Oracle® Communications IP Service Activator

Installation Guide

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Preface

This guide provides instructions for installing Oracle Communications IP Service Activator components and modules using the Oracle Universal Installer.

Audience

This document is intended for network administrators and equipment planners. Readers should be familiar with the following topics:

- Solaris or Linux and its commands
- Oracle Database
- Installing and configuring software on Unix and Windows environments
- A text editor such as vi

Example commands are shown in Bourne shell syntax. This is the recommended shell for the Oracle user and is the syntax used in the template files supplied with IP Service Activator. The Bourne shell is included with all UNIX systems.

Before choosing the hardware configuration to host IP Service Activator, see "Planning an IP Service Activator Installation" for engineering guidelines and information about preparing for an IP Service Activator install.

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Related Documents

For more information, see the following documents in the Oracle Communications IP Service Activator documentation set:

- See *IP Service Activator Concepts* for information on the high level concepts and the architecture of IP Service Activator

- See *IP Service Activator System Administrator's Guide* for information and procedures related the duties a system administrator performs in monitoring and managing IP Service Activator.
- See *IP Service Activator Release Notes* for information related to this release of IP Service Activator.
- See *IP Service Activator OSS Integration Manager Guide* for information on installing and configuring OSS Integration Manager for IP Service Activator.
- See the specific cartridge guide for information about installing and configuring specific cartridges.
- See *IP Service Activator SDK Service Cartridge Developer Guide* for information about types of cartridges.
- See IP Service Activator online Help for step-by-step instructions of tasks you perform in IP Service Activator.
- See the Oracle Database product documentation for information about installing and configuring the Oracle Database.

1

IP Service Activator Installation Overview

This chapter provides an overview for installing Oracle Communications IP Service Activator.

IP Service Activator Installation Overview

Before beginning the IP Service Activator installation, you need to plan the installation and overall system configuration, gather information, and set up your hosts (servers and workstations). See "About Planning an IP Service Activator Installation" for engineering guidelines and other planning details.

For later reference, you need to gather and record important installation information, such as settings, account names, and passwords. This document provides checklists in "Installation Checklists and Worksheet".

Server and workstation preparation can include the installation and configuration of:

- Operating systems, including the creation of user accounts
- Oracle Database software
- Other required third-party software components

After the servers and workstations are correctly configured, you run the Oracle Universal Installer. Depending on system configuration, IP Service Activator server software is installed on at least one, and possibly multiple, hosts. IP Service Activator client software is installed on each Windows host.

After software installation, post-installation activities may be required. These are described in this guide and in *IP Service Activator System Administrator's Guide.*

Installation Sequence

The following list outlines the main tasks to install IP Service Activator:

1. Plan the installation and prepare your hosts for IP Service Activator installation. See "Planning an IP Service Activator Installation".
2. Perform the pre-installation checks. See "Pre-installation Checklist".
3. Install the operating system (OS) and apply patches. Complete additional OS configuration tasks. See "Installing IP Service Activator on an Oracle Solaris or Linux Server".
4. Install and configure Oracle Database software. See "Installing and Configuring Oracle Database Software".

5. Perform post-installation tasks on Oracle Database software. See "Oracle Database Post-Installation Tasks".
6. Configure the CORBA ORB settings. See "CORBA ORB Configuration for IP Service Activator".
7. If you are installing the Configuration Template Module (CTM), perform additional configuration steps to support it. See "Pre-Installation of the Configuration Template Module".
8. Install supplemental software components. See "Installing Supplemental Software Components".
9. Install the necessary IP Service Activator components on the server(s). See "Installing IP Service Activator on an Oracle Solaris or Linux Server".
10. Install the IP Service Activator client and required modules on the Windows hosts. See "Installing the IP Service Activator Client on Windows".
11. Apply any required IP Service Activator software patches.
12. Perform additional setup tasks that apply to your system prior to starting IP Service Activator. See "Pre-Installation of the Configuration Template Module" for a brief list. Details on the additional setup tasks are given in the *IP Service Activator Administrator's Guide*.

Pre-installation Checklist

Before beginning the installation, check that:

- You have read "Planning an IP Service Activator Installation" and planned how to distribute IP Service Activator components across your hosts. You can record the plan for each host in the Installation Checklists. See "Installation Checklists and Worksheet".
- You have migrated all Cisco Device Drivers to the Network Processor on the IP Service Activator 5.2.4 release. For more information, see *IP Service Activator version 5.2.4 Migration Guide*.
- If you have a previous installation of IP Service Activator, do the following:

  Perform a proper shutdown of the IP Service Activator system, and uninstall it before proceeding with a new installation. See "Uninstalling Individual IP Service Activator Components".

  If you are upgrading from a previous IP Service Activator system that used an Oracle-supplied serial number, you must re-use that serial number in the new installation.

> **Note:** To uninstall IP Service Activator 7.0, you do not have to run the uninstall.sh script. The Oracle Universal Installer has the capability to uninstall IP Service Activator. You can also install and uninstall IP Service Activator 7.0 on your local machine.

2

Planning an IP Service Activator Installation

This chapter describes how to plan an Oracle Communications IP Service Activator installation.

About Planning an IP Service Activator Installation

Before beginning the IP Service Activator installation, you need to plan the installation and overall system configuration, gather information, and set up your hosts (servers and workstations).

For later reference, you need to gather and record important installation information, such as settings, account names, and passwords. This document provides checklists and a worksheet in "Installation Checklists and Worksheet".

Server and workstation preparation can include the installation and configuration of:

- Operating systems, including the creation of user accounts
- Oracle Database software
- Other required third-party software components

After the servers and workstations are correctly configured, you run the Oracle Universal Installer. Depending on system configuration, IP Service Activator server software is installed on at least one, and possibly multiple, hosts. IP Service Activator client software is installed on each Windows host.

After software installation, post-installation activities may be required. These are described in this guide and in *IP Service Activator Administrator's Guide*.

Overview of IP Service Activator Architecture

This section provides an overview of the IP Service Activator distributed architecture. It includes the following topics:

- IP Service Activator components and modules
- Additional software recommendations and requirements

IP Service Activator Components and Modules

IP Service Activator has a modular software architecture that supports deployment across multiple hosts in a network. This section describes components and modules with a brief overview of how they are deployed in a production installation.

IP Service Activator consists of the core product components described in Table 2–1.

Table 2–1 IP Service Activator Components

Component	Description
Policy Server	The Policy Server is the central component of the system and is responsible for the following: ■ Coordinates access to the data repository from the client components ■ Performs network topology discovery ■ Validates and transmits policy configurations to the proxy agent, or network processor components, or both. Two sub-components, the Naming Service and the System Logger, maintain the naming and location information for the other system components and log system messages. One Policy Server is installed per IP Service Activator installation.
Network Processor	The network processor provides an XML-based alternative to existing proxy agent/device driver software used to deliver cartridges supporting vendor- specific device configurations. The network processor is capable of supporting higher volumes of devices, and is far more flexible when introducing new device and service features.Cartridges enable you to support your existing services, and support emerging services and business needs. Cartridges operate in conjunction with IP Service Activator core product.
Cartridges	Cartridges enable you to support your existing services, and support emerging services and business needs. Cartridges operate in conjunction with IP Service Activator core product.
Proxy Agent Device Drivers	The proxy agent/device drivers configure the individual managed devices with the policy configurations it receives from the Policy Server. Sub-components, called device drivers, translate the high-level policy configurations sent from the Policy Server into the low-level configurations required by the different types of managed devices, such as Juniper M-series. Several instances of this component can be installed on additional hosts to distribute the processing load when managing many devices within a network.
Windows-based client	The graphical user interface (GUI) provides access to the database and Policy Server. This component is supported on systems running Windows 2000 and above. Multiple instances of the GUI can be used concurrently, by adding additional Windows GUI hosts and installing the IP Service Activator client.
Component Manager	The component manager starts all system components, and monitors and reports their status. The component manager is required on each host system on which one or more IP Service Activator components are installed (except the client).
Configuration Management Engine	The Configuration Management Engine manages the configuration files of the devices managed by IP Service Activator. Configuration Management is an extension/feature of IP Service Activator. Oracle WebLogic Server is installed with the Configuration Management Engine and is used to manage the Configuration Management Engine

Table 2–1 (Cont.) IP Service Activator Components

Component	Description
Configuration Management Collector	The Configuration Management Collector collects device configuration changes as they occur and archives these changes in the IP Service Activator repository.
Database	The Oracle database management system is used for the data repository for IP Service Activator and must be running on your network. The database stores data related to the network topology and all configured services.

In most production environments, IP Service Activator components are installed on multiple hosts in order to distribute the processing requirements. IP Service Activator resource requirements are CPU core-centric and all hardware resource requirements are expressed in terms of CPU- core requirements.

Most current servers are constructed around CPUs that contain two or more cores, and it is these cores that are referenced. An example of this would be a Sun Enterprise M5000 Server. This server can be configured with the SPARC64 VI processor, which is a dual (or split) core processor. While this server can contain up to 8 processors, those 8 processors represent 16 CPU-cores when configured with the dual-core SPARC64 VI. Configuring the M5000 Server with the quad-core SPARC64 VII processor could represent 32 CPU-cores, when 8 processors are present. This IP Service Activator planning section focuses on the number of the CPU-cores.

This reduces the total cost of ownership because multiple IP Service Activator components are deployed on a single, appropriately-sized server.

Optional Integration Components

Table 2–2 describes the integration components that can be installed as part of the base product.

Table 2–2 IP Service Activator Optional Integration Components

Component	Description
OSS Integration Manager (OIM)	Consists of an open API that enables easy integration between the core system and external systems such as flow-through provisioning, fault management, and performance monitoring.
Event Handler	Enables configurable, software-driven control of event and fault reporting.
Web Services	An optional component of the IP Service Activator installation that allows IP Service Activator to integrate with Order and Service Management (OSM). In order to use the Web Services with IP Service Activator, you must complete the following tasks in sequential order: install a WebLogic server, install Oracle Application Development Framework (ADF), and create a WebLogic domain. For information about installing WebLogic and ADF, see *Order and Service Management Installation Guide*.

Optional Service Modules

Table 2–3 describes the optional modules that are installed separately from the base product.

Table 2–3 IP Service Activator Optional Service Modules

Component	Description
Configuration Template module	The Configuration Template module streamlines the activation of services on network objects. Through the use of pre-defined or customized templates, the module extends the capability of the IP Service Activator to configure devices and interfaces.
MPLS LSP module	The Multi-Protocol Label Switching (MPLS) Label Switched Path (LSP) module allows you to provision LSPs on supported Cisco devices.
Micromuse module	The Micromuse module allows you to export the IP Service Activator object topology into a format that can be imported by the Micromuse product.
TACC module	The Threshold Activated Configuration Control (TACC) module, along with device level Thresholding, allows you to accept or reject transactions that exceed the configuration removal threshold.

The currently supported software versions are found in "Supported Devices and Operating Systems".

Additional Software Requirements

The Oracle Instant Client connection (OIC) is required for Policy Server, System Logger, Proxy Agents and Device Drivers, Network Processor, and Event Handler. The OIC is installed as part of the IP Service Activator installation.

Although the OIC is required for parts of the IP Service Activator client, such as viewing system logs, it is not automatically installed during client installation. Select the OIC option for installation during the client installation process.

Oracle Real Application Clusters in IP Service Activator

As of IP Service Activator 7.0, connectivity to Oracle Real Application Clusters (Oracle RAC) instances is supported. An Oracle RAC deployment allows for improved IP Service Activator reliability because the Oracle RAC deployment can contain multiple nodes, and continues to support database access as long as at least one node is active and available. When IP Service Activator is connected to an Oracle RAC instance, failover activity, within the database deployment, is invisible to IP Service Activator.

IP Service Activator uses database resources such that multiple nodes within an Oracle RAC deployment do not positively impact performance, but safeguard that IP Service Activator deployment against most database failure issues.

Planning Guidelines and Engineering Considerations

This section describes the hardware and system configuration considerations applicable to establishing a functioning IP Service Activator system in a network. It includes the following topics:

- System configuration overview
- Component configuration recommendations
- Hardware requirements

System Configuration Overview

This section describes key roles and responsibilities in configuring and maintaining an IP Service Activator deployment, and provides an overview of the IP Service Activator components and the concepts to be considered when planning a deployment.

Assistance in the Sizing Process

This section will help you correctly identify the hardware necessary for a successful IP Service Activator implementation. The implementation should be performed with the aid of Oracle Global Customer Support or Sales Engineering representatives.

Customer Responsibilities

After an IP Service Activator system has been deployed, it is the responsibility of the deployment owner to monitor the managed network growth and resource use of the various IP Service Activator components.

Relevant IP Service Activator metrics include the number of devices and the number of network sites. This information is available through the System Statistics view in the client.

Relevant operating system metrics include CPU utilization and real memory consumption. There are many third-party tools, including SunSolve Solutions and command-line processes, that provide this information. Consult Oracle Global Customer Support for further details.

IP Service Activator Component Architecture

A typical IP Service Activator system consists of the following components:

- Policy Server
- Network Processors
- Cartridges
- Proxy Agents and equipment- vendor-specific device drivers (one or more)
- Graphical User Interfaces (one or more)
- System Logger
- Component manager
- Naming Service
- Database to persist the Object Model
- Supplemental software components (See "Supported Devices and Operating Systems" for details.)

Optionally, IP Service Activator systems may also contain one or more instances of:

- OSS Integration Manager (OIM)
- IP Service Activator application extensions
- Event Handler
- Configuration Management (Engine, Collector(s), Oracle WebLogic Server)
- Web Service

A typical IP Service Activator implementation has specific CPU-core requirements for the following groups of components:

- Policy Server, OIM, System Logger, Event Handler, Naming Service, Component Manager: Four CPU-cores (two cores for Policy Server, one core for System Logger, Naming Service, Event Handler, Component Manager, and so on, and one core for OIM. If Configuration Management is being deployed, OIM will require two cores.)
- Network Processor: Two or more CPU-cores per instance
- Database Server: Two to four CPU-cores
- Client: May be multiple workstations

Table 2–4 lists the components of IP Service Activator and their CPU-cores. The following optional modules are installed separately from the base product.

Table 2–4 Component CPU-core Requirements

Component	CPU-cores
Policy Server	2 (minimum)
System Logger, Naming Service, Event Handler, and Component Manager	1 (minimum)
OSS Integration Manager	1 (per OIM instance)
Network Processor	2
Database Server	2 (minimum)

A component manager must be present and active on each server to manage all components except the Naming Service, the database, the client, and the application server. If the Event Handler is deployed, it must reside with the Policy Server.

With Oracle Solaris 10 or Oracle Linux 6. OS containers allow for fewer larger servers to host complete IP Service Activator deployments over multiple containers as opposed to deploying many smaller servers to accomplish the task.

Oracle Database, for performance reasons, should be running on a separate server from the Policy Server, Network Processor, and/or Proxy Agent.

For required operating system and peripheral component system (for example Solaris and Oracle Database) versions, refer to "Supported Devices and Operating Systems".

3

IP Service Activator System Requirements

This chapter describes the software and hardware requirements for installing Oracle Communications IP Service Activator.

Support for Linux

IP Service Activator 7.2 supports Oracle Linux 6 (OL 6) as a 64-bit application. For new host installations, install OL 6 as a 64-bit application. The IP Service Activator client runs on 64-bit Windows 7.

To install IP Service Activator on Linux, follow the server installation procedure. Differences between an Oracle Solaris and a Linux installation are identified within the procedure steps.

Solaris Installation and Configuration

For new host installations, install the full Oracle Enterprise Manager (OEM) version of Solaris. This ensures that Solaris functions well with IP Service Activator.

Check the Solaris OS Version

IP Service Activator is supported on:

- Solaris 10 (SunOS 5.10)
- Solaris 11 (SunOS 5.11)

For supported versions of third-party software, including Solaris, see "Supported Devices and Operating Systems".

To check the Solaris OS version, enter:

```
$ uname -r or uname -a
```

The SunOS version is returned. For Solaris 10 systems, '5.10' is returned and for Solaris 11 systems '5.11' is returned.

