

hp opencall SS7, an hp netaction product

SDK Operations Guide

First Edition



E1201

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Printing History

First Edition For HP Opencall SS7 SDK release, December 2001

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Preface

This guide describes how to configure and monitor the HP Opencall SS7 Software Developer's Kit (SDK) software and the SS7 network.

About This Guide

This guide accompanies the HP Opencall SS7 Software Developer's Kit (SDK) which is based on the features of HP Opencall SS7 release 2.2 but is also source compatible with release 3.x.

NOTE

This guide contains information for both HP-UX and Linux versions of the HP Opencall SS7 SDK. However, some of the tools described are only available with the HP-UX version. When this is the case, a note is provided in the text.

Purpose

The guide is intended for operators concerned with the configuration, management and monitoring of an HP Opencall SS7 SDK platform. Refer to this guide for help with:

- configuring the platform
- configuring the (virtual) SS7 network
- starting and stopping the platform
- monitoring, managing and maintaining the platform

Contents and Structure

The contents and structure of this guide are as follows:

Chapter	Contents
Chapter 1 , “Pre-Requisites.”	Details the pre-requisites that must be in place before the procedures in this manual can be used.
Chapter 2 , “Configuring and Starting the Platform.”	Describes how to perform the initial configuration of the platform and start it up.
Chapter 3 , “Configuring the SS7 Network.”	Describes how to configure the (virtual) SS7 network from the platform.
Chapter 4 , “Dynamic Configuration.”	Describes how to reconfigure ISUP/TUP applications online without stopping the platform.
Chapter 5 , “General Procedures.”	Provides procedures and information concerned with monitoring, managing and maintaining the platform.

Associated Documentation

The HP Opencall SS7 SDK document set contains the following books:

HP Opencall SS7 Application Developer's Guide

HP Opencall SS7 Conformance and Compliance Statements

HP Opencall SS7 Glossary

HP Opencall SS7 ISUP Application Developer's Guide

HP Opencall SS7 SDK Operations Guide

HP Opencall SS7 Technical Guide

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France

1 **Pre-Requisites**

This chapter describes the HP Opencall SS7 SDK configuration pre-requisites.

Security

To configure a platform, you must log in as a privileged user. The table below summarizes the different possibilities.

NOTE The SAM tool is only available with the HP-UX version of the SDK.

Table 1-1 Access Permissions

User	Access Level	Configuration Required
root	Full access to whole platform, including HP Opencall SS7.	none
ss7admin	Default privileged user for HP Opencall SS7.	Configure SAM (HP-UX SDK only) to allow user to access HP OC Platform Configuration.
other user	root can grant privileged access to HP Opencall SS7 to other members of the ocadmin group	Configure SAM (HP-UX SDK only) to allow user to access only HP OC Platform Configuration. Add default environment variables to users .profile Configure user's .rhosts file

At package installation, the following are created:

- the user `ss7admin`
- the group `ocadmin`
- the directory `/home/ss7admin`

These must *not* be removed.

The appropriate environment variables are also added to both `ss7admin` and `root`'s `.profile` (and to `.dtprofile`, if it exists.)

The HP Opencall SS7 files and directories are used when configuring the platform. The `root` user must not create or modify any files or directories belonging to the HP Opencall SS7 file system layout, except when using

SAM or the supported command line tools.

NOTE

To be manageable using SAM (HP-UX SDK only), all files in the HP Opencall SS7 configuration directories, and the directories, *must* be owned by a member of the group `ocadmin`.

Most platform commands can be used by the `ss7admin` user, however, some require `root` access.

Configuring Restricted SAM (HP-UX SDK Only)

NOTE

The SAM tool is only available with the HP-UX version of the SDK.

If you want the user `ss7admin` to be able to use a restricted version of SAM, giving access only to HP OC Platform Configuration, configure this using the Restricted SAM Builder (started using `sam -r`). Set the group `ocadmin`'s privileges to `Enable` for HP OC Platform Configuration and to `Disable` for all other tools.

You must also carry out the above configuration for any other users that you want to have access to platform configuration using SAM.

Authorizing Access for Other Users

If you want users other than `root` and `ss7admin` to have access to the platform tools or man pages, you must add the default environment variables to each user's `.profile` file:

```
PATH=$PATH:/opt/HP-AIN/SS7/bin  
MANPATH=$MANPATH:/opt/HP-AIN/SS7/share
```

This is done automatically for the `ss7admin` and `root` users.

