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About This Document

Scope
The scope of this document includes all the information required to install, configure and administer the XML TCAP Interface.

Audience
This guide was written primarily for system administrators and persons installing and administering the TCAP Interfaces application. The documentation assumes that the person using this guide has a good technical knowledge of the system.

Prerequisites
Although there are no prerequisites for using this guide, familiarity with the target platform would be an advantage.

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.

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:

- *NCC Service Management System Technical Guide*
Document Conventions

Typographical Conventions

The following terms and typographical conventions are used in the Oracle Communications Network Charging and Control (NCC) documentation.

<table>
<thead>
<tr>
<th>Formatting convention</th>
<th>Type of information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Special Bold</td>
<td>Items you must select, such as names of tabs. Names of database tables and fields.</td>
</tr>
<tr>
<td>Italics</td>
<td>Name of a document, chapter, topic or other publication. Emphasis within text.</td>
</tr>
<tr>
<td>Button</td>
<td>The name of a button to click or a key to press. Example: To close the window, either click Close, or press Esc.</td>
</tr>
<tr>
<td>Key+Key</td>
<td>Key combinations for which the user must press and hold down one key and then press another. Example: Ctrl+P, or Alt+F4.</td>
</tr>
<tr>
<td>Monospace</td>
<td>Examples of code or standard output.</td>
</tr>
<tr>
<td>Monospace Bold</td>
<td>Text that you must enter.</td>
</tr>
<tr>
<td>variable</td>
<td>Used to indicate variables or text that should be replaced.</td>
</tr>
<tr>
<td>menu option &gt; menu option &gt;</td>
<td>Used to indicate the cascading menu option to be selected, or the location path of a file. Example: Operator Functions &gt; Report Functions Example: lIN/html/SMS/HelpText/</td>
</tr>
<tr>
<td>hypertext link</td>
<td>Used to indicate a hypertext link on an HTML page.</td>
</tr>
</tbody>
</table>

Specialized terms and acronyms are defined in the Glossary at the end of this guide.
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 Network Charging and Control (NCC) network or service implications of the product.

In this chapter

This chapter contains the following topics.

Introduction to SLEE XML TCAP Interface
About installing XML TCAP Interface

Introduction to SLEE XML TCAP Interface

Component descriptions

This table describes the main components in the XML TCAP Interface.

<table>
<thead>
<tr>
<th>Process</th>
<th>Role</th>
<th>Further information</th>
</tr>
</thead>
<tbody>
<tr>
<td>xmlTcapInterface</td>
<td>The interface converts XML messages arriving from smsTrigDaemon into SLEE events. Similarly, the interface converts events arriving from the SLEE into XML messages that smsTrigDaemon understands.</td>
<td>XML/TCAP Interface Configuration</td>
</tr>
<tr>
<td>smsTrigDaemon</td>
<td>Accepts control plan execution requests from either a remote PI client or the Java management screens and forwards request to smsTcapInterface.</td>
<td>NCC Service Management System Technical Guide</td>
</tr>
</tbody>
</table>

About installing XML TCAP Interface

Installing the interface

This interface is installed through the xmlTcIf package. See Oracle Communications Network Charging and Control Installation Guide for both automatic and manual installation details.
Overview

Introduction

This chapter explains how to configure the Oracle Communications Network Charging and Control (NCC) application.

In this chapter

This chapter contains the following topics.

XML/TCAP Interface Configuration

XML/TCAP Interface Configuration

Introduction

The xmlTcapInterface receives BPL requests from the smsTrigDaemon or from a third party. Each request is used to construct an InitialDP which is sent to ACS through the SLEE. The xmlTcapInterface returns an indication of whether or not the request was successful through an HTTP response.

