subscriber. Population of history will be performed by an external application, for example, Deliver SM.

Contact tab columns

This table describes the contents of each column.

Field	Description
MSISDN	Mobile Station ISDN number.
IMSI	International Mobile Subscriber Identity.
Application	When present, configuration information from the application which populated the contact history, for example, Deliver SM feature node.
Tag	All messages sent are tagged by the sending feature node. These tags are internal, auto generated and informative only.
Timestamp	Time message sent to the subscriber (SMS time zone value).
Last Updated	Date message sent to the subscriber (SMS time zone value).
By	Username or application name that made the last update.

Viewing contact history

Follow these steps to view the contact history for a subscriber.

1. Select the **Contact History** tab.

Result: The contact history screen shows with unpopulated columns.

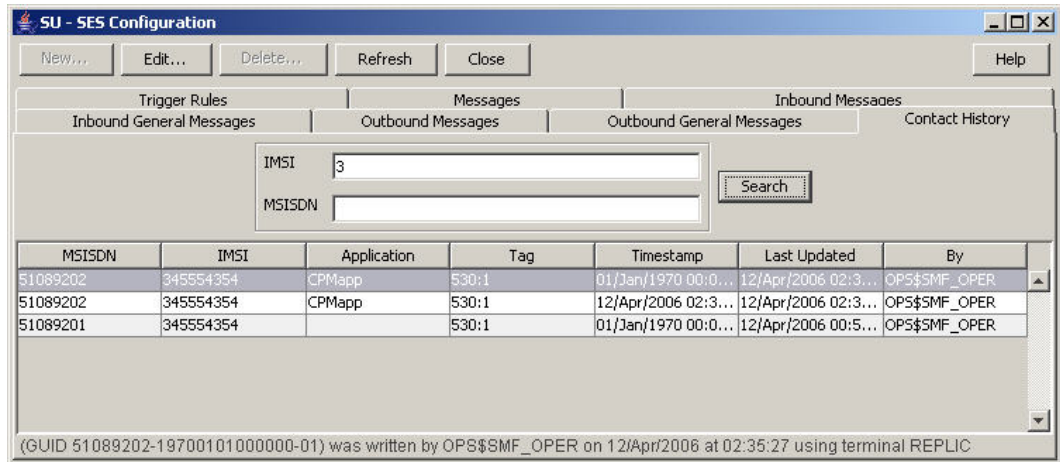
2. Type either the **IMSI** or the **MSISDN** (both is not allowed) of the subscriber to view the history of.

Tip: In either case, just the leading digits may be entered to broaden the search results.

Result: The **Search** button becomes available.

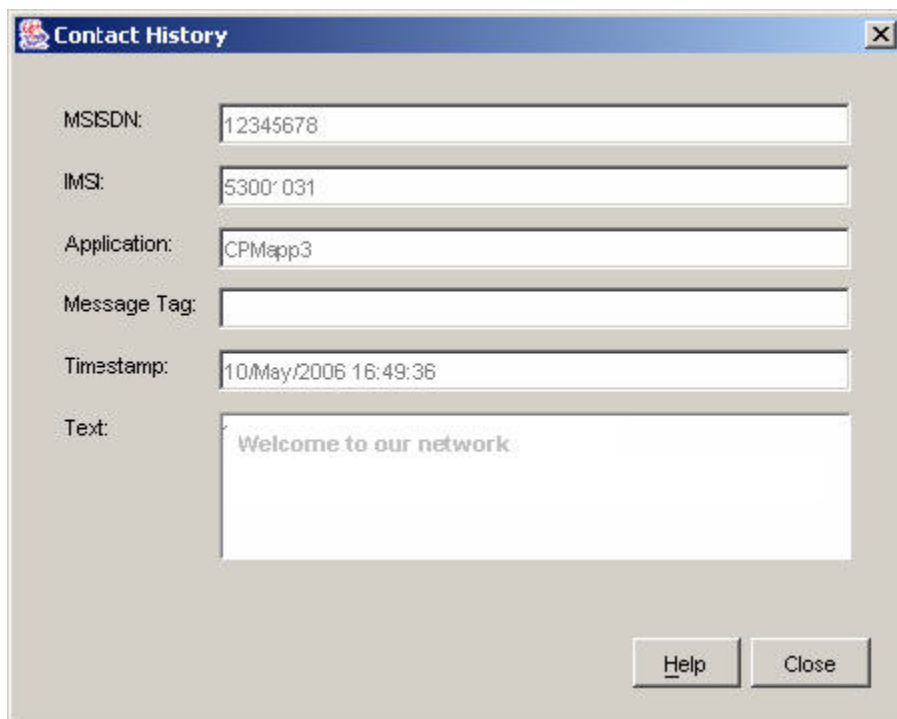
3. Click **Search**.

Result: The search results for the requested IMSI or MSISDN are displayed in the grid.



- To view the actual message text, select the message row and click **Edit...**

Result: The message details are displayed.



- Click **Close** to exit.

