

**Oracle® Communications
Convergent Charging Controller**

SMS Email Interface Technical Guide

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About This Document

Scope

The scope of this document includes all the information required to install, configure and administer the SMS Email Interface application.

Audience

This guide was written primarily for system administrators and persons installing, configuring and administering the SEI application. However, sections of the document may be useful to anyone requiring an introduction to the application.

Prerequisites

A solid understanding of UNIX and a familiarity with IN concepts are an essential prerequisite for safely using the information contained in this technical guide. Attempting to install, remove, configure or otherwise alter the described system without the appropriate background skills, could cause damage to the system; including temporary or permanent incorrect operation, loss of service, and may render your system beyond recovery.

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.

Related Documents

The following documents are related to this document:

- *Messaging Manager Technical Guide*
- *SMS Email Interface Alarms Guide*

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.
<i>Italics</i>	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.
<i>variable</i>	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.

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 specific Oracle Communications Convergent Charging Controller network or service implications of the product.

In this Chapter

This chapter contains the following topics.

What is SEI?	1
SMS to Email	1
Email to SMS	2

What is SEI?

Introduction

The Short Message Service Email Interface (SEI) facilitates sending and receiving Internet email on a mobile telephone handset using Short Message Service (SMS) technology.

About the SEI Listen Port

The SEI uses Simple Mail Transfer Protocol (SMTP) for sending and receiving email. SMTP by default uses the standard TCP port 25. The SEI, however, listens on a non-standard port number for SMTP traffic that you configure in the `sei, server` section of the `eserv.config` configuration file. For more information about configuring the SEI listen port, see the discussion on SEI configuration, *server section parameters* (on page 13).

To enable the SEI to handle SMTP traffic, you must also configure your system to ensure that SMTP traffic arrives on the configured port.

SMS to Email

Format of SMS

Subscribers can send a specially formatted SMS to a Direct SMS-to-Email short code to send email from their SMS enabled cell phone.

- This number would typically be labeled “email” in their own phone's address book.
- The first word of the SMS will be the destination email address. The message body follows, for example:

```
sam@example.invalid.com How about lunch?"
```

- Optionally the subject may be provided by prefixing it with an 's', the subject continues until the first double space or newline in the SMS, for example:

```
sam@example.invalid.com s Lunch today How about lunch?
```

The Subject is "Lunch today" and the message body is "How about lunch?".

- The From:Email address will be in the form msisdn@domain. This facilitates replies back to the phone – see *Email to SMS* (on page 2).
- Subscribers may be charged, in the SMSC, for each email sent through the gateway.

Email to SMS

Format of email

Emails sent to an address that is known to be a mobile subscriber, for example msisdn@domain, will be relayed to the MSISDN as an SMS will be relayed to the MSISDN as an SMS through the Email_to_SMS control plan.

The From:email address and subject will be tightly packed into the SMS as follows: for example:

```
From: Sam Smith <sam@example.invalid.com>  
To: 441632960001 <441632960001@example.invalid.com>  
Date: Aug 5, 2005 2:27 PM  
Subject: RE: Lunch  
How about Rahzoo?.
```

This email becomes the SMS:

```
sam@example.invalid.com RE: Lunch: How about Rahzoo?
```

The From:Email address is looked up in the mobile subscriber's profile. If it is:

- found, the From:address is set to the special short code plus a digit representing the placement in the listing.
For example, sam@example.invalid.com is found in subscriber 441632960001's Email Address 3. The From:address is set to 703, for example 70 is the special short code and 3 represents Email Address 3. The mobile subscriber would send a reply to 703 which will trigger the Enhanced_SMS_to_Email control plan which will replace the A party number with an email address in the form msisdn@domain - see *Enhanced SMS to Email* in *Messaging Manager User's Guide*.
- not found, the From:address is set to a special short code for unprovisioned email addresses, for example 710. The mobile subscriber would send a reply to 710 which will trigger the SMS_to_Email control plan plan which will replace the A party number with an email address in the form msisdn@domain - see *Direct SMS to Email* in *Messaging Manager User's Guide*.

Configuration

Overview

Introduction

This chapter explains how to configure the Oracle Communications Convergent Charging Controller application.

In this chapter

This chapter contains the following topics.

eserv.config Configuration.....	3
SEI Configuration	4

eserv.config Configuration

Introduction

The **eserv.config** file is a shared configuration file, from which many Oracle Communications Convergent Charging Controller applications read their configuration. Each Convergent Charging Controller machine (SMS, SLC, and VWS) has its own version of this configuration file, containing configuration relevant to that machine. The **eserv.config** file contains different sections; each application reads the sections of the file that contains data relevant to it.