For a more detailed indication of your Solaris version, check the **/etc/release** text file:

Go to the **/etc** directory of the installed image (for example, **/cdrom/sol_10_401_sparc/s0/Solaris_10/Product/SUNWsolnm/reloc/etc**), and enter:

```
# more release
```

The installed version is returned.

For example:

```
Solaris 10 4/01 s28s_u4wos_10 SPARC
Copyright 2001 Sun Microsystems, Inc. All Rights Reserved.
Assembled 01 March 2001
```

Check the Solaris Patches

Ensure that the latest recommended Solaris patch cluster is installed on each IP Service Activator host machine. This includes those patches recommended for Solaris by Sun.

Patches are available for download on Oracle Technology Network at:

http://www.oracle.com/technetwork/topics/security/whatsnew/index.html

To check which patch revision numbers you have installed:

On the Solaris 64-bit platform, enter:

```
$ showrev -p | more
```

Supported Devices and Operating Systems

The following tables list IP Service Activator support for vendor devices and operating systems in this release. For more information about which services are supported on each device and OS combination, refer to the respective cartridge guide or device support guide.

Cisco IOS XR Cartridge

Table 3–1 lists the Cisco IOS XR cartridge support on Cisco devices and IOS XR versions.

Table 3–1 Cisco IOS XR Cartridge Support

Devices Supported by IP Service Activator	Cisco IOS XR Version
Cisco ASR 9000 Series, Cisco CRS Routers, Cisco GSR 12000 Series	3.x, 4.x

Cisco IOS Cartridge

Table 3–2 lists the Cisco IOS cartridge support on Cisco devices and IOS versions.

Table 3–2 Cisco IOS Cartridge Support

Devices Supported by IP Service Activator	Cisco IOS Version
Cisco 1000, 2000, 3000, 4000, 6000, 7000, 10000, 12000 series devices	IOS 12.2(33)SRE, IOS 12.4(24)T, IOS 12.0(33)S, IOS 15.0(1)M, and IOS 15.1(2)T

Cisco CatOS Cartridge

Table 3–3 lists the Cisco CatOS cartridge support on Cisco devices and CatOS versions.

Table 3–3 Cisco CatOS Cartridge Support

Devices Supported by IP Service Activator	Cisco CatOS Version
Cisco 3500, 3750, 4500, 5500, 6500 series devices	CatOS 7.6, 8.5

Huawei Cartridge

Table 3–4 lists the Huawei cartridge support on Huawei devices and VRP versions.

Table 3–4 Huawei Cartridge Support

Devices Supported by IP Service Activator	VRP Version
Huawei Quidway Series Routers AR18-xx, AR28-xx, AR46-xx	3.4
Huawei Quidway NetEngine 05/08/16	5.3, 5.5, 5.7
Huawei Quidway NetEngine 16E, 40-2, 40-4, 40-8, 80	5.3, 5.5, 5.7
Huawei Quidway NetEngine 40E, 80E	5.3, 5.5, 5.7
Huawei Quidway Eudemon 500, 1000	3.1
Huawei CX600	5.3, 5.5, 5.7

Brocade Cartridge

Table 3–5 lists the Brocade cartridge support on Brocade devices and IronWare versions.

Table 3–5 Brocade Cartridge Support

Devices Supported by IP Service Activator	IronWare Version
Brocade NetIron MLX series Brocade NetIron XMR series	4.1, 5.0

Juniper JUNOS Cartridge and Device Driver

Table 3–6 lists the Juniper JUNOS cartridge and device driver support on Juniper devices and JUNOS versions.

Table 3–6 Juniper JUNOS Cartridge and Device Driver Support

Devices Supported by IP Service Activator	JUNOS Version
Juniper M-series Juniper T-series Juniper J-series	JUNOS 9.6, 10.x, 11.1, 11.2

Pre-installation Tasks for Solaris and Linux

This section describes the tasks that you must complete before you install IP Service Activator on Solaris and Linux operating systems.

Enabling Per-process Core Dumps for Solaris

For Solaris, you must verify that the COREADM_PROC_ENABLED is enabled in the system core configuration file: **coreadm.conf**. If COREADM_PROC_ENABLED is enabled, the corresponding core file is generated for the IP Service Activator process when a core dump occurs. You can use the pstack tool to review and troubleshoot any core dump of a process.

Note: COREADM_PROC_ENABLED is a system default.

To see the values of the core dump parameters in the **coreadm.conf** file, you can use this command:

```
cat /etc/coreadm.conf
```

The parameters of this file are as follows:

```
COREADM_GLOB_PATTERN=
COREADM_GLOB_CONTENT=default
COREADM_INIT_PATTERN=core
COREADM_INIT_CONTENT=default
COREADM_GLOB_ENABLED=no
COREADM_PROC_ENABLED=yes
COREADM_GLOB_SETID_ENABLED=no
COREADM_PROC_SETID_ENABLED=no
COREADM_GLOB_LOG_ENABLED=no
```

To set the core dump parameters, you can run the following command:

```
coreadm
```

Enabling Per-process Core Dumps for Linux

With some applications requiring Linux, the coreadm tool is missing. Instead, core file management is configured in the kernel configuration file: **/etc/sysctl.conf**.

You need to enable core dumps from setuid process, remove file size limits for core dumps, and save them in an appropriate location using meaningful names. To do this, you need to add the following lines into the **/etc/sysctl.conf** file.

- fs.suid_dumpable = 2
- kernel.core_pattern = /var/core/core_%h_%e_%u_%g_%t_%p

To make sure you are not imposing limits on the core files, you need to add the following to the **/etc/sysctl.conf/init** file:

- DAEMON_COREFILE_LIMIT='unlimited'

After you update the **/etc/sysctl.conf** file, you can refresh the settings by running **systctl**, as follows:

```
[root@altix ~]# /sbin/sysctl -p
< list of kernel tunables >
fs.suid_dumpable = 2
kernel.core_pattern = /var/core/core_%h_%e_%u_%g_%t_%p
< list of kernel tunables >
```

Setting File Resources for Device Discovery

A host supporting IP Service Activator must be configured to support a certain minimum number of available open files (File Descriptors) in order for IP Service Activator to successfully discover large numbers of devices (up to 65535) within one device discovery task. The setting for the number of available file descriptors should be 1024.

To permanently set the File Descriptors value on the Policy Server host:

1. Open the **/etc/system** file.
2. Add the following two lines:

   ```
   set rlim_fd_cur=1024
   set rlim_fd_max=1024
   ```

3. Save and close the file.

To determine the current Solaris kernel settings, enter:

```
ulimit -a
```

If the value of the nofiles (descriptors) is greater than or equal to 1024, enough file descriptors are available.

There is no advantage, from a scalability or performance standpoint, to have more than 1024 file descriptors available. Setting these parameters higher uses additional memory resources with no improvement in IP Service Activator performance.

Note: Ensure that the Max File descriptors is set to a value of at least 1024, to eliminate platform issues.

Note: For increasing the number of available open files (file descriptors), you must edit **etc/system** file in Solaris. The corresponding file for Linux is **/etc/security/limits.conf**. The limit is 1024 in Linux by default.

Synchronizing IP Service Activator Host Machines

You should synchronize the system time between IP Service Activator host machines using time synchronization software. Where machines are not synchronized, delays are likely to occur when configuring devices.

Ensure you synchronize the NTP times correctly.

IP Service Activator Administrator UNIX User ID (ipsaadm)

The IP Service Activator administrator (user ID **ipsaadm**) is the UNIX user account given permissions (during installation) to start and stop the naming service and component manager manually. You must create this user account prior to IP Service Activator software installation.

When creating the **ipsaadm** user, specify the following details:

- Username: ipsaadm
- Group: ipsagrp
- Secondary group: sys
- Login shell: /bin/bash
- Home directory: select any location (known in this document as *Service_Activator_home*)

Throughout this document, **ipsaadm** is used as the UNIX user ID associated with IP Service Activator. If you have defined another UNIX user ID for specific uses with IP Service Activator, use it instead of **ipsaadm** where appropriate.

Setting Permissions for the Installation UNIX User ID

The default permissions set for the installation UNIX account user ID affect the permissions of the directories and files created by the Oracle Universal Installer and configured by the configuration tool. The rest of this section refers to **ipsaadm** as the account used to run the install.

You must set the umask for the **ipsaadm** account appropriately for your needs before running the Installer.

The Installer uses the umask from the **ipsaadm** account during the installation to determine how to adjust the directories and files that it creates.

To set the umask for the ipsaadm account, use the UNIX umask command:

```
umask [file_creation_mask]
```

See the Solaris or Linux UNIX documentation for more information about the user account umask.

For example, if the **ipsaadm** account has a umask of 027, this translates to permissions of "rwxr-x---". The Installer then creates directories with permissions of "rwxr-x---" and configuration files with the permissions "rw-r----".

Note: It is recommended that you use the umask setting of 077, which translates to directory permissions of "rwx------" and configuration file permissions of "rw-------" (full access to the user and no access to the group or anyone else).

Java Development Environment

To develop Java code, you need a development environment, such as the Java Standard Edition, 32- or 64-bit, previously known as the Java Development Kit (JDK).

It is recommended that you use the following version:

- Java SE 1.7.0 with the latest Critical Patch Update

For more information about developing application programming interfaces for IP Service Activator, see *IP Service Activator OSS Java Development Library Guide*.

Hardware Requirements

The following tables list the hardware required to manage various sized networks by IP Service Activator. It includes the hardware required for third-party software used in support of IP Service Activator.

The hardware sizing recommendations in this document assume that the Optimized Customer Edge (CE) management capabilities are applied at Large and Very Large Network Deployments.

Table 3–7 lists the minimum hardware requirements for Policy Server.

Table 3–7 Policy Server Minimum Hardware Requirements

Network Size (number of managed CE devices)	CPU-threads	RAM
Small (1-1500)	1	1 GB
Medium (1500-4000)	1	2 GB
Large (4000-10000)	2	2 GB
Very Large (10000 +) 64-bit	2+	8 GB

Table 3–8 lists the minimum hardware requirements for Integration Manager.

Table 3–8 Integration Manager Minimum Hardware Requirements

Network Size (number of managed CE devices)	CPU-threads	RAM
Small (1-1500)	1	500 MB
Medium (1500-4000)	1	500 MB
Large (4000-10000)	1	1 GB
Very Large (10000 +) 64-bit	1	2 GB

Table 3–9 lists the minimum hardware requirements for Proxy Server.

Table 3–9 Proxy Server Minimum Hardware Requirements

Network Size (number of managed CE devices)	CPU-cores	RAM
Small (1-1500)	1	2 GB
Medium (1500-4000)	2	4 GB
Large (4000-10000)	2	4 GB
Very Large (10000 +) 64-bit	4	8 GB

Table 3–10 lists the minimum hardware requirements for Network Processor with Configuration Management Collector.

Table 3–10 Network Processor with Configuration Management Collector Minimum Hardware Requirements

Network Size (number of managed CE devices)	CPU-cores	RAM
Small (1-1500)	3	5 GB
Medium (1500-4000)	3	5 GB
Large (4000-10000)	3	5 GB
Very Large (10000 +) 64-bit	4	8 GB

Table 3–11 lists the minimum hardware requirements for IP Service Activator Client.

Table 3–11 IP Service Activator Client Minimum Hardware Requirements

Network Size (number of managed CE devices)	CPU-cores	RAM
Small (1-1500)	1	1 GB
Medium (1500-4000)	1	1 GB
Large (4000-10000)	1	2 GB
Very Large (10000 +) 64-bit	1	4 GB

Table 3–12 lists the minimum hardware requirements for Oracle Database Server.

Table 3–12 Oracle Database Server Minimum Hardware Requirements

Network Size (number of managed CE devices)	CPU-cores	RAM
Small (1-1500)	2	4 GB
Medium (1500-4000)	2	4 GB
Large (4000-10000)	4	4 GB

Table 3–12 (Cont.) Oracle Database Server Minimum Hardware Requirements

Network Size (number of managed CE devices)	CPU-cores	RAM
Very Large (10000 +) 64-bit	4	8 GB

Table 3–13 lists the minimum hardware requirements for Configuration Management Engine and Oracle WebLogic Server.

Table 3–13 Configuration Management Engine and Oracle WebLogic Server Minimum Hardware Requirements

Network Size (number of managed CE devices)	CPU-cores	RAM
Small (1-1500)	2	2 GB
Medium (1500-4000)	2	2 GB
Large (4000-10000)	2	2 GB
Very Large (10000 +) 64-bit	2	2 GB

Table 3–14 lists the minimum hardware requirements for Web Services.

Table 3–14 Web Services Minimum Hardware Requirements

Daily IP Service Activator Order Volume	CPU-cores	RAM
Small (1-500)	2	2 GB
Medium (500-1500)	2	4 GB
Large (1500+)	4	8 GB

4

Installing and Configuring Oracle Database Software

This chapter provides Oracle Communications IP Service Activator-specific guidance for installing Oracle Database software.

For information about the currently supported version numbers of additional software components, including Oracle Database, refer to "IP Service Activator System Requirements".

> **Note:** As you perform the installation, record custom values in the Oracle Database Installation Data checklist. See "Installation Checklists and Worksheet".

Oracle Database software components must be installed before you begin installation of IP Service Activator.

For the latest versions of Oracle Database documents detailing the installation and configuration of Oracle software, consult the following Oracle documentation repository:

`http://www.oracle.com/technetwork/indexes/documentation/index.html`

If Oracle Database is already installed, arrange with your on-site Oracle Database administrator to create and configure the IP Service Activator database and to configure Oracle Database components. When this is complete, you can install IP Service Activator system components. Refer to the Oracle Installation Data checklist in "Installation Checklists and Worksheet" for configuration information.

If you are already running an instance of the Oracle Instant Client, you can configure IP Service Activator to use it by providing connection information during the IP Service Activator installation process.

Preparation

This section provides information about some of the configuration decisions you must make before installing Oracle Database.

For supported versions of software components, including Oracle Database software, see "IP Service Activator System Requirements".

Some of the IP Service Activator components (for example, Policy Server, System Logger, Event Handler, Configuration Management, and Network Processor) require that an Oracle Instant Client be installed on the machine on which they reside. The

Oracle Instant Client is bundled with IP Service Activator and is typically installed automatically.

Installing Oracle Database Using Oracle Universal Installer

Install the Oracle Database software using the Oracle Universal Installer. When prompted, choose a 'General Purpose' database installation.

Upon installation, the **listener.ora**, **sqlnet.ora**, and **tnsnames.ora** environment files are configured. The naming method for connecting to the database must be set to the default local naming method.

Provide the following information when prompted.

In the Database Identification window, specify:

- Global Database Name: **IPSA.WORLD**

  The Global database name consists of the System Identifier (IPSA) and your network domain.

- System Identifier (SID), $ORACLE_SID: **IPSA**

  If the environment variables were set before Oracle Database installation, this is the default value.

  In the **Database Character Set** dialog box, click the **Choose one of the common character sets** button, and select a character set.

  Oracle recommends using the AL32UTF8 character set for the IP Service Activator database instance. However, if IP Service Activator is the only application that is using the database instance, you can use the default character set for your location.

  The national character set can be left to the default value for your location.

Oracle Database Post-Installation Tasks

Additional Oracle Database configuration tasks may be required. For more information, see *Oracle Database Installation Guide*.

Updating the Net Service Name Setting

After installing Oracle Database, you might have to update the Net Service Name setting.

> **Important:** The Net Service Name value in the **IPSA** section of the **tnsnames.ora** file on the Policy Server machine must match the equivalent Net Service Name value in your global Oracle Database settings.

Setting Up the IP Service Activator Environment in Oracle Database

When you create an Oracle Database tablespace for use with IP Service Activator, Oracle recommends using **IPServiceActivatorDb** for the tablespace name.

> **Note:** You can choose a different name. Make sure it is an identifiable name for the IP Service Activator system tablespace and that there are no spaces between its characters, and then record the name in the Oracle Database Installation Data checklist located in "Installation Checklists and Worksheet".

Text that you enter in the dialog box is automatically displayed in capitals.

Use an initial file size of 250 MB. Use the AUTOEXTEND parameter, and set the **Increment** value to **5 MB**. Set the **Maximum size** to **Unlimited**.