Any users that you want to access the platform, must be members of the `ocadmin` group.

Pre-Requisites
Security

Platform Configuration

Configuring the HP Opencall SS7 platform normally consists of the following steps:

- Creating a new configuration or taking a predefined configuration.
- Modifying this configuration to use the correct values for your system.
- Installing the configuration—this moves the new or updated configuration from the `saved` state to the `running` state.
- Propagating the configuration— this copies the new and modified configuration onto all systems in the platform, ensuring consistency.

NOTE

The propagation step is not relevant to an SDK platform since it is only applicable in a 2-host/duplex platform.

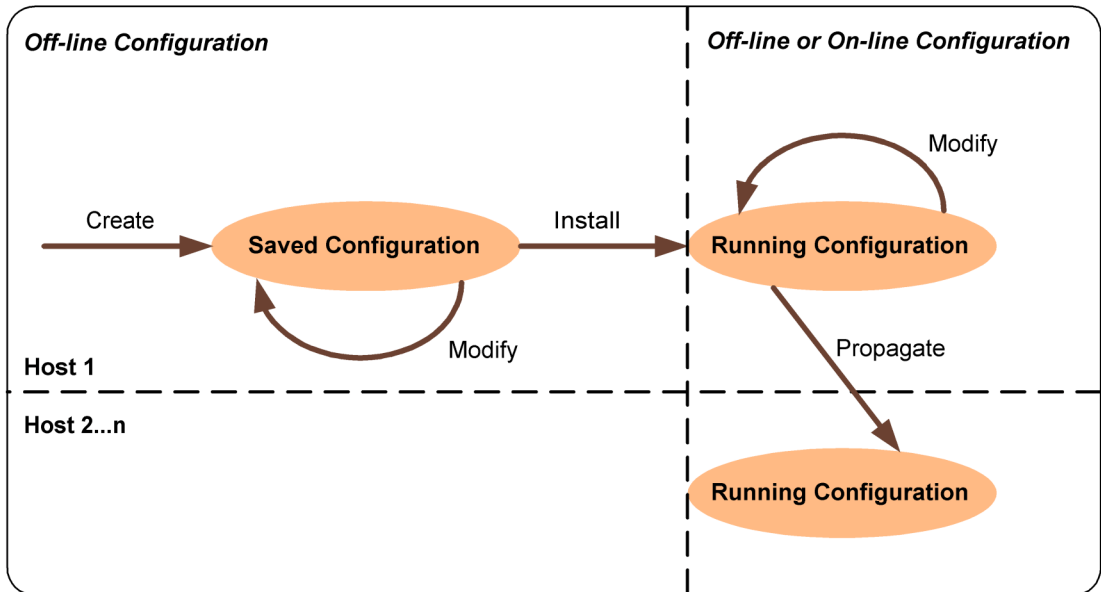
NOTE

A number of predefined configurations are provided with the HP Opencall SS7 SDK (see “Predefined Configurations” on page 17). With the HP-UX version of the SDK, it is also possible to create new configurations using SAM (see “Configuring the Platform Using SAM (HP-UX SDK Only)” on page 18).

The above tasks can be carried out:

- by running scripts from the command line (see “Script-based Platform Configuration” on page 17).
- using SAM (see “Configuring the Platform Using SAM (HP-UX SDK Only)” on page 18).

The configuration tasks are illustrated in the diagram below.



Configuration States

A configuration can be in one of two states:

- `saved`—located in the directory defined by the environment variable `$HP_AIN_WORKING_CONFIG_DIR` (default is `/var/opt/HP-AIN/working_config`)
- `running`—located in `/etc/opt/HP-AIN/config`

The table below summarizes what happens to the configuration files in different situations:

Configuring and Starting the Platform
Platform Configuration

Table 2-1 Configuration File States

Task	Action	Result
Create new configuration or modify existing saved configuration	Create configuration	Configuration is in saved state
	Modify configuration	Modified configuration still in saved state
	Install configuration	Existing running configuration (if any) moved to saved state—directory named so as not to overwrite any other saved configurations New configuration moved to running state
	Save As configuration	Changes saved to directory
Modify running configuration	Modify configuration	Modified configuration is in running state
	Save configuration	Running configuration copied to saved state—directory named so as not to overwrite any other saved configurations Note: If you do not explicitly save your modified configuration, no backup copy of it exists.
	Propagate configuration	Running configuration copied to all other systems in platform
	Check configuration	Configuration validated.