The **eserv.config** file is located in the `/IN/service_packages/` directory.

The **eserv.config** file format uses hierarchical groupings, and most applications make use of this to divide the options into logical groupings.

Configuration File Format

To organize the configuration data within the **eserv.config** file, some sections are nested within other sections. Configuration details are opened and closed using either `{ }` or `[]`.

- Groups of parameters are enclosed with curly brackets – `{ }`
- An array of parameters is enclosed in square brackets – `[]`
- Comments are prefaced with a `#` at the beginning of the line

To list things within a group or an array, elements must be separated by at least one comma or at least one line break. Any of the following formats can be used, as in this example:

```
{ name="route6", id = 3, prefixes = [ "00000148", "0000473" ] }
{ name="route7", id = 4, prefixes = [ "000001049" ] }
```

or

```
{ name="route6"
  id = 3
  prefixes = [
    "00000148"
    "0000473"
  ]
}
```

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```
}
{ name="route7"
  id = 4
  prefixes = [
    "000001049"
  ]
}
```

or

```
{ name="route6"
  id = 3
  prefixes = [ "00000148", "0000473" ]
}
{ name="route7", id = 4
  prefixes = [ "000001049" ]
}
```

eserv.config Files Delivered

Most applications come with an example **eserv.config** configuration in a file called **eserv.config.example** in the root of the application directory, for example, `/IN/service_packages/eserv.config.example`.

Editing the File

Open the configuration file on your system using a standard text editor. Do not use text editors, such as Microsoft Word, that attach control characters. These can be, for example, Microsoft DOS or Windows line termination characters (for example, ^M), which are not visible to the user, at the end of each row. This causes file errors when the application tries to read the configuration file.

Always keep a backup of your file before making any changes to it. This ensures you have a working copy to which you can return.

Loading eserv.config Changes

If you change the configuration file, you must restart the appropriate parts of the service to enable the new options to take effect.

SEI Configuration

Introduction

Configure the SEI section in the `/IN/service_packages/eserv.config` file to enable the SMS Email Interface (SEI). An example of **eserv.config** file showing all the available configuration options is installed by the CCC package in:

```
/IN/services_packages/SEI/etc/eserv.config.example
```

Add the information in **eserv.config.example** to `/IN/service_packages/eserv.config` and update the required parameters. The configuration file is available on SLCs.

Note: All mandatory configuration in the configuration file is done at installation time by the configuration script.

SEI Section

The SEI is configured by the `sei` parameters within the `SEI` section of the **eserv.config** configuration file.

Example SEI Configuration

Here is an example SEI section of the `eserv.config` file. This example is the standard SMS to Email Interface setup for the MM PME package.

```
#
# The EMAIL_DOMAIN environment variable needs to be defined in order to run sei with
# this config
#

SEI = {
    # Short message service internet Email Interface system

    # some config values may have $values expanded
    # $HOSTNAME      the unix hostname
    # $ENV           the value of an environment variable, for example. $HOME
    # $link.to.var  another value in this config file, for example $SEI.sefor
    #               examplemail.domain
    #               links may refer to other links
    sei = {

        usleep = 10000

        database = {
            user = "mmx_admin"
            password = "mmx_admin"
        }

        email = {

            domain = "$EMAIL_DOMAIN"
            errorMailbox = "error"

            numberRules = [
            ]

            postmasterAction = {
                action = "ignore"
            }

            errorNotificationAction = {
                action = "ignore"
            }

            deliveryStatusNoification = {

                directory = "/IN/service_packages/SEI/tmp/dsn"
                failDirectory = "/IN/service_packages/SEI/tmp/fail"
                retries = ["2 hours", "3 minutes"]
            }

            client = {

                connectTimeout = 300
                initalMessageTimeout = 300
                helloTimeout = 300
                mailTimeout = 300
                recipientTimeout = 300
                dataTimeout = 120
                dataChunkTimeout = 300
                quitTimeout = 300
                origHostname = "$SEI.sei.email.domain"
                port = 25
            }
        }
    }
}
```

```

} # client

server = {

    helloTimeout= 300
    mailTimeout = 300
    recipientTimeout = 200
    dataTimeout = 120
    dataChunkTimeout = 600
    receivedEmail = 300
    quitTimeout = 300
    port = 2500
    greetHostname = "$SEI.sei.email.domain"
    host = "$HOSTNAME"