When you create an Oracle Database user for IP Service Activator, set the Name to **admin** (or other suitable database user name). This is the name that you are prompted for when IP Service Activator is installed. Set your password and make sure you record it in the Oracle Installation Data checklist, located in "Installation Checklists and Worksheet".

Set the Default value for Tablespaces to **IPServiceActivatorDb**. This ensures that IP Service Activator tables use the correct tablespace. Leave the Temporary tablespace as the default value: *system-assigned*.

Grant the new Oracle Database user the following privileges:

- UNLIMITED TABLESPACE
- CONNECT
- RESOURCE
- CREATE VIEW
- CREATE DIRECTORY
- CREATE PROCEDURE
- CREATE TRIGGER
- CREATE TABLE
- CREATE TYPE
- CREATE SEQUENCE

The SQL commands to create the tablespace, Oracle Database user, and granting privileges are as follows:

```
> sqlplus system/manager
SQL> connect / as sysdba
SQL> create tablespace <tablespacename> logging datafile
'/opt/oracle/oradata/<databaseinstancename>/<tablespacename>.dbf' size 250M reuse
autoextend on next 5M maxsize unlimited default storage (initial 128K next 128K
minextents 1 maxextents 2147483645 pctincrease 0);
SQL> create user ipsaadm profile "DEFAULT" identified by <password for ipsaadm
user> default tablespace <tablespacename> temporary tablespace
<temporarytablespacename> account unlock;
SQL> grant unlimited tablespace to ipsaadm;
SQL> grant connect to ipsaadm;
SQL> grant resource to ipsaadm;
SQL> grant create view to ipsaadm;
SQL> create directory ipsa_plsql_dir as '<ipsadir>';
SQL> grant read,write on directory ipsa_plsql_dir to ipsaadm;
SQL> grant execute on sys.utl_file to public;
SQL> grant create procedure to ipsaadm;
```

```
SQL> grant create trigger to ipsaadm;
SQL> grant create table to ipsaadm;
SQL> grant create type to ipsaadm;
SQL> grant create sequence to ipsaadm;
```

Suggested minimum values for Oracle Database parameters are as follows:

- shared_pool_size:50 331 648
- large_pool_size:8 388 608
- db_cache_size:25 165 824
- undo_management:auto
- undo_retention:10 800
- processes:1000
- open_cursors:5000

5

Installing and Configuring Supplemental Software Components

This chapter provides instructions for installing and configuring the supplemental software components required by Oracle Communications IP Service Activator.

Installing Supplemental Software Components

IP Service Activator 7.2 requires the supplemental software components listed in Table 5–1.

Table 5–1 Supplemental Software Components

OS	Type	Filename	Download Link
Linux	64 bit	omniORB-2.8.0-linux-gcc-x86_64.tar.gz	http://sourceforge.net/projects/omniorbipsa/files/omniORB-omniORBpy-IPSA/2.8.0-1.4.0-IPSA-v22/omniORB-2.8.0-linux-gcc-x86_64.tar.gz/download
Linux	64 bit	saxonb8-8-0-7j.zip	http://sourceforge.net/projects/saxon/files/Saxon-B/8.8.0.7/
Oracle Solaris	64 bit	omniORB-2.8.0-sol64.tar.gz	http://sourceforge.net/projects/omniorbipsa/files/omniORB-omniORBpy-IPSA/2.8.0-1.4.0-IPSA-v22/omniORB-2.8.0-sol64.tar.gz/download
Oracle Solaris	64 bit	saxonb8-8-0-7j.zip	http://sourceforge.net/projects/saxon/files/Saxon-B/8.8.0.7/
Windows 7	64 bit	omniORB_280-omniORBpy_140-ipsa-win64.zip	http://sourceforge.net/projects/omniorbipsa/files/omniORB-omniORBpy-IPSA/2.8.0-1.4.0-IPSA-v22/omniORB_280-omniORBpy_140-ipsa-win64.zip/download

Download the appropriate supplemental software components, unzip and untar them to a folder, and use them during installation. For more information, see "Preparing the Supplemental Software Component Packages".

Note: The supplemental software components for 7.0.0 have changed in the code and compilation process, as compared to the 5.2.4 supplemental software components. Customers using the 7.0.0 version must download the latest v22 version from SourceForge.

Preparing the Supplemental Software Component Packages

This procedure describes how to download and prepare the supplemental software components (omniORB, GCC runtime, and Saxon-B) needed by IP Service Activator.

> **Note:** Create a directory and download the supplemental software components to this directory, for example, **/opt/web/supplementalSoftware**. When you run the Oracle Universal Installer, you will use this directory path. Do not uncompress the files. The Installer uncompresses the files as part of its process.

1. Download the omniORB distribution.

   Use the link in the table above to download the correct distribution for the OS on the server where you are installing IP Service Activator or the IP Service Activator client.

On a Solaris 64-bit or Linux server:

1. Download the Saxon-B distribution using the link in the table above.

   Note: Download the supplemental software components to the same directory, for example, **/opt/web/supplementalSoftware**. When you run the Installer, you will use this directory path. Do not uncompress the files. The Installer uncompresses the files as part of its process.

2. Ensure the tar, gzip, gunzip, zip, and unzip utilities are installed and in the path for the **ipsaadm** user.

   Preserve the contents of the directory for other installations.

> **Note:** During installation, on the **Supplemental Software Location** window, specify the directory created.

On a Windows host:

1. Create a directory for the supplemental software.
2. Transfer the omniORB zip file into this directory.

   Preserve the contents of the directory for other installations.

> **Note:** During installation, on the **Supplemental Software Location** window specify the directory created.

CORBA ORB Configuration for IP Service Activator

IP Service Activator requires omniOrb 2.8 on Solaris, Linux, and Windows platforms to provide CORBA ORB services.

By default, IP Service Activator uses TCP wrappers for access control for CORBA connections. IP Service Activator processes must be properly named as being allowed to connect to the ORB.

One approach is to ensure that the default configuration files allow the connection of the various IP Service Activator components. The configuration files are:

```
/etc/hosts.allow
```

```
/etc/hosts.deny
```

Another approach is to provide alternative configuration files to the ORB by adding the following lines to the **omniorb.cfg** file of the IP Service Activator Config folder:

```
GATEKEEPER_ALLOWFILE /opt/OracleCommunications/ServiceActivator/Config/hosts.allow
GATEKEEPER_DENYFILE /opt/OracleCommunications/ServiceActivator/Config/hosts.deny
```

Alternatively, you can use specific component names as the daemon names (for example, **/opt/OracleCommunications/ServiceActivator/bin/policy_server**). A simpler approach to implement this solution is to use a common string such as IPSA as the daemon name, and provide -ORBserverName IPSA as a command line option for each of the components by adding the option to the **cman.cfg** file.

The appropriate **hosts.allow** file should be configured to allow the communication to the service (IPSA in the example above).

The use of TCP wrappers might be disabled on the IP Service Activator installation because it is possible to disable TCP wrappers by specifying non-existent configuration files.

6

Installing IP Service Activator

This chapter describes how to install Oracle Communications IP Service Activator components on one or more host machines.

> **Note:** You must repeat the steps in this chapter, as well as the "Additional setup tasks after startup" in *IP Service Activator System Administrator's Guide*, on each server where IP Service Activator is to be installed, selecting the components and settings for each server.

Installing IP Service Activator on an Oracle Solaris or Linux Server

This section describes how to install IP Service Activator components on a Solaris or Linux server. This installation does *not* include the IP Service Activator client, which must be installed on a Windows platform. For more information, see "Installing the IP Service Activator Client on Windows".

Preparing to Install IP Service Activator

Before running the Oracle Universal Installer, ensure that you:

- Log in to the server as the **ipsaadm** user. For information, see "IP Service Activator Administrator UNIX User ID (ipsaadm)".
- Install the required supplemental software components, as described in "Installing Supplemental Software Components".
- Log in to the Oracle software delivery Web site and download the IP Service Activator media pack.
  - Download the Linux Oracle Universal Installer if you are installing onto a Linux 64-bit server.
  - Download the Solaris 64-bit Oracle Universal Installer if you are installing onto a Solaris 64-bit server.
- Un-zip the IP Service Activator media pack on each server where you want to install IP Service Activator. For example, on a Linux server, run the following command to unzip the file:

  ```
  unzip IPServiceActivator-7.x.x.x.x-linux.zip
  ```

- Synchronize times across all host machines where IP Service Activator components are installed. For example, by using a Network Time Protocol (NTP) server. If device times are not synchronized, delays and problems are likely to occur.

Running the Oracle Universal Installer for IP Service Activator

1. Log in to the server as the **ipsaadm** user.
2. Go to the directory *media pack un-zip location***/ipsa/Disk1/install**.
3. There are two installation methods:
   - Interactive: For an interactive installation, continue with step 4.
   - Silent: For information about silent installations, including recording an installation session for later re-use in a silent installation, see "About Silent Installations".
4. Create a directory in which to install IP Service Activator, such as **/opt/OracleCommunications**. Ensure the ipsaadm user has read/write/execute access to this directory.
5. Run the following command:

   ```
   ./runInstaller
   ```

   The Welcome window opens.

   Note: Make sure that the display settings are correct. If you cannot use X display, you must run a silent installation.

   If you have not run an Oracle product that installs with Oracle Universal Installer on the target system, the Specify Inventory Directory and Credentials window opens.
6. Enter the path of the inventory directory **/export/home/oracle/oraInventory** when Oracle Universal Installer is run for a new installation on the server. Then enter the UNIX group name. The **oraInventory** directory contains the following:
   - oraInstaller.properties
   - logs
   - backup
   - install.platform
   - ContentsXML
   - OUI
7. Click **Next**.

   The Select Installation Type window opens.
8. Select the components that you want to install.

   You can select any of the following installation types:
   - All Components: includes all IP Service Activator components. This is for a complete installation.
   - Policy Server: includes all Policy Server components
   - Cartridges: includes all Cartridges
   - Device Drivers: includes all Device Drivers

- Web Service: allows you to use the Web service to integrate IP Service Activator with Oracle Communications Order and Service Management (OSM)

  For information about configuring the Web Service installation, see "About Web Services".

- Custom: allows you to select the specific components that you want to install

If you are performing a distributed installation, select the correct components for the host on which you are currently installing. Decisions on which hosts various components are installed on vary depending on the needs of your site. Typically, you might install the Policy Server on one host and the Network Processors and/or Proxy Servers on another. For information about distributing components across servers, see "Planning an IP Service Activator Installation".

The Specify Home Details window opens.

9. Enter the directory path of the base installation and accept the default name, OracleCommunications.

   OracleCommunications identifies the name of the Oracle home on which Oracle services are installed. Click **Next**.

   - If you selected the installation options All Components or Policy Server in the previous step, the Supplemental Software Location window opens.
   - If you selected the installation options Device Driver or Cartridges in the previous step, the Available Product Components window appears and you must select the specific cartridges and device drivers you want to install, and then click **Next**. The Supplemental Software Location window opens.
   - If you selected the installation option Custom in the previous step, you must select the specific IP Service Activator components you want to install, and then click **Next**. The Supplemental Software Location window opens.

   Note: The Installer checks for the supplemental software files before proceeding with the installation in step 9.

   ---

10. Enter the directory path to the location where you placed the supplemental software components. Click **Next**.

    The IP Service Activator Startup window opens.

11. Select whether you want IP Service Activator to start at every reboot. Click **Next**.

    The Summary window opens.

    Note: The list of installed products might show apparently duplicate entries, however the entries refer to distinct products.

    ---

12. Verify the component installation list, and then click **Install**.

    The Installation window opens with a progress bar.

    The Execute Configuration scripts window opens.

13. Run the configuration scripts by following the steps given in the installation window. The following message appears when you run the scripts:

"Creating symbolic link in *path* so that IP Service Activator is stopped when the machine is shutdown."

After running the scripts, click **OK**. The **root.sh** script is in the *Oracle_home* directory. By running the **root.sh** script, you ensure that IP Service Activator automatically starts when you run the server.

The **orainstRoot.sh** script is in the following directory, under the **oraInventory** home directory:

***inventory_home*/orainstRoot.sh**

The End of Installation window opens.

14. Click **Exit** to continue or click **Installed Products** to see the components that were installed.

    When you click **Exit**, the Configuration Assistants and Execute Configuration scripts dialog boxes open.

15. Click **OK**.

    The IP Service Activator post-install scripts run.

16. When prompted to start the Configuration GUI to configure IP Service Activator, click **Yes.**

    The Configuration GUI starts.

See *IP Service Activator System Administrator's Guide* for information about using the Configuration GUI.

Continue the configuration of IP Service Activator by performing the tasks detailed in Additional setup tasks to be run prior to initial startup topic in *IP Service Activator System Administrator's Guide*.

If you are performing a distributed installation across multiple servers, repeat this procedure for each host.

The following IP Service Activator modules are installed using the Oracle Universal Installer:

- Common
- Generic Exporter
- InfoVista Integration
- Micromuse Netcool Integration
- Configuration Template Module (CTM)
- Threshold Activated Configuration Control (TACC)

The Common module is automatically installed during the installation.

You must import and link the appropriate controller scripts before running the installed modules. For more information, see "Importing and linking controller scripts" in *IP Service Activator System Administrator's Guide*.

About Silent Installations

The Oracle Universal Installer supports silent installations using a response file.

A silent installation does not use the Installer GUI and does not display the interactive dialog boxes that you normally see. Instead, installation options are specified in a response file.

> **Note:** You can record installation details into a response file for use in a future silent installation by running the **runInstaller -record -destinationFile** *Path* command.

Complete details on silent installations, the contents of response files, and customizing and creating new response files are available in Oracle Universal Installer documentation.

To view Oracle Universal Installer documentation on Windows machines on which the IP Service Activator client has been installed:

1. Click **Start**, then **Programs**, then **Oracle -** *Oracle_home*, then **Oracle Installation Products**, and then **Universal Installer Concepts Guide**.

   where *Oracle_home* is the name of the Oracle home on which Oracle services are installed.

Alternatively, you can access Oracle Universal Installer documentation here:

HTML:

http://download.oracle.com/docs/cd/B28359_01/em.111/b31207/toc.htm

PDF:

http://download.oracle.com/docs/cd/B28359_01/em.111/b31207.pdf

> **Note:** There are some IP Service Activator-specific response parameters that are not mentioned in the Oracle Universal Installer documentation.

IP Service Activator- specific response parameters for Solaris/Linux are as follows:

- **SUPP_SOFTWARE_DIR**: the directory where the supplemental software components are located.
- **AUTOMATIC_STARTUP_REQUIRED**: specifies whether IP Service Activator should be started automatically on reboot.

IP Service Activator- specific response parameter for Windows is as follows:

- **SUPP_SOFTWARE_DIR**: the directory where the supplemental software components are located.

Running a Silent Installation

To run a silent installation:

1. For a **Solaris/Linux** installation, locate the response template file in *media pack un-zip location***/ipsa/Disk1/stage/Response** in the IP Service Activator media pack for the type of installation you require.

   The Response folder contains the following response template files for the corresponding installation types:

   oracle.communications.ipsa.AllComponents.rsp - All Components

   oracle.communications.ipsa.Cartridges.rsp - Cartridges

   oracle.communications.ipsa.Custom.rsp - Custom

oracle.communications.ipsa.DeviceDrivers.rsp - Device Driver

oracle.communications.ipsa.PolicyServer.rsp - Policy Server

oracle.communications.ipsa.WebService.rsp - Web Service

For a Custom installation type, open the **oracle.communications.ipsa.Custom.rsp** file and remove the components that you do not want to install from the DEPENDENCY_LIST parameters. Table 6–1 maps the internal component names in the DEPENDENCY_LIST parameters with the names in the Oracle Universal Installer.