Predefined Configurations

The SDK is supplied with a number of pre-defined platform configurations. These standard configurations are listed and described in the release notes that accompany this release of the SDK.

To use one of the standard configurations, you must install it using the command `cfgInstall`. For the complete syntax of this command, refer to the man pages.

Script-based Platform Configuration

This section describes how to configure your HP Opencall SS7 SDK platform using command line interface scripts.

NOTE

If you have the HP-UX version of the SDK, you can alternatively use the SAM tool to perform this configuration, as described in “Configuring the Platform Using SAM (HP-UX SDK Only)” on page 18.

The following scripts can be used:

- `cfgCreate`
- `cfgInstall`

For complete syntax descriptions of each command, refer to the man pages. The files to be configured are in `/etc/opt/HP-AIN/config/`

NOTE

Back up your existing configuration before making any changes to your platform.

Step 1. Create the new configuration: run `cfgCreate` on the Platform Manager. Create the configuration directly in `/etc/opt/HP-AIN/config/`. To do this, leave the

`[-to<destDir>]`

field empty.

Step 2. Make any necessary changes to the system parameters in the `sys.*` files.

Configuring and Starting the Platform

Platform Configuration

Step 3. Run `cfgInstall` to move the new configuration to the `running` state. (Not necessary if you created the configuration in `/etc/opt/HP-AIN/config/`).

The platform is now ready for operation.

Configuring the Platform Using SAM (HP-UX SDK Only)

This section summarizes the procedures for configuring the HP Opencall SS7 SDK platform using SAM: HP OC Platform Configuration tool. For detailed information on individual parameters, refer to the SAM on-line help.

NOTE

The SAM tool is only available with the HP-UX version of the SDK.

The sections below describe how to create a new configuration, modify a configuration, back up a configuration and restore a saved configuration.

Creating a New Configuration

This procedure is intended as a general guide. For precise details on the meaning and usage of the different parameters, see the SAM on-line help.

CAUTION

Back up your existing configuration before making any changes to your platform. To do this, refer to “Backing Up the Platform” on page 19.

- Step 1.** Start SAM by typing `/usr/sbin/sam&`, and choose HP OC Platform Configuration. Remember you must be logged in as a user with appropriate access privileges. See “Security” on page 10.
- Step 2.** Choose Actions | Create to create a brand new configuration.
- Step 3.** Fill in the appropriate configuration for your system.
- Step 4.** Click OK. This creates your new configuration in the `saved` state using the default values for the configuration options you chose.
- Step 5.** Follow the steps in “Modifying a Configuration”, below, to complete your new configuration.

Modifying a Configuration

- Step 1.** Highlight the configuration you want to modify, then choose Actions | Modify and make the appropriate changes to the default configuration for your system.
- Step 2.** Choose Actions | Install to move your new configuration to the running state, or Actions | Save As.

You are now ready to start your platform. See “Starting and Stopping HP Opencall SS7” on page 20.

Backing Up the Platform

Before making any changes to your configuration, make a backup:

- Step 1.** Start SAM by typing `/usr/sbin/sam&`
- Step 2.** Double-click the “HP OC SS7 Platform Configuration” icon.
- Step 3.** Select the configuration you plan to change.
- Step 4.** Save the configuration (select Actions | Save As)

NOTE

Check that your backup has completed successfully by reading the log file.

Rolling Back Changes

To restore your configuration from a backup:

- Step 1.** Start SAM by typing `/usr/sbin/sam&`.
- Step 2.** Double-click the “HP OC SS7 Platform Configuration” icon.
- Step 3.** Select the previous operational configuration.
- Step 4.** Install the configuration (select Actions | Install).
- Step 5.** Restart the application.

Starting and Stopping HP Opencall SS7

You can start and stop the platform using the commands specified below.

NOTE

For further details of these commands, refer to the man pages.

Starting HP Opencall SS7

To start the platform, simply run the command `ss7Start`.

Stopping HP Opencall SS7

To stop a running platform, run the command `ss7Stop -all`.

3

Configuring the SS7 Network

This chapter describes how to configure the SS7 network. In the case of the SDK, this is a virtual network. The stack *must be running* to carry out the configuration described in this chapter.