} # server

adapter = {

    config = {
        xmsTrigger = {
            pc = 55
            ssn = 10
            type = "itu"
        }
        xmsTimeout = 5
        tcapTimeout = 6
        xmsWrapper = {
            interface = "xmsIf"
            pc = 0
            ssn = 40
            type = "itu"
        }
    } # config
} # adapter

} # email

SMS = {

    replyMsisdn= {

        file = "/IN?Service/tmp/sei-reply.addrMap"
        prefix = "642188"
        maxSuffixDigits = 6
    }

    newLine = "CR"

    numberRules = [
    ]

    protocol = "SMPP"

    SMPP = {
        remote = {
            host = "$HOSTNAME"
            port = 3003
        }

        username = "1234"
        password = "PASSWORD"
    }
}

```

```

preOpen = true
version = "5.0"
maxConcurrentTransactions = 1024
outgoingTimeout = 10
idleTimeout = 0
heartbeatInterval = 10

adapter = {

    lib = "mmxiSMPP.so"
    SSN = 0
    adapterName = "SMPP1"

    config = {

        suppressPathInfoReport = true
        displayZeroPathReport = false
        PathReportingInterval = 60

        smppDefaults = {
        }

    } # mmxiSMPP.so config
} # adapter
} # SMPP
} # SMS
} # sei

} # SEI

```

sei parameters

Here are the parameters for SEI.sei section.

usleep

Syntax: usleep = *miSecs*

Description: How may micro seconds to sleep if there is nothing to do.

Type: Integer

Optionality: Mandatory

Allowed:

Default:

Notes: 10,000 = 0.01 sec

Example: usleep = 10000

database parameters

The database parameters provide access to the database.

Note: There is no tnsname, so the SEI will use \$ORACLE_SID to find the local database.

password

Syntax: password= "*pass*"

Description: The user's password.

Type: String

Optionality: Mandatory
Allowed:
Default:
Notes:
Example: password = "mmx_admin"

user

Syntax: user = "username"
Description: The user name.
Type: String
Optionality: Mandatory
Allowed:
Default:
Notes:
Example: user = "mmx_admin"

email section parameters

Here is a high level view of the parameters in the email section.

```
email = {
  domain = "$EMAIL_DOMAIN"
  errorMailbox = "error"

  numberRules = [
  ]

  postmasterAction = {
    action = "ignore"
  }

  errorNotificationAction = {
    action = "ignore"
  }

  deliveryStatusNoification = {
    deliveryStatusNoification_parameters
  }

  client = {
    clientSection_parameters
  }

  server = {
    serverSection_parameters
  }

  adapter = {
    adapterSection_parameters
  }
}
```

domain

Syntax: domain= "name"
Description: The domain to use for recipient email addresses.

Type: String
Optionality: Mandatory
Allowed:
Default:
Notes: This value matches the first and second levels of the domain, so if `domain = "example.com"`, then:
`host.example.com`
`example.com`
 will be valid, but:
`badexample.com`
 will not be.
 You may use \$values.
Examples: `domain = "example.com"`
`domain = "$EMAIL_DOMAIN"`

errorMailbox

Syntax: `errorMailbox = "domain"`
Description: The mailbox where email relay failures will be delivered to.
Type: String
Optionality: Optional
Allowed:
Default:
Notes: If no domain is given (no @), then the full email address is `errorMailbox@domain`
Example: `errorMailbox = "error"`

errorNotificationAction

Syntax: `errorNotificationAction = {action = "enaction"}`
Description: `<enaction>` is what to do with returned mail notification emails.
Type: String
Optionality:
Allowed: Actions available:

- "ignore" - silently ignore the emails
- "relay" - relay on to another email address
- "save" - save to disk

Default:
Notes:
Example:

```
errorNotificationAction = {
    action = "ignore"
}
```

numberRules

Syntax: `NumberRules= [rule]`
Description: The rules for how to transform the MSISDN in the database into the SMS world and back.
Type: Array

Optionality: Optional
Allowed:
Default:
Notes: Not used for PME
Example:

postmasterAction

Syntax: `postmasterAction = {action = "pmaction"}`
Description: What to do with emails directed to the postmaster.
Type: String
Optionality:
Allowed: Actions available:

- "ignore" - silently ignore the emails
- "relay" - relay on to another email address
- "save" - save to disk

Default:
Notes:
Example:

```
postmasterAction = {
    action = "ignore"
}
```

deliveryStatusNoification parameters

Here are the parameters for this section, which handles sending of message delivery failures.

