



APPENDIX **C**

Sample CORBA Client Package (BTSxsdk) Implementation

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This appendix details a sample implementation of a CORBA Client Package (BTSxsdk). BTSxsdk is a Software Development Kit (SDK) that implements a sample CORBA client for connecting the BTS 10200 through the CORBA adapter. BTSxsdk package is automatically installed onto the Element Management System (EMS) when the CORBA adapter (BTScis package) installs. Use this SDK as a starting point to develop custom client programs. Successfully running this SDK also verifies the correct installation of the CORBA adapter on an EMS.

BTSxsdk Java Capabilities

This section describes some capabilities of the BTSxsdk.

SDK

The Software Developers Kit (SDK) includes the following capabilities:

- Provides both secured and non-secured CORBA interface access using port 684 for the Cognitronics Privacy Manager application.
- Provides CORBA access to the active EMS within a BTS 10200 system. The BTS 10200 CORBA interface exclusively binds to the active EMS.
- Provides a single management interface to all BTS 10200 systems.
- Supports both nonsecured and secured access to the BTS 10200 CORBA interfaces.
- Enables a single BTS 10200 CORBA interface to customer OSS applications to redirect requests from the OSS to two redundant BTS 10200 systems.
- Requires no predetermined NIC interface during BTS 10200 installation. Previous BTS 10200 installation required operators to specify a NIC address in the dual NIC interface configuration. Now the BTS 10200 CORBA interface dynamically binds to the VIP or a NIC address in a dual NIC configuration.

Java Classes

Java classes provide the following capabilities:

- Support access to multiple BTS sites using CLLI code
- Conceal redundant EMS nodes (for ACTIVE access only)
- Conceal redundant NIC(s) on each EMS node
- Track the state of the CIS application on each EMS
- Supply a single set of IOR references to the BTS 10200 client applications

Most of the capabilities are supplied in a series of classes to abstract access to the BTS 10200. This simplifies the management of objects and connections to the BTS 10200.

CORBA Interface Servant

Extensions

The following extensions were added for the CORBA Interface Servant (CIS) application. While the CIS application engine is running, it applies these extensions.

- Bind individual IP addresses to Name Service(s) on each EMS
- Unbind if EM01 is STANDBY, shuts down, or fails over
- Stop processing requests when not in ACTIVE EM01

Dual Mode Operations

Dual mode operations apply. Both nonsecure and secure provisioning work only on the active EMS. A switchover from either a failure or a manual request causes the objects to unbind and current connections to break. As a result, queries to the standby side produce Java exceptions.

Prerequisites

The BTSxsdk package is automatically installed onto the EMS when the CORBA adapter installs. If you install the BTSxsdk on another machine, the following prerequisites apply when you implement the BTSxsdk package:

- The BTSxsdk package must be installed on a UNIX machine that is in the same intranet as the EMS where the CORBA adapter is installed.
- Java Development Kit (JDK) 1.4.1_01 or later is installed. In this document the assumption is that the JDK is installed under /usr/java.

Users must be familiar with the Cisco BTS 10200 Softswitch Command Line Interface (CLI) adapter commands.

OpenORB Settings

The OpenORB package requires a modification to the JDK. It updates properties in the JDK to enable it to point to the OpenORB implementation for the CORBA interface objects. There are two ways to modify JDK for OpenORB:

- The BTS 10200 package BTSorb automatically updates the JDK during installation.
- Type the following commands in the order given:
 - `cd /opt/BTSxsdk/orb/lib`
 - `java -jar openorb-1.3.1.jar`

Build the BTSxsdk

The BTSxsdk package is prebuilt in Java. A build is not necessary if sample files are not modified. If necessary, perform the following steps to build a sample client application:

Step 1 Go to the BTSxsdk directory.

```
cd /opt/BTSxsdk
```

Step 2 Perform export.

```
export PROJECTDIR=`pwd`
```

Step 3 Perform export.

```
export JAVA_HOME=/usr/java
```

Step 4 Perform make all.

```
./bin/make all
```

Run BTSxsdk

To run the sample CLI client application, perform the following steps:

Step 1 Go to the bin directory.

```
cd /opt/BTSxsdk/bin
```

Step 2 Issue the following command to run the BTSxsdk.

a. To connect to the non-secure CORBA server, enter the command:

```
./bts-cli <Active EMS IP> -n <username> -p <password>
```

The “Active EMS IP” can be one of the following:

- One of the active EMS management IP addresses
- VIP
- Active EMS DNS name

b. To connect to the secure CORBA server, enter the command:

```
./bts-cli-secure <Active EMS Mgmt IP> -n <username> -p <password>
```

The “active EMS Mgmt IP” must be one of the active EMS management IP addresses.

A CLI-like interface appears. Issue a test CLI command such as **show sub; limit=1**—the XML response displays on the screen.