Introduction

The first time you start your SS7 stack, the network configuration file provides a standard configuration. Use the SS7 Monitor to:

- modify this configuration to form the basis for a new configuration to be created (note that the LPC cannot be modified)
- create your new configuration (see “Creating Different Network Configurations” on page 33)
- save your new network configuration.

You can also use the SS7 Monitor to monitor the network.

The SS7 Monitor starts automatically when you start the platform management tools using `ss7MgrStart`. For further details, refer to “Starting and Stopping the Platform Management Tools” on page 42.

SS7 Monitor can run in two modes:

- Administrator—allowing both configuration and monitoring
- Operator—allowing monitoring only

The procedures described in this chapter must be carried out in Administrator mode. For information on changing between modes, see “Changing the SS7 Monitor Mode” on page 45.

NOTE

You can quit the SS7 Monitor at any time by pressing (Q)uit.

SS7 Monitor Interface

The Administrator’s Monitor Main Menu provides these options:

1. Configure Entities
2. Monitor Entities
3. Single Entity Statistics

Moving between Parameters

Use the following keys to move between parameters:

key	function
+	move down one parameter
-	move up one parameter
spacebar	move down one window
backspace	move up one window

Selecting a choice from the menu displays a window for that choice. Each window has a corresponding help window, which gives information about the data requested. All windows have a common format.

You can enter commands using the function keys or a mouse. Commands and error messages are displayed on the window.

Commands

To enter commands, enter the first letter, that is shown between parentheses in the display. For example, to (c)heckpoint, enter c. To choose a menu item, enter the number that appears next to it.

Refresh rate

For some windows there is at least a 2 second delay in refreshing. The SS7 Monitor polls the state of the signaling units every 15 seconds.

Modifying the Network Configuration

Modifying the network configuration consists of the following steps:

- Step 1.** Check that the stack is running. See “Monitoring HP Opencall SS7 Processes” on page 44.
- Step 2.** Start the SS7 Monitor, by entering `ss7MgrStart`.
- Step 3.** From the main menu, choose `Configure` entities. From this window you have the following options:
 1. MTP
 2. SCCP
- Step 4.** Deactivate any network components (such as links/linksets) that are to be modified.
- Step 5.** Enter the configuration changes. This can include adding or modifying network components such as links/linksets and destination point codes. For further information, refer to the SS7 Monitor on-line help and to the section “Guidelines for Network Configuration” below.
- Step 6.** Save your configuration by entering `c` to checkpoint.
- Step 7.** Reactivate MTP for any new or modified components.

NOTE

Backup your changes frequently, by entering `c` for checkpoint.

Guidelines for Network Configuration

Configure your SS7 network entities by building a configuration from the physical layers of the network, such as links and linksets, to the higher protocol levels, such as SCCP and global title translations.

You *must* configure the LPCs first.

You can configure the following entities at a later time. This order is recommended but not required:

- Linksets/Links

Configure your linksets and then your links—these are configured from the MTP window.

- MTP Parameters
- Destinations/Routes—these are configured from the MTP window
- SCCP

Refer to the SS7 Monitor on-line help for detailed information about each parameter. However, the sections below contain guidelines for the different entities.

Local Point Code and Aliases

You *must* set the platform Local Point Code (LPC) and aliases before doing anything else.

MTP

Links/Linksets

The Signaling Link Code (SLC) value for ANSI, ITU-T, and the Chinese standard must be between 0 and 15. For TTC, the SLC value must be between 0 and 7.

With a TTC system, you need to define whether the linkset is configured as A or B. A linkset defined as A accepts all even SLSs. A linkset defined as B accepts all odd SLSs.

Destinations/ Routes

Before you can configure destinations and routes, at least one route must be configured for each destination.

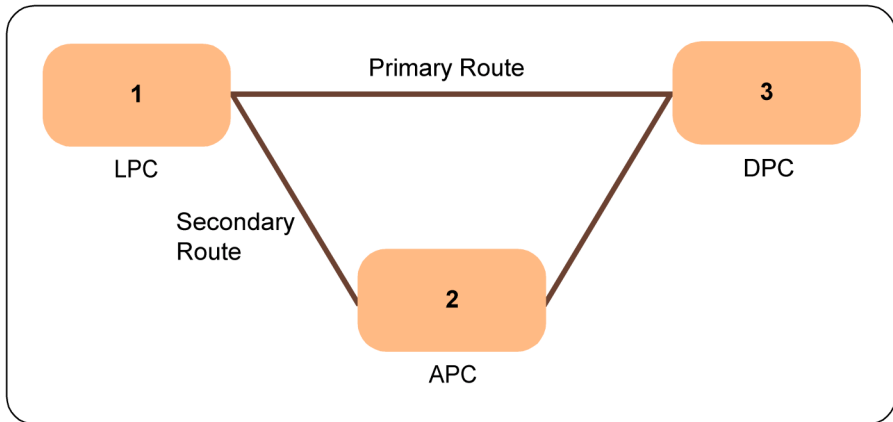
Only one destination may be configured as a gateway (STP used to interconnect national and international networks).