```
deliveryStatusNoification = {
    directory = "/IN/service_packages/SEI/tmp/dsn"
    failDirectory = "/IN/service_packages/SEI/tmp/fail"
    retries = ["2 hours", "3 minutes"]
}
```

directory

Syntax: `directory = "path"`
Description: The directory to save emails while sending.
Type: String
Optionality: Mandatory
Allowed:
Default:
Notes:
Example: `directory = "/IN/service_packages/SEI/tmp/dsn"`

failDirectory

Syntax: `failDirectory = "path"`
Description: The directory for emails that failed to be sent.
Type: String
Optionality: Mandatory
Allowed:
Default:

Notes: This is only used if `action = "relay"` and `saveFailed` is `true`.

See `errorNotificationAction` (on page 9) for details.

Example: `failDirectory =
"/IN/service_packages/SEI/tmp/fail"`

`retries`

Syntax: `retries = [periods]`

Description: The list of when to retry sending the email after it fails.

Type: Array of strings

Optionality: Mandatory

Allowed: Either periods, for example, "2 hours", "3 minutes" or "3 times *period*" to try 3 times every hour "after *period*" to try that long after the last attempt.

Default:

Notes: This is only used if `action = "relay"`. See `errorNotificationAction` (on page 9) for details.

Example: `retries = ["2 hours", "3 minutes"]`

client section parameters

Here are the parameters.

```
client = {
    connectTimeout = 300
    initalMessageTimeout = 300
    helloTimeout = 300
    mailTimeout = 300
    recipientTimeout = 300
    dataTimeout = 120
    dataChunkTimeout = 300
    quitTimeout = 300
    origHostname = "$SEI.sei.email.domain"
    port = 25
} # client
```

`connectTimeout`

Syntax: `connectTimeout = seconds`

Description: How long to wait for the TCP connection to complete.

Type: Integer

Optionality: Mandatory

Allowed: in seconds

Default:

Notes:

Example: `connectTimeout = 300`

`dataChunkTimeout`

Syntax: `dataChunkTimeout = seconds`

Description: How long to wait for the data chunk response.

Type: Integer

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Optionality: Mandatory
Allowed: In seconds
Default:
Notes:
Example: `dataChunkTimeout = 300`

`dataTimeout`

Syntax: `dataTimeout = seconds`
Description: How long to wait for the data command response.
Type: Integer
Optionality: Mandatory
Allowed: In seconds
Default:
Notes:
Example: `dataTimeout = 120`

`helloTimeout`

Syntax: `helloTimeout = seconds`
Description: How long to wait for the hello command response.
Type: Integer
Optionality: Mandatory
Allowed: In seconds
Default:
Notes:
Example: `helloTimeout = 300`

`initalMessageTimeout`

Syntax: `initalMessageTimeout = seconds`
Description: How long to wait for the initial SMTP message.
Type: Integer
Optionality: Mandatory
Allowed: In seconds
Default:
Notes:
Example: `initalMessageTimeout = 300`

`mailTimeout`

Syntax: `mailTimeout = seconds`
Description: How long to wait for the mail command response.
Type: Integer
Optionality: Mandatory
Allowed: In seconds
Default:
Notes:
Example: `mailTimeout = 300`

`origHostname`

Syntax: `origHostname = name`
Description: The hostname we give to SMTP servers.
Type: String
Optionality: Optional
Allowed:
Default:
Notes: No host value means listen for incoming SMTP connections on any interface.
You may use \$values
Example: `origHostname = "$SEI.sei.email.domain"`

`port`

Syntax: `port = num`
Description: The TCP port to connect to for SMTP.
Type: Integer
Optionality: Mandatory
Allowed:
Default:
Notes: Must be 25 in production - only change for testing
Example: `port = 25`

`quitTimeout`

Syntax: `quitTimeout = seconds`
Description: How long to wait for the quit command response.
Type: Integer
Optionality: Mandatory
Allowed: In seconds
Default:
Notes:
Example: `quitTimeout = 300`

`recipientTimeout`

Syntax: `recipientTimeout = seconds`
Description: How long to wait for the recipient command response.
Type: Integer
Optionality: Mandatory
Allowed: In seconds
Default:
Notes:
Example: `recipientTimeout = 300`

server section parameters

The following example configuration shows the parameters in the `sei, server` section of the configuration file.

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```
server = {  
  
    helloTimeout= 300  
    mailTimeout = 300  
    recipientTimeout = 200  
    dataTimeout = 120  
    dataChunkTimeout = 600  
    receivedEmail = 300  
    quitTimeout = 300  
    port = 2500  
    greetHostname = "$SEI.sei.email.domain"  
    host = "$HOSTNAME"  
  
} # server
```