Table 6–1 DEPENDENCY _LIST Parameter Components For Silent Installation

Internal component name	Name in the Installer
oracle.communications.ipsa.policyserver	Policy Server
oracle.communications.ipsa.cartridges	Cartridges
oracle.communications.ipsa.networkprocessor	Network Processor Framework
oracle.communications.ipsa.drivers	Device Drivers
oracle.communications.ipsa.WebService	Web Service
oracle.communications.ipsa.proxyagent	Proxy Agent
oracle.communications.ipsa.oss	OSS Integration
oracle.communications.ipsa.ctm	Configuration Template Module
oracle.communications.ipsa.tools	Tools
oracle.communications.ipsa.tools.configtool	Configuration GUI
oracle.communications.ipsa.tools.dbupgrade	DB Upgrade
oracle.communications.ipsa.cartridges.cisco.catos	Cisco CatOS Cartridge
oracle.communications.ipsa.cartridges.cisco.ios	Cisco IOS Cartridge
oracle.communications.ipsa.cartridges.cisco.iosxr	Cisco IOS Cartridge XR
oracle.communications.ipsa.cartridges.foundry.ironware	Foundry Ironware Cartridge
oracle.communications.ipsa.cartridges.huawei.vrp	Huawei VRP Cartridge
oracle.communications.ipsa.cartridges.juniper.junos	Juniper JUNOS Cartridge
oracle.communications.ipsa.oss.oim	OSS Integration Manager
oracle.communications.ipsa.oss.genericexporter	Generic Exporter Module
oracle.communications.ipsa.oss.infovista	InfoVista Integration Module
oracle.communications.ipsa.oss.micromuse	Micromuse Netcool Integration Module
oracle.communications.ipsa.drivers.juniper.junos	Juniper JUNOS Driver

Note: If you do not remove any of the components from the DEPENDENCY_LIST, the Custom installation type is equivalent to AllComponents installation type.

2. (Optional) Open the response template file and modify the following installation parameters:

ORACLE_HOME

ORACLE_HOME_NAME

SUPP_SOFTWARE_DIR

AUTOMATIC_STARTUP_REQUIRED

3. Log in to the server as the **admin** user.
4. Go to the directory **ipsa/Disk1/install** and run the Oracle Universal Installer as follows:

```
./runInstaller -silent -responseFile full path to response template
file,including file name
```

5. After the installation is complete, check the log files, and start the Configuration GUI.

   See *IP Service Activator System Administrator's Guide* for information about using the Configuration GUI.

Installing the IP Service Activator Client on Windows

This section explains how to install the IP Service Activator client on a 64-bit Windows 7 host, or a 64-bit Windows XP Professional host. You can install the client on multiple hosts distributed throughout the network. You can install the client on terminal services hosts and Oracle VM host machines. The installation process installs the client as well as online Help.

Before Running IP Service Activator Client Installer

- Install the Policy Server on your Solaris or Linux server(s)
- Obtain the required supplemental software components for the client, as described in "Installing Supplemental Software Components".
- Log in to the Oracle software delivery Web site and download the IP Service Activator Windows client-only installer media pack:
- Un-zip the IP Service Activator Windows media pack on each Windows host where you want to install the IP Service Activator client to a folder such as I**PSAInstaller_7***.x.x.x.x*, which will be referred to as *media pack un-zip location* in this procedure.
- Synchronize times across all host machines where IP Service Activator components are installed, for example, by using a Network Time Protocol (NTP) server. If device times are not synchronized, delays and problems are likely to occur. See "Synchronizing IP Service Activator Host Machines".

Installing the Client

Before you run the Configuration GUI, make sure all file permissions are set correctly. For more information, see "Setting Permissions for the Installation UNIX User ID".

1. On the Windows host, go to the directory *media pack un-zip location***\client\Disk1\install**.
2. There are two installation methods:
   - Interactive: continue with step 3.

- Silent: For information about silent installation, see "To run a silent installation:".

3. If you are installing on a Windows 7 host, right-click **setup.exe** and select **Properties**.
4. On the **Properties** dialog box, click the **Compatibility** tab, select **Run this program in compatibility mode for Windows XP Service Pack 3** and click **OK**.
5. Double-click **setup.exe**.

   If you are installing on a Windows 7 host and see an error regarding swap space/virtual memory, see "Oracle Universal Installer Error" for a resolution.

   The Welcome window opens.
6. Click **Next**.

   The Select Installation Type window opens.
7. Select the components you want to install.

   You can select from the following installation types:

   - All Client Components: includes the main IP Service Activator client, the client extensions, and the Configuration GUI
   - Custom: allows you to select the specific components you want to install

   Click **Next**.

   The Specify Home Details window opens.
8. Enter the directory path of the base installation and accept the default name, Oracle Communications. Click **Next**.

   If you selected the installation option All Client Components in step 7, the Supplemental Software Location window opens.

   If you selected the installation option Custom in step 7, the Available Product Components window appears. Select the specific components you wish to install, then click **Next**. The Supplemental Software Components window opens.
9. Enter the directory path to the location where you placed the supplemental software components. Click **Next**.

   The Summary window opens.
10. Verify the component installation list, and then click **Install**.

    The Installation window opens with a progress bar.

    When the Installer is finished running, the End of Installation window opens.
11. Click **Exit** if you want to start the configuration GUI and configure the installation, or click **Installed Products** to see the components that were installed.
12. When prompted to start the Configuration GUI to configure IP Service Activator, click **Yes**.

    The Configuration GUI starts.

    See *IP Service Activator System Administrator's Guide* for information about using the Configuration GUI.

    The following IP Service Activator modules are installed using the Oracle Universal Installer:

    - Common

- Service Module GUI Extensions

  MPLS - TE LSP

- OSS Integration GUI Extensions

  Generic Exporter

  InfoVista Integration

  Micromuse Netcool Integration

- CTM GUI Extension
- TACC

The Common module is automatically installed during the installation.

13. If you installed the IP Service Activator client on a Windows 7 host, navigate to the folder in which the IP Service Activator client is installed, such as **C:\Program Files\OracleCommunications**. Right-click **OracleCommunications**. Click the **Security** tab and give full read and write permissions to users who will use IP Service Activator.
14. If you installed the IP Service Activator client on a Windows 7 host, navigate to the Program folder of IP Service Activator, such as **C:\Program Files\OracleCommunications\Service Activator\Program**, right-click **ipsa_explorer.exe**, and select **Properties**. On the **Properties** dialog box, click the **Compatibility** tab and select **Run as Administrator**

Note: When you install IP Service Activator with an Oracle client with the Network Processor and Configuration Template Module (CTM), you must always install the Oracle 11g runtime client. Select the Oracle Client component for installation. This also installs the ODBC libraries used by IP Service Activator.

Running IP Service Activator Client Installer in Silent Mode

To run the client installer in silent mode:

1. For a **Windows** installation, locate the response template file in **client\Disk1\stage\Response** in the IP Service Activator Windows media pack.

   The client is supported only on Windows.

   The Response folder contains the following response template files for the corresponding installation types:

   - **oracle.communications.ipsa.AllClientComponents.rsp:** All Client Components
   - **oracle.communications.ipsa.Custom.rsp:** Custom

   In a Custom installation type, open the **oracle.communications.ipsa.Custom.rsp** file and remove the entries that you do not want to install from the DEPENDENCY_LIST parameters. Table 6–2 maps the internal component names in the DEPENDENCY_LIST parameters with the names in the Oracle Universal Installer.

Table 6–2 DEPENDENCY_LIST Parameter Components For Client Installer

Internal component name	Name in the Installer
oracle.communications.ipsa.client	Windows GUI Client
oracle.communications.ipsa.servicemodules	Service Module GUI Extensions
oracle.communications.ipsa.oss	OSS Integration GUI Extensions
oracle.communications.ipsa.ctm	Configuration Template Module GUI Extension
oracle.communications.ipsa.tools	Tools
oracle.communications.ipsa.servicemodules.lsp	MPLS-TE LSP
oracle.communications.ipsa.oss.genericexporter	Generic Exporter
oracle.communications.ipsa.oss.infovista	InfoVista Integration Module
oracle.communications.ipsa.oss.micromuse	Micromuse Netcool Integration Module
oracle.communications.ipsa.tools.configtool	Configuration GUI
oracle.communications.ipsa.tools.tacc	Threshold Activated Configuration Control GUI Extension

Note: If you do not remove any of the components from the DEPENDENCY_LIST, the Custom installation type is equivalent to AllClientComponents installation type.

2. (Optional) Open the response template file and modify the following installation parameters:
   - ORACLE_HOME
   - ORACLE_HOME_NAME
   - SUPP_SOFTWARE_DIR

   If you are installing on Windows 7, navigate to the directory *media pack un-zip location*`client\Disk1\install`, right-click on **setup.exe**, and select **Properties**. In the Properties dialog box, click the **Compatibility** tab and select **Run this program in compatibility mode for Windows XP Service Pack 3**. Click **OK**.
3. Go to the directory **client\Disk1\install** and run the Oracle Universal Installer as follows:

   ```
   setup.exe -silent -responseFile full path to response template file, including file name
   ```

4. After the installation is complete, check the log files, and start the Configuration GUI.

   See "Using the Configuration GUI" in *IP Service Activator System Administrator's Guide* for information about using the Configuration GUI.
5. If you installed the IP Service Activator client on a Windows 7 host, navigate to the folder in which the IP Service Activator client is installed, such as **C:\Program Files\OracleCommunications**. Right-click **OracleCommunications** and, on the **Security** tab, give full read and write permissions to users who will use IP Service Activator.

6. If you installed the IP Service Activator client on a Windows 7 host, navigate to the Program folder of IP Service Activator, such as **C:\Program Files\OracleCommunications\Service Activator\Program**, right-click **ipsa_explorer.exe**, and select **Properties**.

   The Properties dialog box opens.

7. Click the **Compatibility** tab and select **Run as Administrator.**

Oracle Database Connection Considerations for the IP Service Activator Client

When you run the Solaris/Linux-based Installer for IP Service Activator server software, the Oracle Instant Client is automatically installed and a **tnsnames.ora** file is configured to provide connectivity to the Oracle Database. However, the Windows-based Installer for the IP Service Activator client does not include the Oracle Instant Client.

The IP Service Activator client communicates with the Policy Server using CORBA, through the Naming Service. In general, the Oracle Instant Client is not required for the IP Service Activator client, unless you want to be able to access logs from the client.

Oracle Database Client Requirements to View Logs in the IP Service Activator Client

Logs are stored directly in the Oracle Database. To view audit trail, device configuration, or system message logs in the IP Service Activator client, you must install and configure an Oracle client (such as the Oracle Instant Client) and configure an ODBC Data Source for IP Service Activator on the client host.

For Oracle Client configuration details, see "Manually Configuring Oracle Client Connection: Solaris".

Pre-Installation of the Configuration Template Module

Perform the following tasks before you install the Configuration Template Module (CTM):

- Ensure the Oracle XML Database is installed before installing CTM. For more information, see "Verifying that Oracle XML Database is Installed".
- Install the CTM Request Server on the same server as the Naming Service, to avoid any reconfiguration.
- Configure the OSS Integration Manager (OIM) timeout parameter, so that OIM does not close inactive sessions. For more information, see "Configuring OIM to Keep Inactive Sessions Running".

For more information about how to use CTM, see the discussion about Configuration Template Module in IP Service Activator online Help..

Verifying that Oracle XML Database is Installed

CTM uses Oracle Database features for XML document handling, and PL/SQL stored procedures for optimizations.

You must ensure the Oracle XML Database is installed prior to installing the Configuration Template module.

Oracle XML Database is usually installed by default with Oracle Database software. For more information about installing Oracle Database, see "Installing and Configuring Oracle Database Software".

If Oracle XML Database is not installed, see the Oracle Database product documentation for more information.

To verify if the Oracle XML Database is installed, run the following command as user **SYSDBA**:

```
select username from dba_users where username like 'X%';
```

If the XML Database is installed, the response is **XDB**. If no value is returned, it means that the XML Database is not installed.

Configuring OIM to Keep Inactive Sessions Running

CTM connects to OIM for flow-through provisioning.

By default, OIM has a timeout parameter that is configured to close your session after a period of inactivity. Set the OIM timeout value to 0 to keep inactive sessions from timing out.

To configure OIM to keep inactive sessions running:

1. Open the **cman.cfg** configuration file from the directory **/opt/OracleCommunications/ServiceActivator/Config**.
2. Add the following parameter to the OIM line:

   ```
   -timeout 0
   ```

3. Close the **cman.cfg** configuration file.

7

IP Service Activator Post-installation Tasks

This chapter describes the post-installation tasks for Oracle Communications IP Service Activator.

IP Service Activator Post-installation Tasks

There are a number of tasks to do after IP Service Activator is installed, but before you create domains, and discover and manage your network devices.

These tasks include:

- running the Configuration GUI to configure various system parameters
- starting the system
- configuring Super User accounts
- checking router configurations
- loading configuration policies
- importing and linking controller scripts
- setting up logging
- enabling Layer 2 Martini support on the Cisco IOS cartridge if you intend to configure Layer 2 Martini VPNs

> **Note:** The next tasks you should perform are described in the chapter "Additional setup tasks after startup" in *IP Service Activator System Administrator's Guide*. These tasks are required in order to be able to use IP Service Activator.
>
> Tasks include changing the default user group, and default super user when you first log in. After the default user is changed, all users must enter a name and password each time they start the IP Service Activator client. This is described in the "Changing the default user" topic in *IP Service Activator System Administrator's Guide*.

Online Help Requirements

The compiled online Help files included with the IP Service Activator client require Internet Explorer version 8 or 9.

Install one of these versions of Internet Explorer on each of your Windows client hosts.

In addition, the online Help requires the use of certain ActiveX controls, which are set up as part of the installation process. The Help file does not run correctly if the ActiveX controls are deleted or disabled.

About Web Services

The Web service is an optional component for an IP Service Activator installation. If you selected the Web Services component during installation, or if you selected the option to install all components, the Web service is available. If correctly installed, the IP Service Activator Configuration GUI shows the Web Service folder in the tree view. You can install Web services on the same server with other IP Service Activator components or you can install it as a standalone component.

Use the IP Service Activator Configuration GUI to configure the Web service and deployment parameters, and then deploy the Web service.

Note: The database and CORBA components must also be configured for the Web service to function correctly. See *IP Service Activator System Administrator's Guide* for information about configuring other components in the Configuration GUI.

For more information about using Web Services with IP Service Activator, see *IP Service Activator Concepts Guide*.

Pre-requisites for Web Services

In order to use the Web service to integrate with Oracle Communications Order and Service Management, you must complete the following tasks in sequential order: install a WebLogic server, install Oracle Application Development Framework (ADF), and create a WebLogic domain. For information about installing WebLogic, and ADF, see *Order and Service Management Installation Guide*.

Configuring Web Services

Configure Web services using the IP Service Activator Configuration GUI.

To configure Web services:

1. In the Configuration GUI tree view, double-click the **Web Service** folder.
2. Click **Common**.
3. Enter the configuration parameters.

   For information about Web service configuration parameters, see Table 7–1.

Table 7–1 Web Service Configuration Parameters

Parameter	Description
IPSA ORB Initial Host	The host machine for IPSA CORBA. Default is **127.0.0.1**.
IPSA ORB Initial Port	The host port for IPSA CORBA. Default is **2809**.
Database Server IP Address	Database server IP address.
Database Server Port	The database server port. Default is **1521**.
Database Service Name	The database service name. Default is **IPSA.WORLD**.
Database User Id	The database user ID. Default is **admin**.

Table 7–1 (Cont.) Web Service Configuration Parameters

Parameter	Description
Database User Password	The database user password.
Confirm Database User Password	Re-enter the database user password.
IPSA User Name	The IP Service Activator user name. Default is **admin**.
IPSA User password	The IP Service Activator Web Service user password.
Confirm IPSA User password	Re-enter the IP Service Activator Web Service user password.
IPSA Web Service User Name	The IP Service Activator Web Service user name. Default is **ipsa_ws_user**.
IPSA Web Service User password	The IP Service Activator Web Service user password.
Maximum Query Load	The maximum query load in bytes. Default is **1024000**.
EOM Debug Level	Select an option to define the IP Service Activator EOM Debug level. **OFF**: logging is disabled **ERROR**: unexpected exceptions are logged at this level (default) **TRACE**: all logging is enabled. OIM commands and responses are logged at this level. **DEBUG**: lower logging level than Trace **INFO**: informational logging. Lower logging level than Debug.
Maximum Retry on Connection Failure	The maximum number of retries on recoverable conditions, for example, database/OIM failures. Default is **3**.
OIM Session Timeout	OSS Integration Manager session timeout in seconds. Default is **1200**.
OJDL Transaction Short Watch Interval	The OJDL transaction short watch interval in seconds. Default is **5**.
OJDL Transaction Short Watch Period	The OJDL transaction short watch period in seconds. Default is **300**.
OJDL Transaction Long Watch Interval	The OJDL transaction long watch interval in seconds. Default is **60**.
OJDL Transaction Long Watch Period	The OJDL transaction long watch period in seconds. Default is **3600**.
OJDL Transaction Commit Period	The OJDL transaction commit period in seconds. Default is **60**.
Default Failed Transaction Rollback Behavior	Specifies if failed transactions are automatically rolled back by default. Default is **False**. **Note:** You can override this default by specifying different rollback behavior.