Configuring the SS7 Network Modifying the Network Configuration

Example for Configuring Destinations and Routes

The following example demonstrates how to configure destinations and routes.

The example configures a primary and secondary route from LPC 1 to DPC 3. In the case of the primary route, DPC 3 is both the APC and the DPC.



NOTE

The Software Development Kit allows communication between two point codes only.

- Step 1.** With the Configure MTP Entities Menu displayed select “Destinations/Routes”
- Step 2.** Enter a d 3
- Step 3.** Enter a d 2
- Step 4.** Enter a r p 3 3
- Step 5.** Enter a r s 3 2

SCCP

Peer Point Code Only an LPC can have a peer point code.

Setting the Concerned Parameter Use the following table to decide if you need to set the concerned parameter to y or n.

If you...	...then enter this value
want to broadcast management information to a particular PC	y
do not want to broadcast management information	n
have a stack configuration of more than 50 DPCs and do not want your system flooded with management messages	n
have a stack configuration of more than 50 DPCs and still need some management messages	y, but only for APCs. Otherwise you may flood your system with management messages

SCCP Standard used at DPC Use this parameter to tell the LPC what SCCP standard mode is in use at the DPC. The syntax of how to do this is in the procedures and examples that follow.

If you have this standard at the DPC...	...then enter this value
ITU-T 88 (Blue Book)	0 (default)
ITU-T 92 (White Book)	1
ANSI 88	0 (default)
ANSI 96 - no ISNI	10

Configuring the SS7 Network

Modifying the Network Configuration

Configuring Global Title Translations

In the Configure Global Title Translations window, the following abbreviations are used:

Table 3-1 Global Title Translations

Abbreviation	Meaning
NP	Numbering Plan
TT	Translation Type
NAI	Nature of Address Indicator
DPC	Destination Point Code
SSN	Sub-System Number
Prio	Priority

Under *Address* a backslash \ can be used as a void character. The numbers following the backslash are then ignored. For example, 800\ can be used to represent all 800 numbers.

Priority Field

You can prioritize your global title translations. This means that if one destination is no longer preferred (for example, it becomes inaccessible) then the destination with the next highest priority is contacted.

You can prioritize up to ten destinations for one global title translation. 0 has the highest priority and 100 has the lowest priority.

To change the default value, edit the file
`etc/opt/HP-AIN/SS7_<standard>/sys.<className>.sccp.`

NOTE

If you want the global title translation to be done by a remote node, configure the remote node (Remote SP) without a remoteUser (SSN).

GDI Stack

The overall procedure for configuring a GDI stack using the SS7 Monitor is the same as for any other SS7 stack.

- Step 1.** Configure your LPC and any LPC aliases on the SS7 Stack using the MTP Entities menu.

Do not configure any of the other values in the MTP or SCCP Entities menus if you are configuring the stack for GDI. This is because the same stack cannot support TCAP over GDI and TCAP over SCCP. If you want to support these different protocols on the same platform, it is necessary to use a multiple-stack configuration.

- Step 2.** Select GDI from the Configure Entities menu and enter the DGPCs (Distant GDI Point Codes) and IP addresses corresponding to your configuration.

NOTE

Connections may be closed by the SS7 Stack in the case of an IP protocol error. If this happens the connection is *not* reactivated automatically.

The HP Opencall GDI Server accepts client connections only if a TCAP application is connected to SSN 256. Otherwise, the connection is refused.

Configuring GDI as a Client

By default, a GDI host is configured as a server. If you want your GDI host to act as a client, you must edit the following file by hand:

`etc/opt/HP-AIN/SS7_<standard>/sys.classname.gdi`

Refer to the file's comments to help you. You must add the line:

```
platformMode:      CLIENT;
```

after the line:

```
portNumber:       ha_ss7gdi_1;
```

Saving the Network Configuration

Save your network configuration frequently as you work, and every time you finish the stack configuration. In the context of SS7 Monitor, this is referred to as *checkpointing*.