dataChunkTimeout

Syntax: dataChunkTimeout = *seconds*
Description: How long to wait for the data chunks to be completed.
Type: Integer
Optionality: Mandatory
Allowed: In seconds
Default:
Notes:
Example: dataChunkTimeout = 600

dataTimeout

Syntax: dataTimeout = *seconds*
Description: How long to wait for the data command.
Type: Integer
Optionality: Mandatory
Allowed: In seconds
Default:
Notes:
Example: dataTimeout = 120

greetHostname

Syntax: greetHostname = *name*
Description: The SMTP initial greeting hostname.
Type: String
Optionality: Mandatory
Allowed:
Default:
Notes: You may use \$values
Example: greetHostname = "\$SEI.sei.email.domain"

helloTimeout

Syntax: helloTimeout = *seconds*
Description: How long to wait for the hello command.
Type: Integer

Optionality: Mandatory
Allowed: In seconds
Default:
Notes:
Example: `helloTimeout = 300`

`host - server`

Syntax: `host = name or IP address`
Description: The IP address or hostname on which SEI listens for incoming SMTP connections.
Type: String
Optionality: Mandatory
Allowed:
Default:
Notes:
Example: `host = "allan1-mmx30build"`

`mailTimeout`

Syntax: `mailTimeout = seconds`
Description: How long to wait for the mail command.
Type: Integer
Optionality: Mandatory
Allowed: In seconds
Default:
Notes:
Example: `mailTimeout = 300`

`port`

Syntax: `port = num`
Description: The port on which SEI listens for SMTP email messages.
Type: Integer
Optionality: Mandatory
Allowed:
Default: 2500
Notes: You should set the `port` parameter to the port on which SMTP traffic for SEI will arrive. The default value for the port serving the Internet is 2500.
Example: `port = 2500`

`quitTimeout`

Syntax: `quitTimeout = seconds`
Description: How long to wait for the quit command.
Type: Integer
Optionality: Mandatory
Allowed: In seconds
Default:
Notes:

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Example: quitTimeout = 300

receivedEmail

Syntax: receivedEmail= *seconds*

Description: How long to wait for SEI to process the email.

Type: Integer

Optionality: Mandatory

Allowed: In seconds

Default:

Notes:

Example: receivedEmail = 300

recipientTimeout

Syntax: recipientTimeout = *seconds*

Description: How long to wait for the recipient command.

Type: Integer

Optionality: Mandatory

Allowed: In seconds

Default:

Notes:

Example: recipientTimeout = 300

adapter section parameters

The following example configuration shows the parameters in the `sei, adapter` section of the configuration file.

```
adapter = {  
    config = {  
        xmsTrigger = {  
            pc = 55  
            ssn = 10  
            type = "itu"  
        }  
        xmsTimeout = 5  
        tcapTimeout = 6  
        xmsWrapper = {  
            interface = "xmsIf"  
            pc = 0  
            ssn = 40  
            type = "itu"  
        }  
    } # config  
} # adapter
```

xmsTrigger

Following are the parameters in `xmsTrigger` sub-section used to determine the source address for outgoing messages.

pc

Syntax: `pc = point code`

Description: The point code.

Type: Integer

Example: `pc = 55`

xmsTimeout

Syntax: `xmsTimeout = seconds`

Description: This suggests the the time to wait for a response from XMS-RW.

Type: Integer

Allowed: In seconds

Notes: This entry is used in conjunction with the xmsWrapperTA on SLEE interface.

Example: `xmsTimeout = 5`

tcapTimeout

Syntax: `tcapTimeout = seconds`

Description: How long to wait for response from XMS remote wrapper.

Type: Integer

Allowed: In seconds

Default: 10

Notes: This entry is used in conjunction with the xmsWrapperTA SLEE interface.

Example: `tcapTimeout = 10`

pc

Syntax: `pc = code`

Description: Destination point code of messages to be handled by this adapter.