Configuring OSS Integration Manager

If you have an OSS Integration Manager (OIM), or multiple OIMs on multiple servers, that you previously installed and configured in IP Service Activator, you can configure the parameters that allow the Web service to interact with those OIMs.

Note: IP Service Activator does not support multiple OIMs on a single server.

Using the **OIM Configuration** component in IP Service Activator Configuration GUI, you can add, delete, and modify the OIM configurations that are used for Web services.

For more information about installing and configuring OIMs in IP Service Activator, see *IP Service Activator OSS Integration Manager Guide*.

To configure an OIM for Web services:

1. In the Configuration GUI tree view, double-click the **Web Service** folder.
2. Click **OIM Configuration**.
3. Enter the configuration parameters for the OIM that you want to configure.

   For information about OIM configuration parameters, see Table 7–2.

Table 7–2 OIM Configuration Parameters

Parameter	Description
Name	The CORBA name of the integration manager.
Maximum Sessions	The maximum number of OIM sessions. Default is **10**.
Minimum Idle Sessions	The minimum number of idle sessions. Default is **5**.
Read Only	Select this option if you want to use the integration manager for read only. Deselect this option if you want to use it for both reading and writing.

Deploying and Undeploying the Web Service

Deploy the Web service after you configure all parameters, including the deployment parameters, in the IP Service Activator Configuration GUI. For information about Web service parameters, see "Configuring Web Services". For information about OIM configuration parameters, see "Configuring OSS Integration Manager".

You can also undeploy the Web service.

Note: To configure the Web service deployment, you require information about the WebLogic server on which the Order and Service Management (OSM) server is deployed. WebLogic parameters are required to connect to a Oracle WebLogic Server.

For information about WebLogic, see WebLogic product documentation. For information about OSM, see *Order and Service Management Concepts*. For information about installing OSM, see *Order and Service Management Installation Guide*.

To deploy the Web service:

1. In the Configuration GUI tree view, double-click the **Web Service** folder.
2. Click **Deployment**.
3. Enter the configuration parameters for the Web service deployment.
4. Click **Deploy**.

The configuration tool does the following:

- updates the **IpsaWebService.ear** file with the parameter values that you entered in the Web Service node
- creates a JMS Server, a JMS Module, and JMS queues in WebLogic, if they are not already created
- creates a Web Service security user group and a user in WebLogic, if they are not already created
- deploys the **IpsaWebService.ear** application to WebLogic

For information about Web service deployment parameters, see Table 7–3.

Table 7–3 Web Service Deployment Parameters

Parameter	Description
Weblogic Host	The WebLogic host. Default is **127.0.0.1**.
Weblogic Port	The port number for the WebLogic server. Default is **7001**.
Weblogic Admin User Name	The WebLogic administrator user name. Default is **weblogic**.
Weblogic Admin User Password	The WebLogic administrator user password.
Confirm Weblogic Admin User Password	Re-enter the WebLogic administrator user password.
Weblogic Secure Connection	Select this option if you want to use a secure connection to the WebLogic server. Check box is selected by default.
Weblogic Target Server	The WebLogic target server where you want to deploy the IP Service Activator Web service.
Weblogic Home	The directory where WebLogic is installed on the server.

To undeploy the Web service:

1. In the Configuration GUI tree view, double-click the **Web Service** folder.
2. Click **Deployment**.
3. Click **Undeploy**.

8

Upgrading and Patching IP Service Activator

This chapter describes how to upgrade an existing system to the latest Oracle Communications IP Service Activator release. This chapter also includes procedures for performing IP Server Activator patch updates.

About Upgrading IP Service Activator

The upgrade procedure should be performed by qualified IP Service Activator administrators. You should be familiar with Oracle Database; IP Service Activator components; IP Service Activator client; IP Service Activator system configuration, including Network Processors, capabilities files, and options files; and details of any customizations to the IP Service Activator configuration.

> **Note:** Carefully review the procedures and topics in this chapter before performing the upgrade procedures. Ensure that the prerequisites are met and that during the procedure you perform all backup steps.

In this chapter, the release you are upgrading from is called the *old* release and the release you are upgrading to is called the *new* release.

Supported Upgrade Paths

This release of IP Service Activator supports the following upgrade paths:

- From release 7.0.0 to release 7.2.0.
- From release 5.2.4 to release 7.2.0.

> **Note:** If you are using the Cisco Device Driver, you must migrate to the Cisco IOS cartridge technology prior to the upgrade.

About the Upgrade Process

The flow charts in Figure 8–1 and Figure 8–2 illustrate the upgrade process.

Figure 8–1 IP Service Activator Upgrade Process: Stage 1

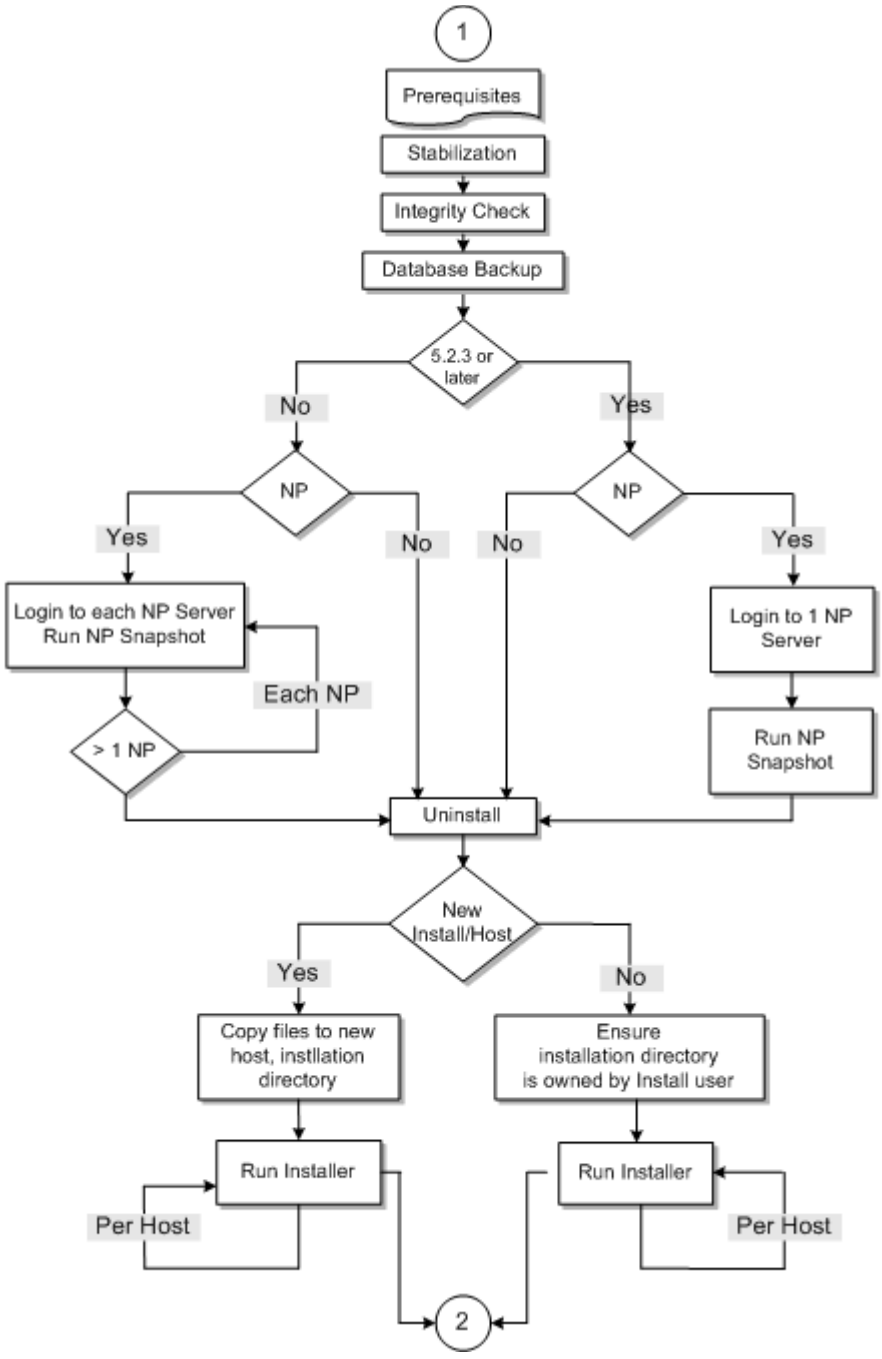
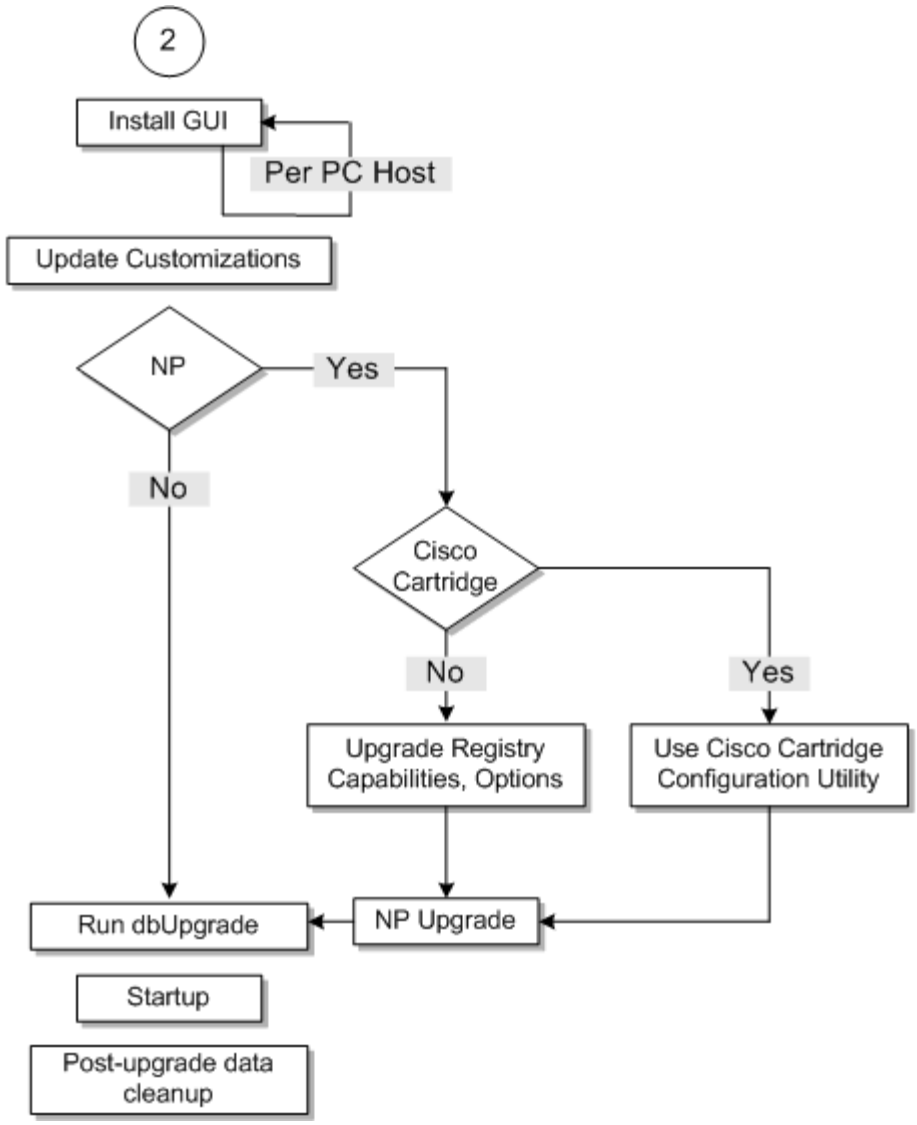


Figure 8–2 IP Service Activator Upgrade Process: Stage 2



About Network Processor Upgrade Tool Script - npUpgrade

npUpgrade performs the following tasks after the new version of IP Service Activator is installed:

- Sets up the database schema or modifies it if one exists
- Transitions all the network processor device data to the new database schema
- Computes the commands generated by the new network processor for each device
- Compares the commands that were generated by npSnapshot from the old release to the new commands and produces a report outlining which devices were upgraded successfully and which were not

The following files are created by the Network Processor Upgrade tool:

- *Service_Activator_home***/logs/upgradetool*.log**
- *upgrade_home***/upgrade/reports/upgradeReport.txt**

- *upgrade_home*/**upgrade/success/DeviceAudit**_*componentId*.**xml**
- *upgrade_home*/**upgrade/failure/DeviceAudit**_*componentId*.**xml**

where:

- *Service_Activator_home* is the IP Service Activator home directory (typically: **/opt/OracleCommunications/ServiceActivator**)
- *upgrade_home* is a configurable location anywhere on the server (the default value is *Service_Activator_home/upgrade_home*)

Preparing for the IP Service Activator Upgrade

This section provides information about preparing to upgrade IP Service Activator from releases 5.2.4 and 7.0.0 to release 7.2.0.

Prerequisites

Before upgrading:

- Ensure that you have the Installer for your old IP Service Activator release, in case you need to roll back the upgrade and revert to your original system.
- Ensure that you have the supplemental software components for your old IP Service Activator release.
- It is recommended that your IP Service Activator installation be operating as normally as possible. Issues that you do not resolve prior to the upgrade will still exist in the upgraded system. It is recommended that you take the following actions:
  - Correct cartridge-managed devices that have any failed configuration (that is, they are in the **Intervention Required** state).
  - Correct cartridge-managed devices that have outstanding or pending configuration.
  - Minimize critical faults.
- Ensure that the hardware meets the requirements for the new release. See "Planning an IP Service Activator Installation" for details.
- Go to My Oracle Support to check for the latest patch set for your new release. Otherwise, go to the Oracle software delivery Web site and download the IP Service Activator media packs for the platforms that you require.
- Download the supplemental software components for your new release.
- Un-zip the IP Service Activator media pack on each server where you plan to install IP Service Activator.

Terminology

Table 8–1 maps the terms used in this section with their corresponding default values for different versions of IP Service Activator.

Table 8–1 Term Default Values

Terminology	Default values for new versions 5.2.4 and later	Default values for new versions 7.0.0 and later
IPSA_admin_unix_account	ipsaadm	ipsaadm
default_installation_directory	/opt/OracleCommunications/ServiceActivator	/opt/OracleCommunications/ServiceActivator
database_SID	IPSA	IPSA.WORLD
database_user_id	-	admin
database_password	-	admin
process_status_script	ipsaps	ipsaps
naming_service_script	ipsans	ipsans
component_manager_script	ipsacm	ipsacm
DSN_Name	IPServiceActivatorDb	IPServiceActivatorDb

Preparing to Upgrade

Perform the general steps in this section on the old release prior to upgrading. For more specific information about some of these steps, see the relevant sections in this chapter as described in the following procedure.

To prepare to upgrade to the latest release:

1. Ensure that your old version of IP Service Activator is running.
2. Log in to IP Service Activator client using a Super User ID.
3. Ensure outstanding and scheduled transactions are completed.
4. Attempt to resolve all faults prior to upgrade.
5. Decide whether to delete or save committed IP Service Activator transactions.

   Deleting committed transactions prior to upgrading speeds up IP Service Activator startup time. Saving truncated versions of committed transactions increases IP Service Activator startup time but maintains database records for business purposes. Truncation removes the operations associated with the committed transactions.