When HP Opencall SS7 starts, it automatically loads the most recently checkpointed configuration and activates MTP level 3.

You can checkpoint your configuration from with the SS7 Monitor, or from the command line.

Checkpointing the Configuration using SS7 Monitor

You are prompted to checkpoint in the following situations:

- when you leave the `Configure Entities` sub-menu
- when you enter the `(q)uit` command
- after several minutes (default value is 5 minutes) of inactivity within the submenus

You can also checkpoint at anytime by typing `C` if this option is shown in your window.

Checkpointing from the Command Line

You can checkpoint from a prompt using the `ss7Checkpoint` command.

Loading your Network Configuration

Loading the Default Configuration

By default, when HP Opencall SS7 starts, it loads the reference configuration file created by checkpointing. See “Saving the Network Configuration” on page 31. If no reference file exists, an empty configuration file is loaded.

Loading a Non-Default Configuration

To load a configuration file other than the reference configuration file, use the `loadconf` command, using the `-f` option to specify the file to load.

NOTE

All configuration files must be owned by a member of the group `ocadmin`.

Creating Different Network Configurations

To create several different SS7 network configurations, follow the steps below to configure and save the configurations.

Step 1. Save your current configuration using the `ss7Checkpoint` command.

Step 2. Stop the stack.

Step 3. Remove the reference files (stored in the directory `/etc/opt/HP-AIN/config/ss7_<standard>`):
`rm Saved.<className>.conf.ref, Saved.<className>.conf`

Step 4. Restart the stack.

Step 5. Configure your new network using the SS7 Monitor.

Step 6. Checkpoint the new configuration.

Step 7. Activate MTP.

The new configuration is now running.

Configuring ANSI Routing

This section describes how to configure ANSI Routing.

Cluster Routing

The configuration procedure is different depending on whether the network is already configured.

Configuring Cluster Routing in an Existing SS7 Network

Step 1. Checkpoint your configuration using the checkpointing tool.

Step 2. In the file

```
/etc/opt/HP-AIN/config/SS7_<standard>/sys.<className>.mtp,  
set the "FullPointCodeRouting" flag to 0.
```

For example:

```
# To disable (0) or enable (1) full point code routing  
UserConfigurable: FullPointCodeRouting: INTEGER Default: 0  
Min: 0 Max: 1;
```

Step 3. Stop and restart the stack. The checkpointed configuration is loaded automatically.

Some DPC creations are refused because when Full Point Code routing is disabled, there can be only 1 DPC (N.C.0) in a remote cluster DPC. This does not matter as DPC N.C.0 can stand for any DPC. You do not have to add anything to the configuration.

If your Full Point Code routing configuration does not have a DPC N.C.0 in the remote clusters (for example, if you have N.C.1, N.C.2 and N.C.3) all DPCs are refused and you have to reconfigure N.C.0.

Step 4. Checkpoint your configuration again.

Configuring Cluster Routing with no Existing SS7 Network

Step 1. In the file `/etc/opt/HP-AIN/config/SS7_AAA/sys.<className>.mtp`, set the “FullPointCodeRouting” flag to 0.

For example:

```
# To disable (0) or enable (1) full point code routing  
UserConfigurable: FullPointCodeRouting: INTEGER Default: 0  
Min: 0 Max: 1;
```

Step 2. Use the SS7 Monitor to configure your SS7 network. In remote clusters, only the N.C.0 DPC is allowed.

Full Point Code Routing

The configuration procedure is different depending on whether the network is already configured.

Configuring Full Point Code Routing in an Existing SS7 Network

The following procedure explains how to enable Full Point Code routing in an existing SS7 network configured in cluster routing.

Step 1. Checkpoint your network configuration.

Step 2. In the file `/etc/opt/HP-AIN/config/SS7_AAA/sys.<className>.mtp`, set the FullPointCodeRouting flag to 1:

```
# To disable (0) or enable (1) full point code routing  
UserConfigurable: FullPointCodeRouting: INTEGER Default: 1  
Min: 0 Max: 1;
```

Step 3. Stop and restart the stack. The checkpointed configuration is automatically reloaded, but the system is now running in Full Point Code routing mode.