The InitialDP contains the following information:

- Calling party number (from the xml request)
- Called party number (from the xml request)
- PIN digits
- Extension fields (from the xml request)
- Service key for the application required
XML/TCAP Interface diagram

This diagram shows the XML/TCAP interface on an SLC.

```
<table>
<thead>
<tr>
<th>Component</th>
<th>Locations</th>
<th>Description</th>
<th>Further Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>eserv.config</td>
<td>SLC and SMS</td>
<td>This file configures the XML/TCAP Interface.</td>
<td>eserv.config configuration (on page 4).</td>
</tr>
<tr>
<td>SLEE.cfg</td>
<td>SLC</td>
<td>This file defines the XML/TCAP interface and the BPL service on the SLEE.</td>
<td>SLEE configuration (see &quot;Start up&quot; on page 6).</td>
</tr>
</tbody>
</table>

Note: xmlTcapInterface has a hard-coded timeout waiting for a response over the SLEE of 10 seconds.

eserv.config configuration

xmlTcapInterface supports the following parameters at the root level of eserv.config.

```
triggering = {
    listenPort = 3072
    idp_sk = 10
    retryDelay = 1
    maxNotReadyRetries = 3
    connectionTimeout = 90
    requestTimeout = 10
}
```

Parameters

listenPort

**Syntax:**

```
listenPort = value
```

**Description:**

The port on which the xmlTcapInterface should listen for incoming requests.
Chapter 2

Type: Integer
Optionality: Optional (default used if not set).
Allowed: 
Default: 3072
Notes:
Example: listenPort = 3070

idp_sk
Syntax: idp_sk = value
Description: The service key parameter of outgoing InitialDP components.
Type: Integer
Optionality: Optional (default used if not set).
Allowed: 
Default: 10
Notes:
Example: idp_sk = 12

retryDelay
Syntax: retryDelay = value
Description: The number of seconds to wait before retrying an operation.
Type: Integer
Optionality: Optional (default used if not set).
Allowed: 
Default: 1
Notes:
Example: retryDelay = 2

maxNotReadyRetries
Syntax: maxNotReadyRetries = value
Description: The number of times to retry the operation before abandoning the attempt.
Type: Integer
Optionality: Optional (default used if not set).
Allowed: 
Default: 3
Notes:
Example: maxNotReadyRetries = 5

connectionTimeout
Syntax: connectionTimeout = value
Description: The number of seconds before closing a stale connection.
Type: Integer
Optionality: Optional (default used if not set).
Allowed: 
Default: 90


Notes:
Example:  

connectionTimeout = 70

requestTimeout

Syntax:  
requestTimeout = value

Description:  The number of seconds before an IN request times out.

Type:  
Integer

Optionality:  Optional (default used if not set).

Allowed:  

Default:  10

Notes:
Example:  

requestTimeout = 15

Start up

The following entries must be included in the SLEE.cfg configuration file for the xmlTcapInterface to work:

SERVICE=CCS_BPL 1 slee_acs CCS_BPL
SERVICEKEY-INTEGER 50 CCS_BPL

INTERFACE=xmlTcapInterface xmlTcapInterfaceStartup.sh
/IN/service_packages/SLEE/etc/eserv.config.xmlTcIf

Note:  For further information on configuring the SLEE, see SLEE Technical Guide.
Chapter 3

Troubleshooting

Overview

Introduction

This chapter explains the important processes on each of the server components in the NCC, and a number of example troubleshooting methods which will help aid the troubleshooting process before raising a support ticket.

In this chapter

This chapter contains the following topics.
Common Troubleshooting Procedures

Common Troubleshooting Procedures

Introduction

Refer to NCC System Administrator's Guide for troubleshooting procedures common to all NCC components.

Checking current processes

You can check which processes are running using the standard UNIX command: ps. To find processes being run by Oracle software, you can grep for the string 'oper', which will display all processes being run by the application operator accounts (for example, acs_oper, ccs_oper and smf_oper).

Note: Some processes which are required for proper functioning may be run by other users, including root or the user which runs the webserver.

Example command: ps -ef | grep oper

For more information about the ps command, see the system documentation for the ps command.

You can also check how much of the processor a process is using by running the standard UNIX tool: top. If you have some baseline measurements, you will be able to compare it with the current load.

Example command: top

Tip: Some processes should only have one instance. If there are two or more instances, this may indicate a problem. For example, there will usually only be one timerIF running on each SLC.

For more information about which processes should be running on each node, check the Process List for each node in Installation.

Process failure

You can check whether a process is restarting using the SMS Alarms subsystem.

Processes raise alarms when they are stopped or started. The alarms include:
Their name
The time the alarm was logged
Some other information about why the event may have occurred

Further information about the specific alarm can be found in the application's alarms guide.

Alarms can be accessed from the:

- Syslog on the local machine and the SMS(s). For more information, see *SMS Technical Guide*.
- Alarms tab in the SMS Alarms Management screen. For more information, see *SMS User's Guide*.

### Checking installed packages

To check the details of an installed package, use the `pkginfo` command.

**Example command:** `pkginfo -l smsSms`

**Example output:** This is an example of the output of the example command above.