Related topic

[Contact History](#)

2

Using SES Feature Nodes

This chapter explains how SES uses ACS. This includes details on the SES specific feature nodes that are used in the ACS Control Plan Editor (CPE). These check subscribers on entering or leaving a network using SES and determine whether to send them messages and if so, determine the number of messages to be sent.

For an overview of ACS and the ACS Control Plan Editor, see the relevant ACS or CPE user's guides.

This chapter contains the following topics.

[In-Roamer Contact Check](#)

[In-Roamer Messages Selection](#)

[Out-Roamer Contact Check](#)

[Out-Roamer Messages Selection](#)

In-Roamer Contact Check

When a roaming subscriber enters your network, this node checks the duration since any previous inbound roaming contact with the subscriber, by looking up the contact history, and compares the duration with the period of days configured in the node.

Node exits - In-Roamer Contact Check

This node has one entry and two exits. The number of exits cannot be changed.

Exit	Cause	Description
1	Contacted	The subscriber has been contacted within the configured number of days.
2	Not Contacted	The subscriber has not been contacted within the configured number of days (includes never been contacted and any system failures).

Using the node - In-Roamer Contact Check

For descriptions of how this node is used, refer to the following topics in *SES User's and Technical Guide*:

- Example Control Plan - In-Roamer
- Example scenarios

Configuring the node - In-Roamer Contact Check

Follow these steps to edit the node.

1. Type a value in days in the **Period** field.

Note: Blank or zero means the subscriber will be contacted every time they enter the network.

2. Click **Save**.

In-Roamer Messages Selection

This node selects the messages for sending to the subscriber, based on the message priority, the number of messages to be sent, and the message selection option used. For more information, see *SES User's and Technical Guide, System Overview* chapter.

Node exits - In-Roamer Messages Selection

This node has one entry and two exits. The number of exits cannot be changed.

Exit	Cause	Description
1	No Messages Selected	No messages were selected (includes system failures).
2	Messages Selected	At least one message was selected.

Using the node - In-Roamer Messages Selection

For descriptions of how this node is used, refer to the following topics in *SES User's and Technical Guide*:

- Example Control Plan - In-Roamer
- Example scenarios

Editing the node - In-Roamer Messages Selection

Follow these steps to edit the In-Roamer Messages Selection node.

1. Type the maximum number of messages to send to the subscriber in the **Number** field.

Note: Currently the maximum is about 2 billion.

2. Select either the **Random** or **Latest** message Selection Method.

Note: Messages are configured to be priority, or non priority (see *SES User's and Technical Guide, SES Configuration - Messages Tab*). For either option, the priority messages are used to fulfill the Number parameter before the non priority messages. See *SES User's and Technical Guide, SES Example scenarios*.

Note: Latest is the message with the most recent availability date.

3. Click **Save**.

Out-Roamer Contact Check

When a roaming subscriber leaves your network, this node checks the duration since any previous out-roaming contact with the subscriber, by looking up the contact history, and compares the duration with the period of days configured in the node.

Node exits - Out-Roamer Contact Check

This node has one entry and three exits. The number of exits cannot be changed.

Exit	Cause	Description
1	Opted Out	The subscriber has opted out of being contacted on leaving the network. Note: This flag is configurable. Refer to <i>SES User's and Technical Guide</i> , <code>macroNodes</code> configuration, for the value of the tag used.
2	Contacted	The subscriber has been contacted within the configured number of days.
3	Not Contacted	The subscriber has not been contacted within the configured number of days (includes never been contacted and any system failures).

Using the node - Out-Roamer Contact Check

For descriptions of how this feature node is used, see the following topics in *Subscriber Event Service User's and Technical Guide*:

- Example Control Plan - Out-Roamer
- Example scenarios

Configuring the node - Out-Roamer Contact Check

Follow these steps to edit the node.

1. Type a value in days in the **Period** field.
Note: Blank or zero means the subscriber will be contacted every time they exit the network.
2. Click **Save**.

Out-Roamer Messages Selection

This node selects the messages for sending to the subscriber, based on the message priority, the number of messages to be sent, and the message selection option used. For more

information, see the discussion of system overview in *Subscriber Event Service User's and Technical Guide*.

Node exits - Out-Roamer Messages Selection

This node has one entry and two exits. The number of exits cannot be changed.

Exit	Cause	Description
1	No Messages Selected	No messages were selected (includes system failures).
2	Messages Selected	At least one message was selected.

Using the node - Out-Roamer Messages Selection

For descriptions of how this feature node is used, see the following topics in *Subscriber Event Service User's and Technical Guide*:

- Example Control Plan - Out-Roamer
- Example scenarios

Configuring the node - Out-Roamer Messages Selection

Follow these steps to edit the Out-Roamer Messages Selection node.

1. Type the maximum number of messages to send to the subscriber in the **Number** field.
Note: Currently this is about 2 billion.
2. Select either the **Random** or **Latest** message Selection Method.
Note: Messages are configured to be priority or no priority (see [Messages](#)). For either option, the priority messages are used to fulfill the Number parameter before the no priority messages. See SES Example scenarios.
Note: Latest is the message with the most recent availability date.
3. Click **Save**.