Step 4. Add all the DPCs and routes that were previously implicitly handled by DPC with member ID set to 0. For example, if in a remote cluster you have DPC 2.5.0, 2.5.1 and 2.5.2, you must add DPC 2.5.1 and 2.5.2 (2.5.0 being already declared in the file generated by `ss7CheckPoint`). You must also declare the corresponding routes.

Step 5. Checkpoint your configuration again.

Configuring Full Point Code Routing with no Existing SS7 Network

Step 1. In the file `/etc/opt/HP-AIN/config/SS7_AAA/sys.<className>.mtp`, set the `FullPointCodeRouting` flag to 1:

```
# To disable (0) or enable (1) full point code routing  
  
UserConfigurable: FullPointCodeRouting: INTEGER Default: 1  
Min: 0 Max: 1;
```

Step 2. Stop and restart the stack. The checkpointed configuration is automatically reloaded, but the system is now running in Full Point Code routing mode.

Step 3. Use the SS7 Monitor to configure your SS7 network. Define all DPC and routes one by one.

Step 4. Checkpoint your configuration.

Configuring the SS7 Network
Configuring ANSI Routing

4 **Dynamic Configuration**

This chapter contains a procedure for updating the configuration of your ISUP or TUP applications without taking your HP Opencall SS7 SDK platform out of service. This procedure applies to the HP-UX version of the SDK only.

Dynamic ISUP/TUP Application Configuration (HP-UX SDK Only)

This section describes how to update an existing ISUP/TUP configuration, using SAM, without stopping the application.

NOTE

The configuration described in this section can only be performed with the HP-UX version of the SDK.

NOTE

All of the configuration described in this procedure must be carried out in a single SAM session. Changes are not saved until you click OK in the ISUP/TUP Application Configuration Window. When you quit the dynamic configuration window, the configuration is automatically propagated to all the hosts of the platform.

Refer to the SAM on-line help and to the `IsupDynamicConfiguration(3)` man page for detailed descriptions of the parameters mentioned below.

Step 1. In the Platform Configuration window, highlight the running configuration, then select `Actions|ISUP Dynamic Config` or `Actions|TUP Dynamic Config`, as appropriate. In dynamic mode, you can do the following:

- Add or remove DPCs. You cannot change the configuration of an existing DPC—to obtain the same end result, remove DPC you want to change, then add a new one with the same name and modified parameter values.
- Add, remove or modify circuit parameters.

Fields containing information you cannot change are read-only, and buttons are grayed out.

Step 2. Identify the application you want to update (for example, using the `ps` command) and the host on which it is running. Note that you can have several instances of the same application running on the same platform,

but that only one of these instances is the primary application. If possible, identify the primary application and carry out steps 4 and 5 below on the host running the primary.

NOTE

If you are not able to identify the primary, choose any application instance and proceed as below.

- Step 3.** Start `nettl` (using `startnettl as root`) on the host running the application, and open a log window (using `wlog`).
- Step 4.** On the host running the application, start the `ss7IsupReload` or `ss7TupReload` script, as appropriate, giving the application identifier as an argument:

For ISUP

```
prompt$ ss7IsupReload -appID <appID>
```

For TUP

```
prompt$ ss7TupReload -appID <appID>
```

Answer any questions put by the script. When the log file indicates that both the reload and the dump are complete, the script prompts you to confirm the changes. When you enter `y` to do so, the ISUP/TUP configuration file is up to date and the changes come into use. If you choose not to confirm your changes, restart the application to restore the old values.

- Step 5.** Stop and restart any secondary applications.

Dynamic Configuration

Dynamic ISUP/TUP Application Configuration (HP-UX SDK Only)

Starting and Stopping the Platform Management Tools

NOTE

HP Opencall SS7 must be running before you can start the platform management tools.

Starting Platform Management

To start platform management, enter the `ss7MgrStart` command.

For the HP-UX version of the SDK, this command starts two tools:

- Platform Monitor—this is the user interface for the Fault Tolerance Controller
- SS7 Monitor—this lets you monitor and configure the SS7 network

For the Linux version of the SDK, this command starts the SS7 Monitor tool only (described above). The Platform Monitor is not supplied with this version of the SDK and you must run `ss7View` instead.

SS7 Monitor can run in two modes:

- Administrator—allowing both configuration and monitoring
- Operator—allowing monitoring only

Refer to “Changing the SS7 Monitor Mode” on page 45 for instructions on changing between these modes.

See the SS7 Monitor on-line help for information on the parameters displayed.