   To delete all committed transactions:

   a. Set the transaction archive limit to zero. See the section about setting the archive limit for transactions in *IP Service Activator System Administrator's Guide*.
   b. Export all transactions. See the section about exporting transactions in *IP Service Activator User's Guide*.
   c. Commit the transaction. See the section about committing transactions in *IP Service Activator User's Guide*.

   To save committed transactions:

   a. You can save truncated versions of committed transactions during the upgrade process when you upgrade the database. See "Running dbUpgrade to Upgrade the Database" for more information.
6. Shut down the IP Service Activator processes. See *IP Service Activator System Administrator's Guide* for more information.

7. Run the Integrity Checker from the old IP Service Activator system.

   For the Integrity Checker procedure and parameter details, see the Database Integrity Checker topic in *IP Service Activator System Administrator's Guide*.

8. Review Integrity Checker output files and correct errors.

   If you correct errors, you might have to restart the system to implement the corrections. If you restart the system, return to the first step in this section.

9. Back up your IP Service Activator database instance.

10. Save the database back-up in a directory so that it is available for later restoration if a roll-back of the upgrade is required.

11. If your system has a Network Processor, run the npSnapshot script. This script performs a backup of Network Processor files prior to data migration. It takes a snapshot of the router commands generated by the Network Processor in your old IP Service Activator release.

    For information about npSnapshot, see "Installing and Running the Network Processor npSnapshot Tool". Review the npSnapshot report. If you correct errors, you might have to restart the system to implement the corrections. If you restart the system, return to the first step in this section.

12. Back up custom cartridges, if installed. For more information, see "Backing Up Custom Configuration Policies and Cartridges".

13. Back up IP Service Activator. For more information, see "Backing Up IP Service Activator".

14. Uninstall the old IP Service Activator release using the documentation that corresponds to that release.

Installing and Running the Network Processor npSnapshot Tool

Perform the steps in this section only if you are running a Network Processor.

To install and run the npSnapshot tool:

1. Run the **Config GUI**.

2. Set the following upgrade parameters to improve performance of the npSnapshot tool:

   - Increase the processes up to the number of processor cores on the server

     processes = *number_of_processes*

   - set the memory amount (which is expressed in MB) to 2048MB (i.e. 2GB)

     totalMemory = 2048

3. Commit the changes.

   This updates the *Service_Activator_home*/**Config/networkProcessor/upgradeTool/default.properties**

   See "Network Processor Upgrade Tool default.properties File" for examples of the required entries.

4. In another window, as *IPSA_admin_unix_account*, run the **npSnapshot** script:

   ```
   cd Service_Activator_home/bin
   npSnapshot.sh
   ```

This performs the first half of the Network Processor upgrade.

> **Note:** The database details are read from the db.properties file. The db.properties file is created when you run the Configuration GUI.

Checking for Errors

Look for reported errors by doing the following:

- Check the npSnapshot report file:

  upgrade_home/**upgrade/reports/snapshotReport.txt**

- Check the **upgradetool_Main.log** file in *Service_Activator_home*/**logs** and look for errors or exceptions in the output folders. You can locate these by entering:

  ```
  ls -lR Service_Activator_home/upgradeHome/upgrade
  ```

  The listed folders contain the following information:

  - **commands**: contains CLI commands representing the current configuration of devices that were successfully processed.
  - **failures**: contains CLI commands representing the current configuration of devices that were not successfully processed. You must fix these before continuing the upgrade.
  - **reports**: contains npSnapshot reports
  - **success**: used in npUpgrade

  The npSnapshot report contains a summary of results from the npSnapshot process. To see the report, enter:

  cat *Service_Activator_Home*/upgradeHome/upgrade/reports/snapshotReport.txt

  For more information, see the reference sections at the end of this chapter.

- Check the upgradetool.log file in *Service_Activator_home*/logs for errors or exceptions.

  Correct all the errors found.

> **Note:** If you have errors that you cannot fix, Oracle recommends that you contact Oracle GCS and create a service request for assistance. Attach the upgradetool.log file in *Service_Activator_home*/**logs** to the service request.

After the npSnapshot.sh script has completed successfully:

- In a new window, as *IPSA_admin_unix_account*, save a copy of the *Service_Activator_home*/**upgradeHome** directory.

> **Note:** The upgradeHome directory is needed on each Network Processor server on which you intend to install the new release of IP Service Activator, for the Network Processor upgrade (npUpgrade) process. You also need the directory in case you need to re-run the npUpgrade procedure later.

Backing Up Custom Configuration Policies and Cartridges

To back up custom configuration policies and cartridges:

1. Copy custom service cartridges from the following path:

   Service_Activator_home/**lib/java-lib/cartridges/***type*/**ServiceCartridges/**

   to a backup location. Where *type* is the cartridge type, for example, Cisco or Brocade. See *IP Service Activator SDK Service Cartridge Developer Guide* for more information.

   Note: Only back up custom service cartridges

2. Copy custom base cartridges from the following path:

   Service_Activator_home/**lib/java-lib/cartridges/***type*

   to a backup location. Where *type* is the cartridge type, for example, Cisco or Brocade. See *IP Service Activator SDK Service Cartridge Developer Guide* for more information.

   Note: Only back up custom base cartridges

3. Copy custom cartridge configuration policies from the following path:

   Service_Activator_home/**lib/java-lib/configurationPolicies**

   to a backup location.

   Note: Only back up custom configuration policies

Backing Up IP Service Activator

Back up the *Service_Activator_home* directory and all its contents.

Note: The system must be shut down before you back up, in case of an upgrade failure.

Files from these backups are needed to complete some of the upgrade steps and to reverse the upgrade in case of an upgrade failure.

Table 8–2 identifies some of the important backed up files from Network Processor hosts.

Table 8–2 Important Backed Up Files From Network Processor Hosts

Files from Network Processor hosts	Location on the Network Processor host
networkprocessor	*Service_Activator_home*/bin/
MIPSA_registry.xml	*Service_Activator_home*/Config/networkProcessor/

Table 8–2 (Cont.) Important Backed Up Files From Network Processor Hosts

Files from Network Processor hosts	Location on the Network Processor host
Capabilities files (for example: cisco12K_10K.xml juniper_M.xml)	*Service_Activator_home*/Config/networkProcessor/com/metasolv/serviceactivator/cartridges/*vendor*/capabilities/*XMLfile*
Options files	*Service_Activator_home*/Config/networkProcessor/com/metasolv/serviceactivator/cartridges/*vendor*/*option_file*
Pre-check files	*Service_Activator_home*/Config/networkProcessor/com/metasolv/serviceactivator/cartridges/*vendor*/pre_check/*pre-check_file*
AutoDiscovery.cfg	*Service_Activator_home*/Config/
cman.cfg	*Service_Activator_home*/Config/
logging.properties default.properties ErrorMessages.xml SuccessMessages.xml	*Service_Activator_home*/Config/networkProcessor/com/metasolv/serviceactivator/networkprocessor

Table 8–3 identifies some of the important backed up files from Policy Server hosts.

Table 8–3 Important Backed Up Files From Policy Server Hosts

Files from Policy Server hosts	Location on the host
policy_server.cfg	*Service_Activator_home*/Config
system_limits.cfg	*Service_Activator_home*/Config
AutoDiscovery.cfg	*Service_Activator_home*/Config
cman.cfg	*Service_Activator_home*/Config
config directory	*Service_Activator_home*/modules

Upgrading to the New IP Service Activator Software

If you are installing in the same location as the previous installation, follow these general steps. For more specific information, see the relevant sections.

Note: Your system is still shut down when you proceed with upgrading steps.

Note: This section is to upgrade IP Service Activator when the old and new releases are in the same location. If you want to upgrade IP Service Activator where the new release is in a different location, see "Upgrading IP Service Activator to a New Location".

To upgrade IP Service Activator to the latest release:

1. Install the new release of IP Service Activator (and all necessary components) using the Oracle Universal Installer. The installation is documented in "Installing IP Service Activator".

   Note: Because you are installing in the same location, the *Service_Activator_home*/**config** directory; *Service_Activator_home*/**modules/config** directories; and *Service_Activator_home*/**upgrade_home** directory are preserved from the previous installation.

2. At the end of the installation procedure, you will be asked if you want to run the Configuration GUI. The Configuration GUI is used during the upgrade procedure to configure many system options. However, you should be aware that additional customizations may be needed for some of the files that the tool manages, and also for files that the Configuration GUI does not affect.

   Run the Configuration GUI, setting parameters as described in "Updating Customizations".

   For more information about the Configuration GUI, see *IP Service Activator System Administrator's Guide*.

3. Update the data and commit.
4. Update the MIPSA registry. See "Updating Cartridge Registry (MIPSA_registry.xml)".
5. Update capabilities, as needed. See "Updating Capabilities".
6. Update options, as needed. See "Updating Options".
7. Upgrade custom cartridges, if required.
8. Run npUpgrade. For more information, see "Running npUpgrade: Network Processor Upgrade Script".
9. Run dbUpgrade. For more information, see "Running dbUpgrade to Upgrade the Database".
10. Run Integrity Checker. Validate that there are no new errors from the old system. See *IP Service Activator System Administrator's Guide* for more information about running the Integrity Checker.

Updating Customizations

Manually run the Configuration GUI and configure your system:

Service_Activator_home/**bin/ConfigGUI.sh**

Ensure that the npUpgrade tool parameters are set:

- Set the **processes** value to the number of processor cores on the server.
- Set the **memory** amount (which is expressed in MB) to **2048MB** (that is, 2GB).
- Set the **Network Processor Model Source** to indicate where the network processor data was stored in the old IP Service Activator software.
- Ensure that the **database login parameters** are set.

To update customizations:

1. Using the backed up *Service_Activator_home*/**Config** and *Service_Activator_home*/**modules/Config** directories, merge your old configuration files, such as **cman.cfg**, and so on, into the new files.

   This ensures that you preserve any customized old configuration within the new configuration or settings.

2. After running the Configuration GUI as part of the upgrade process, you must propagate any system configuration file customizations that are not managed by the Configuration GUI (if any) by manually editing the new versions of the files.

   See "Network Processor Upgrade Directory Structure" for more information.

   Note: Capabilities files, options files, and the cartridge registry are covered in a later step.

   As well, you need to produce a new, merged version of the *Service_Activator_home*/**Config/AutoDiscovery.cfg** file. In the new file:

   - New entries that were added to the new file must remain in the new, merged file
   - Added and changed entries that were in the old file must be propagated to the new, merged file.
   - Entries commented out from the old file must also be commented out in the new, merged file.

3. Produce new, merged versions of other system configuration files. Compare the backed up version of the following files against the new installed versions. For each file, identify any custom changes that you need to carry forward (that you need to merge into the 7.2.0 version of the file). You can refer to the backed up versions of the files you created in "Backing Up IP Service Activator".

   Files included in this process for network processor installations only:

   - Capabilities files. Once updated, copy these files to the following directory:

     Service_Activator_home/**Config/networkProcessor/com/metasolv/serviceactivator/cartridges/***vendor*/**capabilities/***XMLfile*

     See "Updating Capabilities" for more information on upgrading capabilities files.

   - Any other files configuration files including those that were extracted from the cartridge .jar files and customized including:
     - **logging.properties**
     - **default.properties**
     - **ErrorMessages.xml**
     - **SuccessMessages.xml**

     Note: If your IP Service Activator old installation does not use the network processor, run the dbUpgrade script. For information, see "Running dbUpgrade to Upgrade the Database".

Updating Cartridge Registry (MIPSA_registry.xml)

To update the MIPSA registry:

1. Inspect the backed up version of the custom **MIPSA_registry.xml** file (from the *Service_Activator_home*/**Config/NetworkProcessor** directory) for custom entries.
2. If you have the Cisco IOS Cartridge, use the Cisco Cartridge Configuration Utility to generate an initial MIPSA_registry.xml file. For more information, see *IP Service Activator Cisco IOS Cartridge Guide*.
3. Create a copy of this file and edit the copy to create the new version of the **MIPSA_registry.xml** file that is compatible with the new IP Service Activator version. (See *IP Service Activator System Administrator's Guide* for details on creating or editing a cartridge registry file.) Following is an example for regex used in **MIPSA_registry.xml**:

   ```
   <osVersion useRegex="true">(12.2.*\)T.*|12.2.*\)ZH.*|12.2.*\)B)</osVersion>
   ```

4. Remove any cartridge units that do not point to custom capabilities files. That is, keep only the custom references.
5. Update the retained custom entries so that each entry properly points to the intended CU (Cartridge Unit) directory. You can see the new version of the cartridge unit structure in the sample **MIPSA_registry.xml** file in:

   Service_Activator_home/**samples/***vendor***SampleRegistry**.
6. Edit the capabilities files for devices that used CU3 or CU5 cartridge units. For more information, see "Updating Capabilities".
7. Edit the options for devices that used CU3 or CU5 cartridge units. For more information, see "Updating Options".

Note: In the **MIPSA_registry.xml** file, this '<dmMigration>com.metasolv.serviceactivator.cartridges.cisco.Migration.DmMigrator.class</dmMigration>', is not compatible with IP Service Activator 7.0 or later. If this statement exists, ensure you remove it from the file. The new version of the **MIPSA_registry.xml** file should not include it in any of the cartridge units.

Note: "Updating Options" is mandatory when upgrading the Cisco IOS cartridge; otherwise, it is optional.

Updating Capabilities

After the **MIPSA_registry.xml** file is updated, copy the capabilities files to the locations as specified in the **MIPSA_registry.xml** file. The default location for capabilities files is *Service_Activator_home*/**Config/networkProcessor**.

Note: If you are using IPv6 functionality, see *IP Service Activator Installation Guide* for release 5.2.4 for more information about consolidating capabilities.

You need to produce a new, merged version of the capabilities files. In the new files:

- New entries that were added to the new files must remain in the new, merged files.
- Added and changed entries that were in the old files must be propagated to the new, merged files.
- Entries commented out from the old files must also be commented out in the new, merged files.

Some capabilities are now unused and will cause a validation failure of the *capabilities***.xsd** file (at the device level). In order to avoid this, compare the capabilities in your old files with the capabilities in the *capabilities***.vsd** file and remove any capabilities that are not in the *capabilities***.xsd** file.

The following are examples of now unused capabilities:

```
- <caps:supports_gre_vpns>
 - <caps:ike_support>
   - <caps:ike_algorithms_supported>
   - <caps:dh_groups_supported>
   - <caps:supports_shared_keys>
 - <caps:ipsec_support>
   - <caps:esp_algorithms_supported>
   - <caps:ah_algorithms_supported>
   - <caps:compression_algorithms_supported>
   - <caps:ipsec_modes_supported>
 - <caps:ca_support>
   - <caps:supports_ca>
   - <caps:supports_ca_trusted_roots>
```

The error raised if capabilities files contain the above lines is similar to the example below:

```
20081119-165638|255|WARN|[main] (RegistryResourceLoader.java:42) - Resource failed
validation should be valid:
/opt2/OracleCommunications/ServiceActivator/Config/networkProcessor/cisco_12K_
10K.xml:0: error: cvc-complex-type.2.4a: Expected elements 'saa_
support@http://www.metasolv.com/serviceactivator/capabilities lasserre_
support@http://www.metasolv.com/serviceactivator/capabilities vlan_
support@http://www.metasolv.com/serviceactivator/capabilities' instead of
'supports_gre_vpns@http://www.metasolv.com/serviceactivator/capabilities' here in
element device@http://www.metasolv.com/serviceactivator/capabilities
. . .
20081119-165638|257|WARN|[main] (CartridgeLoader.java:1395) - Registration
failure, registration entry:
(resource=file:/opt2/OracleCommunications/ServiceActivator/Config/networkProcessor
/MIPSA_registry.xml
resourceName=com.metasolv.serviceactivator.cartridges.cisco.units.cu1.10008.12.0
line:-1).  Unable to load file "cisco_12K_10K.xml"
```

Updating Options

You must edit the options files for devices that used CU3 or CU5 cartridge units so that the behavior of these devices under the new IP Service Activator installation is consistent with the behavior under the old IP Service Activator installation.

See "Options Changes" to determine what the new options should be so that you maintain the behavior of the old IP Service Activator system after upgrading to the new IP Service Activator system.