```
PKGINST:  smsSms
  NAME:  Oracle smsSms
  CATEGORY:  application
  ARCH:  sun4u
  VERSION:  3.1.0
  VENDOR:  Oracle
  PSTAMP:  smsNode20041020104925
  INSTDATE:  Oct 20 2004 13:15
  EMAIL:  support@oracle.com
  STATUS:  completely installed
  FILES:      348 installed pathnames
              39 directories
              89 executables
              152448 blocks used (approx)
```

For more information about the `pkginfo` utility, see the system documentation.

### Checking network connectivity

Network connectivity will affect any process which requires communication between two different network addresses.

Network connectivity should support ssh sessions between the two machines experiencing the problem.

If you can open an ssh session between the two machines, check the following before contacting Level 1 support with details:

- If the address of either of the machines specified in the Node Management screens is a hostname, check that the hostnames used in the ssh sessions are the hostnames specified in the Node Management screen.

If you cannot ssh, check the following before contacting Level 1 support with details:

- Check that the hostname is resolving correctly in the DNS.
- Check that the physical network connection is working correctly.
- Check that the inetd and sshd are running.
- Check that sshd is listening on the expected port.
- Check that the smf_oper and acs_oper accounts are not locked, and that the username and password combinations being used are correct.
Checking configuration files

One of the significant areas where faults can occur and be remedied is in the configuration of processes. Configuration files can be edited by any standard text editor. A backup of the existing configuration file should always be taken before editing a configuration file.

For more information about the configuration files used in this application, see *Configuration*.

For more information about the configuration file for a specific program or tool, see the section named after the binary in question.
NCC Glossary of Terms

ACS
Advanced Control Services configuration platform.

GUI
Graphical User Interface

HTML
HyperText Markup Language, a small application of SGML used on the World Wide Web.
It defines a very simple class of report-style documents, with section headings, paragraphs, lists, tables, and illustrations, with a few informational and presentational items, and some hypertext and multimedia.

HTTP
Hypertext Transport Protocol is the standard protocol for the carriage of data around the Internet.

IN
Intelligent Network

Oracle
Oracle Corporation

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

PIN
Personal Identification Number

SGML

SLC
Service Logic Controller (formerly UAS).

SLEE
Service Logic Execution Environment

SMS
Depending on context, can be:
- Short Message Service
- Service Management System platform
- NCC Service Management System application

**System Administrator**

The person(s) responsible for the overall set-up and maintenance of the IN.

**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.

**XML**

eXtensible Markup Language. It is designed to improve the functionality of the Web by providing more flexible and adaptable information identification.

It is called extensible because it is not a fixed format like HTML. XML is a `metalanguage` — a language for describing other languages—which lets you design your own customized markup languages for limitless different types of documents. XML can do this because it's written in SGML.
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