Type: Integer

Allowed: Defined by network administrator.

Notes: This would be zero if routing is done using subsystem number.

Example: `pc = 55`

interface

Syntax: `interface = "name"`

Description: interface name to establish dialog

Type: String

Optionality: Optional (default used if not set)

Default: xmslf

Example: `parameter = "xmsIf"`

SMS section configuration

The `SMS` section provides the configuration for the interface to SMS functionality.

Here is a high level view of this section.

```
SMS = {
```

```
replyMsisdn= {
    replyMsisdn_section_parameters
}

newLine = "CR"

numberRules = [
]

protocol = "SMPP"

SMPP = {
    SMPP_section_parameters

    Adapter = {
        Adapter_section_parameters
    }
}
}
```

SMS section parameters

Here are the parameters in this section.

`newLine`

Syntax: `newLine = "nl"`
Description: Defines how newlines are represented in text messages
Type: String
Optionality: Mandatory
Allowed: Options are:

- "CR"
- "LF"
- "CRLF"

Default:

Notes:

Example: `newLine = "CR"`

`numberRules`

Syntax: `NumberRules= [rule]`
Description: The rules for how to transform the MSISDN in the database into the SMS world and back.
Type: Array
Optionality: Optional
Allowed:
Default:
Notes: Not used for PME
Example:

`protocol`

Syntax: `protocol = "name"`
Description: The protocol to use.

Type:	String
Optionality:	Mandatory
Allowed:	
Default:	
Notes:	This must have a corresponding configuration section.
Example:	<code>protocol = "SMPP"</code>

replyMsisdn section parameters

The `replyMsisdn` configuration section is used to maintain the mappings from incoming emails to the origination address for SMSs and facilitates replies to these SMSs to be directed back to the original emailer.

Here is the configuration of this section.

```
replyMsisdn= {
    file = "/IN?Service/tmp/sei-reply.addrMap"
    prefix = "642188"
    maxSuffixDigits = 6
}
```

`file`

Syntax:	<code>file = "path"</code>
Description:	Specifies the file to store the mapping in.
Type:	String
Optionality:	Mandatory
Allowed:	
Default:	
Notes:	
Example:	<code>file = "/tmp/sei-reply.addrMap"</code>

`maxSuffixDigits`

Syntax:	<code>maxSuffixDigits = num</code>
Description:	The maximum number of digits to append to prefix when all of these are used but old ones will be reused.
Type:	Integer
Optionality:	Mandatory
Allowed:	
Default:	
Notes:	The maximum number 6 = 1,111,111 numbers, 580MB
Example:	<code>maxSuffixDigits = 6</code>

`prefix`

Syntax:	<code>prefix = "prefix"</code>
Description:	The prefix to use when generating reply SMS addresses.
Type:	Number String
Optionality:	Mandatory
Allowed:	

Default:

Notes:

Example: `prefix = "642188"`

SMPP protocol parameters

The SEI uses the SMPP protocol, allowing an ASP to communicate with the SMSC, or an application, such as Messaging Manager, which has a configured SMPP adapter.

Here is high-level view of this section, showing the SMPP configuration required for SEI.

```
SMPP = {
  remote = {
    host = "$HOSTNAME"
    port = 3003
  }

  username = "1234"
  password = "PASSWORD"
  preOpen = true
  version = "5.0"
  maxConcurrentTransactions = 1024
  outgoingTimeout = 10
  idleTimeout = 0
  heartbeatInterval = 10

  adapters = {
    adapter_section_parameters
  }
}
```

heartbeatInterval

Syntax: `heartbeatInterval = hbint`

Description: How often to send `enquire_link` messages to check that the connection is up.

Type: Integer

Optionality:

Allowed:

Default:

Notes:

Example: `heartbeatInterval = 10`

maxConcurrentTransactions

Syntax: `maxConcurrentTransactions = num`

Description: The maximum number of unanswered outstanding messages.