See “Modifying the Network Configuration” on page 24 for guidelines on configuring the SS7 network.

Stopping Platform Management

Use the `ss7MgrStop` command to stop the platform management tools and kill any running processes. Enter it with one of the following options:

- -all
 - Stops all management processes.
- -select
 - Prompts you to specify the process(es) to kill.

Monitoring HP Opencall SS7 Processes

The stack processes are monitored differently according to the version of the SDK that you are using:

- For the HP-UX version of the SDK, the Platform Monitor is used. This starts automatically when you run the `ss7MgrStart` command.
- For the Linux version of the SDK, `ss7View` is used, which you must run manually from the command line.

The state of each stack process is reported as well as the global state of the platform, as shown in the tables below.

Table 5-1 **Stack Process States**

State	Meaning
Active	Process is handling platform functions
Down	Process is down

Table 5-2 **Global States**

State	Meaning
Active	All configured stack processes are running
Down	None of the configured stack processes are running
Mixed	Only some of the configured stack processes are running

In Platform Monitor, the display is updated automatically or you can force an update by clicking the Refresh button.

Monitoring the SS7 Network

To monitor the SS7 network, use the SS7 Monitor. You can do this in either Operator or Administrator mode.

The Monitor Entities and Single Entity Statistics menu items let you monitor and get statistics on the SS7 network and about hardware status. These menus can be accessed in Operator (non-privileged) mode, as well as in Administrator mode. Refer the SS7 Monitor on-line help for details on the information provided.

See “SS7 Monitor Interface” on page 22 for information on syntax and navigation.

Changing the SS7 Monitor Mode

To switch between the available modes, edit the file `/etc/opt/HP-AIN/config/NM_common/mgtProcessList.conf` to comment out the lines that you do not require:

```
# To start Administrator SS7 Monitor(s)
$BINPATH/ss7AdmMon -C $CLASSNAME_1 -typeName $TYPENAME_1
# To start Operator SS7 Monitor(s)
#$BINPATH/ss7OpeMon -C $CLASSNAME_1 -typeName $TYPENAME_1
```

Viewing Logs

When working with HP Opencall SS7, it is often useful to display the system's logs. This allows you to see immediately that all is well, or take appropriate action if there is a problem.

To view logs alone make sure `nettl` is running, then enter the `wlog` command.

To include Cause and Action in the display, if these are available, use the `wlog -extended` command.

The table below lists all the available log related commands.

Table 5-3 **Log Related Commands**

Command	Function	Comment
<code>cleanttl</code>	Stops logging and cleans out existing log files	You must be root to use this command
<code>nlog</code>	Displays logs without opening a new window	
<code>startnettl</code>	Starts logging	You must be root to use this command
<code>wlog</code>	Opens a log window	

Working with SNMP Traps (HP-UX SDK Only)

NOTE SNMP traps are only available with the HP-UX version of the SDK.

HP Opencall SS7 provides an SNMP traps mechanism that can be used in conjunction with an SNMP manager such as HP Openview. The HP Opencall SS7 SNMP agent, `ss7SNMPAgent`, maps Cause and Action logs to SNMP traps. The `ss7SNMPAgent` is a sub-agent of the HP master agent. The way traps are sent is defined in the HP master configuration file.

Configuring SNMP Traps

To set up SNMP traps, follow the procedure described below.

NOTE In the predefined configurations supplied with the HP-UX version of the SDK, SNMP traps are enabled by default.

- Step 1.** When creating your initial configuration, ensure the SNMP agent process is enabled. See “Creating a New Configuration” on page 18.
- Step 2.** If the master agent is running, stop it.
- Step 3.** Edit the `trap-dest` field of the `/etc/SnmpAgent.d/snmpd.conf` file to point to the destination for SNMP traps. Copy this file to all hosts in your platform.
- Step 4.** Restart the master agent using the `snmpd` command.
- Step 5.** In order to work with HP Openview:
 - a.** Copy the following file onto your management station:
`/etc/opt/HP-AIN/config/NM_common/OpencallSS7_trapd.conf`
 - b.** On the management station, run the following command:
`$OV_BIN/xnmevents -merge OpencallSS7_trapd.conf`

Displaying a List of Available Traps

To list the available traps, enter the following command:

```
ss7SNMPAgent -displayTrapDoc.
```

Logs can be one of the following types: Informative, Warning, Minor and Major.