To update options:

1. Locate the sample options file in the directory:

Service_Activator_home/**samples/***vendor***SampleRegistry**.

2. Make a copy of this options file and store it in the subdirectory:

   Service_Activator_home/**Config/networkProcessor**.

3. Edit the copy to customize the options (for example, QoS, VPN, and SAA options) applicable to your implementation of IP Service Activator. Save the changes.

You may need to create and edit a number of options files applicable to different cartridge units.

You need to produce a new, merged version of the options files. In the new files:

- New entries that were added to the new files must remain in the new, merged files.
- Added and changed entries that were in the old files must be propagated to the new, merged files.
- Entries commented out from the old files must also be commented out in the new, merged files.

Note: This cisco IOS cartridge option is obsolete: cartridge.cisco.saa.rtr.reactionConfig.upperThreshhold.isSupported. The new, merged version of the cisco options files should not include it.

Note: Refer to Appendix A in the appropriate Cartridge Guide for the options.

Cisco Cartridge Configuration Utility

If you are deploying the Cisco IOS Cartridge, you must generate the required options files. For more information, see the Cisco Cartridge Configuration Utility procedures in *IP Service Activator Cisco IOS Cartridge Guide*.

1. Edit the options entries in your custom file to point to the applicable customized options file for each device.
2. Save the changes.

   An example options entry (in bold text) follows:

```
<cartridgeUnit>
<name>[your_company_name].cisco.units.cu3.7505.12.2(25)S</name>
<driverType>cisco</driverType>
<deviceType>Cisco 7505</deviceType>
<osVersion>12.2(25)S</osVersion>
:
<capabilities>com/metasolv/serviceactivator/cartridges/cisco/capabilities/cisco
_default.xml</capabilities>
<options>custom_options/cisco/7500-12.2_25_S_QoSoptions.xml</options>
:
</cartridgeUnit>
```

   Remove the **cartridge.cisco.saa.actionType.Nmvt.isDefault** entry from the existing cisco options files before upgrading IP Service Activator.

   Any previous changes made to the *Service_Activator_home*/**Config/cisco_options.csv** need to be reflected in the new **cisco_options.csv** files before

regenerating the options using the Cisco Cartridge Configuration Utility. You must merge any changes to the version of the file that you backed up using the procedure in "Backing Up IP Service Activator".

Upgrading a CTM Template Schema to Version 4 or higher

You can upgrade a template created in schema versions 1, 2, or 3. Do this by exporting the file and then re-importing the file back into a new CTM template.

See the IP Service Activator online Help *Configuration Template Module* for information about how to import and export a template file.

Upgrade Tools

The Network Processor upgrade and database upgrade tools are installed with the Installer for IP Service Activator 7.2. Perform the activities in this section to configure upgrade properties, and to run the upgrade.

If you are not running the Network Processor, you can run the dbUpgrade script. For more information, see "Running dbUpgrade to Upgrade the Database".

Network Processor on Multiple Servers

The npUpgrade script runs against the database. If you have the IP Service Activator Network Processor installed on multiple servers:

- If they all use the same database connection parameters (as specified in the Configuration GUI), you need to run npUpgrade only once.
- If they use different database connection parameters, you need to repeat the Network Processor Upgrade once for each Network Processor database.

Running npUpgrade: Network Processor Upgrade Script

This section provides information about running the Network Processor upgrade script.

Note: In order to improve the performance of this process, set the log level for npUpgrade to **info** in the following file:

Config/networkProcessor/upgradeTool/logging.properties

To run the npUpgrade script:

1. Run the **npUpgrade** script.
2. As the *IPSA_admin_unix_account* user, enter:

```
cd Service_Activator_home/bin
npUpgrade.sh -all
```

Important: Do not run the npUpgrade script unless all required cartridges and service cartridges are installed. For example, if you are upgrading from an IP Service Activator Network Processor installation, which included the syslog service cartridge (which is installed by Configuration Management software), install Configuration Management 7.2 prior to running the npUpgrade script.

Tip: Troubleshooting tip: You may see the following error when you run the npUpgrade script:

java.lang.ClassNotFoundException: com.metasolv.serviceactivator.cartridges.cisco.migration.DmMigrator

To avoid this error, remove all instances of

<dmMigration>com.metasolv.serviceactivator.cartridges.cisco.Migration.DmMigrator.class</dmMigration>

from *Service_Activator_home*/**Config/networkProcessor/MIPSA_registry.xml**.

3. Review the *Service_Activator_home/upgradeHome*/**upgrade/reports/upgradeReport.txt** file for errors.
4. Check the **upgradetool.log** for errors.
5. Refer to the reference sections at the end of this chapter for information about how to handle errors you encounter in the upgrade report or log files:
   - Running npUpgrade: Network Processor Upgrade Script
   - Network Processor Upgrade Tool default.properties File
   - npUpgrade Script Failure Analysis
   - Network Processor Upgrade Directory Structure

Running Failure Analysis on npUpgrade Results

To analyze the Device Audit files for those devices identified as upgrade failures:

1. Copy the contents of the *upgrade_home*/**upgrade/failures** directory to a separate workstation with a browser.
2. For each device identified as an upgrade failure, open its **DeviceAudit.xml** file, check for red text, and analyze it against the failure cases listed in "Performing Post-Upgrade Data Cleanup". (Certain red text entries are acceptable.)

Important: If the upgrade of some devices fails, the devices must be unmanaged in IP Service Activator before the next Network Processor restart. To unmanage the failed devices, start all the IP Service Activator components except the Network Processor(s), unmanage the devices that have failed upgrades, then start the Network Processor(s). You can then deal individually with the devices with failed upgrades without affecting other devices. To obtain help dealing with these failures, Oracle recommends that you contact Oracle GCS for assistance using the service request process. Attach a .zip file containing the contents of the *upgrade_home*/**upgrade/failures** directory to the service request.

3. When problem devices have been fixed, you can use the npUpgrade script with appropriate options to upgrade individual devices, or a specified list of devices. For example:

```
Usage: npUpgrade.sh [-all] | [-device ipAddress1,ipAddress2,*] | [-file
filename] | [-help]

Example 1: npUpgrade.sh -device 10.13.3.158,10.13.4.120
where the -device value can be one device IP address, or a comma-separated list
of device IP addresses

Example 2: npUpgrade.sh -file <filename>
where <filename> contains a list of device IP addresses, with one IP address
per line. <filename> must include the relative path from <upgradeHome>.
```

Running dbUpgrade to Upgrade the Database

This section provides information about running the database upgrade script.

To run the dbUpgrade script:

1. Run the **dbUpgrade** script.

Caution: Do not run the dbUpgrade script unless you backed up your old IP Service Activator data. For information, see "Backing Up IP Service Activator".

Run the dbUpgrade database schema upgrade tool as described below to make the required changes to the database for upgrade to the new IP Service Activator release.

Truncating Transactions: If you decided to save committed transaction records, use the **-truncate true** option when you run the dbUpgrade script. This option keeps a database record of the archived transactions but removes the active operations associated with them, to reduce the database storage required. If you have already deleted the committed transaction records, then you do not need to use this option.

To run the database upgrade tool:

1. Do the following:

```
cd Service_Activator_home/bin
dbUpgrade.sh [required/optional parameters - see Table 8-4]
```

Table 8–4 Database Upgrade Tool Parameters

dbUpgrade Parameter	Value	Information	Example
-dbHost	DatabaseHostname	required	localhost
-dbUser	DatabaseUsername	required	admin
-dbPass	DatabasePassword	required	admin
[-dbPort]	DatabasePort	optional	1521
[-dbSid]	DatabaseSID	optional	IPSA.WORLD
[-tmpDir]	TempStorageDirectory	optional	default = WorkingData/dbUpgrade
[-truncate]	true | false	optional "true" truncates transactions; default = false	false

2. Ensure that dbUpgrade connects and runs. This may take a while. Check the console window for any errors and updates. Look for the result **Completed** in the messages, which indicates the database upgrade is done.

Note: The dbUpgrade tool upgrades the database and any installed Configuration Policies.

Upgrading Device Driver Mechanism Files

If your old IP Service Activator installation uses device driver technology, Oracle recommends that you contact Oracle GCS and create a support request to obtain assistance with updating your capabilities files. Attach the device driver mechanism files and the **autodiscovery.cfg** file from the old installation.

Starting the New IP Service Activator System

This section describes the configurations and explains the steps you need to take to start the new IP Service Activator system after an upgrade.

Device Driver Configuration

1. Configure device drivers for NoCommandDelivery mode.

   Device drivers should be configured initially to start with the NoCommandDelivery flag enabled. (See *IP Service Activator Juniper-M Device Driver Guide* for details about how to do this.) This causes configuration modification commands to be sent to log files and not to the devices. This way, you can monitor for unwanted configuration changes upon initial startup.

Network Processor Configuration

1. Configure network processors for Offline Test mode.

   Network processors should be configured initially to start in Offline Test mode. For more information, see "Command Delivery Modes" in *IP Service Activator System Administrator's Guide*.

Starting the New IP Service Activator System

1. As the IPSA_admin_unix_account user, start the new IP Service Activator server software:

   ```
   naming_service_script start
   component_manager_script start
   ```

   To start the naming service, run the following command:

   ```
   ipsans start
   ```

   To start the component manager, run the following command:

   ```
   ipsacm start
   ```

   To view the processes running for IP Service Activator, run the following command:

   ```
   ipsaps
   ```

   The the scripts **ipsans** and **ipsacm** are located at *Service_Activator_home*/**bin**.

2. Launch the new IP Service Activator client.

3. If you set the transaction archive limit to zero, reset the transaction archive limit:

   In the IP Service Activator client, click **Tools**, and then select **Options**.

   On the **Options** dialog box, **Transactions** page, set the **Transactions archive limit** to a number appropriate to your installation and click **OK**.

   Commit the transaction.

4. Analyze the audit trails for both the device drivers and network processors

   Copy the contents of the **/opt/OracleCommunications/ServiceActivator/AuditTrails** directory to a separate workstation with a browser.

   For each device identified as an upgrade failure, open its **DeviceAudit.xml** file, check for red text, and analyze it against the failure cases listed in the following section "Performing Post-Upgrade Data Cleanup". (Certain red text entries are acceptable.)

   See "Running Failure Analysis on npUpgrade Results".

5. Perform a network audit of all network processor devices.

   On Solaris or Linux, run the **auditdevice** script with the **-all** parameter.

   On a Windows machine, run **auditdevice.bat** with the **-all** parameter.

   Refer to *IP Service Activator System Administrator's Guide* for details about auditing.

6. Review all discrepancies for acceptability for your network as in step 4.

7. Re-enable the IP Service Activator users that were disabled before starting the upgrade.

8. Manage devices which are in Offline Maintenance mode.

   This causes the Network Processor to make any final adjustments to the device model for each device.

   It may also raise faults that identify Interface Description mismatches.

> **Note:** At this point, the following error message may appear:
>
> `"Internal Failure, could not find any failed associations to be isolated".`
>
> You can safely ignore this error message, but you must examine any other error messages that appear and fix the indicated problems.

9. If Interface Description mismatches are identified, perform the activity described in "Cleaning Up Interface Description Mismatches".
10. Examine the contents of the audit trail file for each vendor cartridge to ensure that the upgrade is complete. The startup should complete but you should not see any activity in the audit trails. These files are stored in the *Service_Activator_home*/**AuditTrails** directory.
11. Do "Performing Post-Upgrade Data Cleanup".

    The IP Service Activator upgrade procedure is now completed.

Upgrading IP Service Activator to a New Location

This section describes how to upgrade an IP Service Activator installation from one server to another. The old and new servers can be on the same or different platforms. Note that Solaris 32-bit is not supported in IPSA 7.2.0.

To upgrade IP Service Activator to a new location:

1. Install the new version of IP Service Activator (and all necessary components) on a Solaris or Linux server using the Oracle Universal Installer (Solaris or Linux version). For more information about installing IP Service Activator, see "Installing IP Service Activator on an Oracle Solaris or Linux Server". For general installation information, see "Installing IP Service Activator".

   > **Note:** Do not run the Configuration GUI when prompted by the Installer. You must restore your **Config** directory to the new installation directory before running the tool.

2. Copy the *Service_Activator_home*/**Config** directory and *Service_Activator_home*/**modules/config** directories from the old server to the new *Service_Activator_home* directory on the new server.
3. Copy the *Service_Activator_home*/**WorkingData** directory from the old server into the new *Service_Activator_home*/**WorkingData** directory on the new server.
4. Remove **omninames*** from *Service_Activator_home*/**WorkingData** on the new server.
5. Manually run the Configuration GUI to configure your system and commit changes to the host.
6. (Optional) Update the CORBA parameters if the new server IP address has changed. Update the database parameters if the database was imported to a new database user. Update the upgrade home path to the new installation location. *Service_Activator_home*/**bin/configGUI.sh**

Note: If you are upgrading your IP Service Activator installation and migrating to another platform at the same time, follow the upgrade instructions, and ensure that you restore your *Service_Activator_home*/**upgradeHome** directory from your backup to the new *Service_Activator_home* directory on the new server.

To configure the connection to the new server:

1. From Windows, click **Start**, and then **All Programs**.
2. From the **Oracle - OracleCommunications** menu, select **Service Activator**, and then **Configuration GUI (Local Host)**.
3. Click **OK**.

   An information message indicates that the configuration is successfully loaded for the specified host.
4. Double-click the **localhost** folder.
5. Click **CORBA**.
6. Enter values for naming service IP address, and naming service port for connection to the new server.

Performing Post-Upgrade Data Cleanup

This section includes recommended data cleanup activities to be performed after upgrade, if they apply to your system.

Cleaning Up Interface Description Mismatches

The Interface Description attribute can be set in either or both of two places:

- in an **Interface Creation Configuration Policy**.
- in the **Site properties - Addressing page**.

If set in both places, the interface descriptions must match or a fault is raised.

To solve this issue:

1. Check if the interface description set on the **Interface Creation Configuration Policy** matches the interface description for the same interface set on the **Site properties - Addressing page**.
2. Remove the contents of the **Interface Description** field on the **Interface Creation Configuration Policy**, *-OR-* on the **Site properties - Addressing page**, and submit the change.
3. Repeat for each mismatch identified.

Rolling Back the Upgrade

If required, you can roll back the upgrade to the new IP Service Activator release and return the system to its previous state in the old IP Service Activator release.

Prerequisites

- You must have the Installer for the old IP Service Activator release to which you want to revert.
- You must have taken proper backups of your old IP Service Activator system prior to running **npSnapshot** as is recommended in the upgrade procedure.

To roll back the upgrade:

1. Back up the new IP Service Activator database and the IP Service Activator installation directory (by default

   opt/OracleCommunications/ServiceActivator/*) for diagnostic use.
2. Uninstall the new IP Service Activator software.
3. Delete the new install directories using rm -r (by default

   opt/OracleCommunications/ServiceActivator).
4. Install the old IP Service Activator software. Include all required components.
5. Delete the directories that were created by the old IP Service Activator installation in *Service_Activator_home*. The reason for this is that you will be restoring these directories from your backup.
6. Restore **/opt/Orchestream** and **/var/Orchestream** from your old IP Service Activator backup.
7. Drop the old IP Service Activator database user.
8. Restore the old IP Service Activator Oracle Database information.

   For example:

   ```
   > imp
   Import: Release 9.2.0.7.0 - Production on Fri Oct 20 14:31:39 2006
   Copyright (c) 1982, 2002, Oracle Corporation. All rights reserved.
   Username: <your_ipsa_user>
   Password: <your_passwd>
   Connected to: Oracle9i Enterprise Edition Release 9.2.0.7.0 - Production
   With the Partitioning, OLAP and Oracle Data Mining options
   JServer Release 9.2.0.7.0 - Production
   Import file: <dmp_filename> > 510db.dmp
   ```

9. Start the system using the same precautions and steps outlined in "Starting the New IP Service Activator System".

Options Changes

This section describes the options changes in the different releases of IP Service Activator.