Type: Integer

Optionality:

Allowed:

Default:

Notes:

Example: `maxConcurrentTransactions = 1024`

`outgoingTimeout`

Syntax: `outgoingTimeout = seconds`
Description: The timeout period before shutting down if quiet for this long.
Type: Integer
Optionality: Mandatory
Allowed:
Default:
Notes:
Example: `outgoingTimeout = 10`

`password`

Syntax: `password = "passw"`
Description: The password for the user.
Type: String
Optionality: Mandatory
Allowed:
Default:
Notes:
Example: `password = "PASSWORD"`

`preOpen`

Syntax: `PreOpen = true|false`
Description: Whether or not to open before there are any messages to send.
Type: Boolean
Optionality: Mandatory
Allowed: true, false
Default:
Notes:
Example: `preOpen = true`

`username`

Syntax: `username = "name"`
Description: The user name.
Type: String
Optionality: Mandatory
Allowed:
Default:
Notes:
Example: `username = "1234"`

`version`

Syntax: `version = "ver"`
Description: The version of SMPP to use.
Type: String

Optionality: Mandatory
Allowed: Available versions are:

- "3.4"
- "5.0"

Default:
Notes:
Example: `version = "5.0"`

remote parameters

The remote section contains the parameters to identify the remote host.

Here is the configuration of the `remote` section.

```
remote = {  
    host = "$HOSTNAME"  
    port = 3003  
}
```

`host`

Syntax: `host = "host"`
Description: Identifies the host.
Type: String
Optionality: Mandatory
Allowed: hostname, IP address, or `$HOSTNAME`
Default:
Notes:
Example: `host = "$HOSTNAME"`

`port`

Syntax: `port= num`
Description: The TCP port to connect to.
Type: Integer
Optionality: Mandatory
Allowed:
Default:
Notes:
Example: `port = 3003`

adapter parameters

Here is an example of the `adapter` section.

```
adapter = {  
  
    lib = "mmxiSMPP.so"  
    SSN = 0  
    adapterName = "SMPP1"  
  
    config = {  
  
        suppressPathInfoReport = true  
  
    }  
}
```

```

        displayZeroPathReport = false
        PathReportingInterval = 60

        smppDefaults = {
        }

    } # mmxiSMPP.so config
} # adapter

```

adapterName

Syntax: adapterName = "adapter"

Description: The identifier for the adapter.

Type: String

Optionality: Mandatory

Allowed: Any text string, but should be meaningful, i.e. include the protocol used. For example "SMPP1" for SMPP

Default: No default.

Note: This name MUST also be in the configuration database before the application will run correctly.

Example: adapterName = "SMPP1"

lib

Syntax: lib = "name"

Description: The name of the file containing the adapter.

Type: String

Optionality: Mandatory

Allowed:

Default: No default

Notes:

Example: lib = "mmxiSMPP.so"

SSN

Syntax: SSN = num

Description: Destination subsystem number of messages to be handled by this adapter.

Allowed: Valid subsystem number

Notes: Non-zero to handle incoming TCAP.

Example: SSN = 18

config

The parameters in this sub-section below this give the configuration for all messages for this adapter.

suppressPathInfoReport

Syntax: suppressPathInfoReport = true|false

Description: Whether or not to suppress path connection reports

Type: boolean

Optionality: Mandatory

Allowed: true, false

Default: false

Notes: An ASP receives heartbeats from the SMSC when Messaging Manager is configured to operate as an SMSC, then it will respond to these heartbeats. These are logged in the xmsTrigger logfile. This can cause the logfile to fill up unnecessarily.

Example: `suppressPathInfoReport = true`

smppDefaults section

The smppDefaults section of the **eserv.config** specifies the SMPP values that will be used for connections. Refer to *Messaging Manager Technical Guide* for details.

Background Processes

Overview

Introduction

This chapter explains the processes that are started automatically by Service Logic Execution Environment (SLEE).

Note: This chapter also includes some plug-ins to background processes which do not run independently.

In this chapter

This chapter contains the following topics.

sei 25

sei

Purpose

The sei process acts as a gateway between SMS and email.

Startup

You can run sei process as an SLEE interface capable of triggering IN applications such as ACS. The sei is started automatically by the SLEE.

Configure the SLEE at start-up. The default configuration file is `/IN/service_packages/SLEE/etc/SLEE.cfg`.

To run sei as a slee process, add the following line to SLC's SLEE.cfg file.

```
INTERFACE=sei sei.sh /IN/service_packages/SEI/bin EVENT
```

Note: Add a service key entry for this interface. For more information on configuring service key entries, see Service Logic Execution Environment Technical Guide.

Command line parameters

There are no command line parameters for the sei process.

Configuration

The configuration parameters for the sei process are automatically added to the `SEI` section of `eserv.config` at installation. For details, see *SEI Configuration* (on page 4).

Failure

If the sei fails, alarm is raised to the syslog and any incoming inbound emails and SMSs from xmsTrigger is not processed.

About Installation and Removal

Overview

Introduction

This chapter provides information about the installed components for the Convergent Charging Controller application described in this guide. It also lists the files installed by the application that you can check for, to ensure that the application installed successfully.

In this Chapter

This chapter contains the following topics.

Installation and Removal Overview	27
Checking the Installation	27

Installation and Removal Overview

Introduction

For information about the following requirements and tasks, see *Installation Guide*:

- Convergent Charging Controller system requirements
- Pre-installation tasks
- Installing and removing Convergent Charging Controller packages

SEI packages

An installation of SMS Email Interface includes the following package, on the SLC:

- seiScp

Checking the Installation

Introduction

Refer to these check lists to ensure the package has been installed correctly.

SEI directories and files

The SEI installation creates the following directories:

- /IN/service_packages/SEI/bin
- /IN/service_packages/SEI/etc
- /IN/service_packages/SEI/lib
- /IN/service_packages/SEI/tmp

The SEI installation installs the following binaries and interfaces:

- `/IN/services_packages/SEI/bin/sei`

The SEI installation installs the following example configuration files:

- `/IN/service_packages/SEI/etc/eserv.config.example`
- `/IN/service_packages/SEI/etc/eserv.config.pme`

Error mailbox

Before the SEI application can be used, a valid address for error messages must be configured. Please update the *errorMailbox* (on page 9) parameter, in the `eserv.config.pme` file in `/IN/service_packages/SEI/etc`, with a valid mailbox then restart SEI through `inittab`.

Profile scp file

The `.profile-scp` file is created in `/IN/service_packages/SEI` when SEI is installed. Here is an example.

```
ORACLE_SID=SCP
export ORACLE_SID
ORACLE_HOME=/u01/app/oracle/product/10/2/0/db_1
export ORACLE_HOME
ORACLE_BASE=/u01/app/oracle
export ORACLE_BASE
ORACLE_TERM=vt100
export ORACLE_TERM
LD_LIBRARY_PATH=${LD_LIBRARY_PATH:+$LD_LIBRARY_PATH:}/u01/app/oracle/product/10/2/0/db_1/lib32:/u01/app/oracle/product/10/2/0/db_1/lib:/usr/lib/secure:$ORACLE_HOME/lib32:$ORACLE_HOME/lib:/IN/service_packages/SEI/lib
export LD_LIBRARY_PATH
PATH=$PATH:$ORACLE_HOME/bin:/IN/service_packages/SEI/bin
export PATH
EMAIL_DOMAIN=mmx3tstscpl1-zone03.oracle.com
ESERV_CONFIG_FILE=/IN/service_packages/SEI/etc/eserv.config
export EMAIL_DOMAIN ESERV_CONFIG_FILE
```

Glossary of Terms

ACS

Advanced Control Services configuration platform.

ASP

- Application Service Provider, or
- Application Server Process. An IP based instance of an AS. An ASP implements a SCTP connection between 2 platforms.

CC

Country Code. Prefix identifying the country for a numeric international address.

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”.

Diameter

A feature rich AAA protocol. Utilises SCTP and TCP transports.

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.

IN

Intelligent Network

IP

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

IP address

Internet Protocol Address - network address of a card on a computer.

ISDN

Integrated Services Digital Network - set of protocols for connecting ISDN stations.

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 31) and *Messaging Manager* (on page 29).

MSISDN

Mobile Station ISDN number. Uniquely defines the mobile station as an ISDN terminal. It consists of three parts; the country code (CC), the national destination code (NDC) and the subscriber number (SN).

Peer

Remote machine, which for our purposes is capable of acting as a Diameter agent.

SLC

Service Logic Controller (formerly UAS).

SLEE

Service Logic Execution Environment

SMPP

Short Message Peer-to-Peer protocol

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

SMSC

Short Message Service Centre stores and forwards a short message to the indicated destination subscriber number.

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

TCAP

Transaction Capabilities Application Part – layer in protocol stack, message protocol.

TCP

Transmission Control Protocol. This is a reliable octet streaming protocol used by the majority of applications on the Internet. It provides a connection-oriented, full-duplex, point to point service between hosts.

VWS

Oracle Voucher and Wallet Server (formerly UBE).

XMS

Three letter code used to designate some components and path locations used by the Oracle Communications Convergent Charging Controller *Messaging Manager* (on page 29) service and the Short Message Service. The published code is *MM* (on page 30) (formerly *MMX*).

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