Options Changes in IP Service Activator 5.2.4

With release 5.2.4, the Weighted Round Robin (WRR) hardware queuing mechanism configuration policy was consolidated into CU1. If your deployment includes Cisco cartridges which use a CU4 cartridge unit and a WRR custom queuing configuration policy, replace all instances of CU4 with CU1 in the **MIPSA_registry.xml** file.

In previous releases:

- Cisco options cartridge.cisco.qos.atmPvcVciRange.minimum and cartridge.cisco.qos.atmPvcVciRange.maximum took values between 1 and 65,535 (inclusive). They now take values between **0 and 65,535** (inclusive).
- cartridge.cisco.qos.atmPvcVciRange.minimum defaulted to **0**. It now defaults to **1**
- cartridge.cisco.saa.actionType.Nmvt.isDefault existed. It has now been removed

Table 8–5 lists the new Cisco cartridge options that were added in IP Service Activator 5.2.4. Add them to your options files with settings appropriate to your needs.

Table 8–5 Cisco Cartridge Unit Options added in Version 5.2.4

Name	Values	Notes
cartridge.cisco.vpn.ospf.maximumPath.minimum	Integer	1-16
cartridge.cisco.vpn.ospf.maximumPath.maximum	Integer	1-16
cartridge.cisco.qos.phbwfq.dropStrategy.wredType	NA	NA
cartridge.cisco.qos.policingRule.rateLimit.roundoffCIRValue	NA	NA
cartridge.cisco.qos.policingRule.rateLimit.roundoffCIRFactor	NA	NA
cartridge.cisco.netflow.inactiveTimeout.immediately.isSupported	Boolean	NA
cartridge.cisco.ppp.multilink.fragment.useDisableFlag	Boolean	NA
cartridge.cisco.qos.classmap.useIPv6AclForMatchAny	NA	NA
cartridge.cisco.qos.mapclass.deployOnInterface	Boolean	NA
cisco.vlan.vlanIds.isDuplicateAllowed	Boolean	NA
cartridge.cisco.vlan.mgmtVlanInterface.validate	Boolean	NA
cartridge.cisco.vlan.portChars.xlflowControl.isSupported	Boolean	NA
cartridge.cisco.vlan.portChars.udldEnable	Boolean	NA
cartridge.cisco.vlan.portChars.srrQueueBandwidthShape.isSupported	Boolean	NA
cartridge.cisco.vlan.portChars.mdixAuto.isSupported	Boolean	NA
cartridge.cisco.vlan.portChars.speed.nonegotiate.isSupported	Boolean	NA
cartridge.cisco.vlan.portChars.defaultSpeed.isSupported	Boolean	NA
cartridge.cisco.vlan.portChars.negotiation.isSupported	Boolean	NA
cartridge.cisco.vlan.vlanDefinition.isReduced	Boolean	NA

Table 8–5 (Cont.) Cisco Cartridge Unit Options added in Version 5.2.4

Name	Values	Notes
cartridge.cisco.vpn.ospf.spfthrottle.commandSyntax	NA	NA
cartridge.cisco.controller.au4tug3.isSupported	NA	NA
cartridge.cisco.interface.suppressNoIPv6Enable	NA	NA

There are no changes to the following options in IP Service Activator 5.2.4:

- CatOS
- JuniperXML
- AlcatelSAMQoS
- Cisco Syslog

Options Changes in IP Service Activator 7.0.0

Table 8–6 lists the new Cisco Cartridge options that were added in IP Service Activator 7.0.0. Add them to your options files with settings appropriate to your needs.

Table 8–6 Cisco Cartridge Unit Options Added in Version 7.0.0

Name	Values	Notes
cartridge.cisco.qos.policymap.police.twoRate.lineFormat	String	singleLine, multiLine default: multiLine
cartridge.cisco.qos.policymap.police.percent.defaultCBSValue	Integer	1-2000 or -1
cartridge.cisco.qos.policymap.police.percent.defaultEBSValue	Integer	NA
cartridge.cisco.qos.policymap.wredRemoveWithType	Boolean	default: false
cartridge.cisco.qos.policymap.police.SRsingleLine.percentAndTimeBasedSyntax.isSupported	Boolean	default: false
cartridge.cisco.qos.policymap.police.cisco10000SeriesSyntax.isSupported	Boolean	default: false
cartridge.cisco.vpn.vrf.defaultVrfFormat	String	IP_VRF, MP_VRF default: IP_VRF
cartridge.cisco.bgpce.ipv4.configurationMode	String	Router, Address-Family default: Router
cartridge.cisco.alias.vrf.allowAliasIpVrf	Boolean	default: true
cartridge.cisco.routing.allowNoSynchronization	Boolean	default: true

Upgrade Reference Information

This section contains helpful reference information for the upgrade process.

Network Processor Upgrade Tool default.properties File

The **default.properties** file contains the IP Service Activator database login information and the directory location *upgrade_home* for the Network Processor Upgrade tool output. Device models are stored in an Oracle Database table. See sample content for various versions of the file.

> **Note:** After **npSnapshot.sh** has completed successfully, in a new window as *IPSA_admin_unix_account* user, save a copy of the *Service_Activator_home/upgrade_home* directory. The *upgrade_home* directory is needed on each Network Processor server, on which the new version of IP Service Activator software will be installed, for the Network Processor upgrade (npUpgrade) process. You will also need it in case you need to re-run the npUpgrade procedure later.

Example 8–1 Example IP Service Activator default.properties File Content

```
###
#Copyright (c) 2008 Oracle. All rights reserved. Oracle is a trademark
# of Oracle Corporation and/or its affiliates. Other names may be trademarks
# of their respective owners.
#
# Auto-Generated by the IPSA Configuration Tool [ 2009-04-28 05:36:14 ]
###


# Full path name of the home directory that will hold the "upgrade"
sub-directories.
upgradeHome = /opt/OracleCommunications/ServiceActivator/upgradeHome

# deviceList retrieval method = 'database' or explicit list (use one or the
other). Explicit list:
oid,name,ipa:oid,name,ipa:oid,name,ipa:oid,name,ipa:oid,name,ipa
deviceList = database

# Location of last device models to be upgraded:  'files' (if stored in cacheDD
directory),  'database' (if stored in np_lds table) or  'np_ldm' (if stored in np_
ldm table).
npModelSource = database

# Checks that saxon is the correct version  as is hardcoded in the network
processor.
disableEnvCheck = false

# Number of concurrent processes (should be less than the number of processors)
processes = 2

# The total amount of memory (in MB) to be used by all children processes  (it
will be divided among them)
totalMemory = 2048
```

> **Note:** The database details are read from the **db.properties** file. The **db.properties** file is created when you run the Configuration GUI.

npUpgrade Script Logging Properties

The **logging.properties** file contains the log file location (which defaults to *Service_Activator_home*/**logs/upgradetool*.log**) and the desired log level. The following log levels are commonly used:

- error = any exceptions or null variable errors
- info = tool progress and results
- debug = more details

npUpgrade Script Failure Analysis

There may be some errors flagged in the audit reports by **npUpgrade.sh** which do not reflect problems which need resolution.

Audit failures listed below can be ignored.

Sub-interface Unit Number on Juniper

You can ignore the configurations similar to the following displayed in red:

```
###ACTUAL VALUE ON DEVICE: t1-7/0/0:12 ###
next-hop t1-7/0/0:12.0;
```

The next-hop command changed from having 0:12 at the end to having 0:12.0. Juniper interfaces should be labelled with the subinterface of 0, so no changes are needed.

Interface Per-packet Load-sharing on Cisco

You can ignore the configurations similar to the following displayed in red:

```
ip load-sharing per-packet
```

Interface Description String on Cisco

If you had spaces in your old descriptions, they will be removed in the new descriptions. You can ignore the configurations similar to the following displayed in red:

```
description ... SD:123456789; UD:...
```

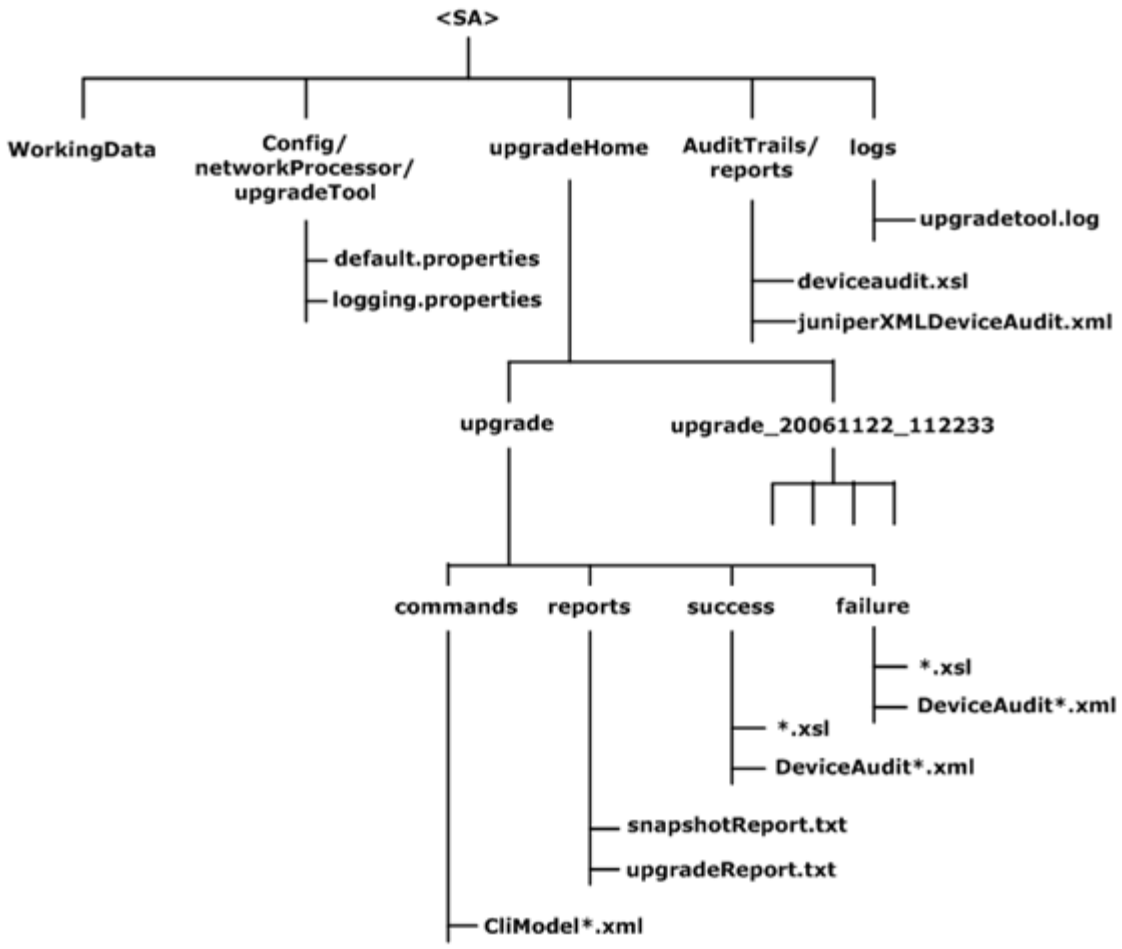
and the configurations similar to the following displayed in blue:

```
description ... SD:123456789;UD:...
```

Network Processor Upgrade Directory Structure

Figure 8–3 shows the directory structure of the files involved in the upgrade (assuming default file locations).

Figure 8–3 Network Processor Upgrade Directory Structure



Patching IP Service Activator

Installing an IP Service Activator patch follows the same process as the original installation. You can customize the patch installation by selecting the **Custom** installation type. Components that are already installed are listed on a summary page and are not re-installed.

Prerequisites

Before installing a patch:

- Back up the Oracle Database. See "Backing Up IP Service Activator".
- Decide whether to delete or save a truncated version of all committed transaction to avoid generating core files when IP Service Activator restarts. See step 5 in"Preparing to Upgrade".

Installing a Patch

To install a patch:

1. Login to Oracle Support at:

   http://support.oracle.com

2. Select the **Patches & Updates** tab.
3. Search for the patch number and download the latest patch to the Solaris or Linux server (which has the IP Service Activator server installed) or Windows host (which has IP Service Activator client).
4. Stop IP Service Activator components.
5. Unzip the patch.
6. In the Solaris or Linux console, run the following command:

   `unzip` **`IPServiceActivator-7`***`.x.x.x.x`***`Build`***`-xxx-`***`.zip`**

   In Windows, unzip the **IPServiceActivator-7***.x.x.x.x***Build***-xxx***-win.zip** file.

   The IP Service Activator directory is created.
7. In Windows, run **setup.exe** in the install directory to launch the Oracle Universal Installer and do the client upgrade and installation.

   In Solaris and Linux, run the **runInstaller** in **Disk1/install** and complete the server upgrade and installation.
8. Select the installation type you want. To upgrade or reinstall components, select the **Custom** installation type and click the **Required Components** check box.

Note: You can use silent installation to upgrade IP Service Activator. Previously recorded response files can be used to do the upgrade, or the response template can be used to install the patch. For information about using silent installation, see "About Silent Installations".

Updating Configuration Policy Definitions

After you install an IP Service Activator patch, you must ensure that the system is using the latest configuration policy definitions.

To update a configuration policy definition:

1. In the Global Setup window, select a domain in the **Hierarchy** pane.
2. Right-click **Domain** and select **Properties**.
3. In the **Domain** dialog box, select the **Setup** property page.
4. Click **Browse**.
5. Select the policy file that is related to the enhanced configuration policy and click **Open**.
6. Click **Load**.

   The configuration policy loads and a confirmation dialog box opens.
7. Click **OK**.

   The confirmation dialog box closes.
8. Click **OK**.

   The Domain dialog box closes.
9. Commit the transaction.

10. Click the domain to open it.
11. Select the **Policy** tab and expand the **Policy Types** folder.
12. Find the sub-folder where your policy type is located.

    For example, to locate LSP Policy Type, go to **Policy Types**, **Service**, **LSP**, **LSP Tunnel**.
13. Right-click the Policy Type and select **Properties**.

    The Policy Types dialog box opens.
14. Click **Import HTML**.
15. Select the HTML file for the configuration policy that you want to import, and then click **Open**.
16. Click **OK**.
17. Commit the transaction.

9

Uninstalling IP Service Activator

This chapter describes how to safely uninstall the main Oracle Communications IP Service Activator application completely using the uninstaller, or by component package using Admintool. It also describes how to uninstall the IP Service Activator client.

Uninstalling IP Service Activator 7.2 from UNIX Server

Note: All Unix installations, such as Oracle Solaris 64 and Linux, use the following procedure.

To uninstall IP Service Activator components:

1. Go to your IP Service Activator installation directory.

   The default is **/opt/OracleCommunications**.

2. Set the **ORACLE_HOME** environment variable to the directory where IP Service Activator is installed. For more information, see "Preparing to Install IP Service Activator".

3. Go to **ORACLE_HOME/oui/bin** and run the Oracle Universal Installer:

   ```
   ./runInstaller
   ```

   The Installer launches and the Welcome window opens.

4. Click **Installed Products**.

   The Inventory window opens.

5. Select the items that you want to uninstall and click the **Remove** button.

   The Confirmation window opens.

6. Click **Yes**.

   The Remove window appears with a progress bar and uninstalls the selected components.

   The Inventory window opens without the components that have been uninstalled.

7. Click **Close**.

8. Click **Cancel**.

   The **Exit** window opens.

9. Click **Yes** to confirm the uninstallation.

Uninstalling IP Service Activator 7.2 Client

Note: All Windows installations, such as Windows 32 and Windows 64, use the following procedure.

To uninstall the IP Service Activator client from a Windows host:

1. On your Windows machine, go to the directory *media pack un-zip location***client\Disk1\install** and double-click **setup.exe.**

   The **Welcome** window opens.

2. Click **Deinstall Products**.

   The **Inventory** window opens.

3. Select the that items you want to uninstall.

4. Click the **Remove** button.

   The **Confirmation** window opens.

5. Click **Yes**.

   The **Remove** window opens with a progress bar and uninstalls the selected components.

   The **Inventory** window opens without the components that have been uninstalled.

6. Click **Close**.

7. Click **Cancel**.

   The **Exit** window appears.

8. Click **Yes** to confirm the uninstallation.

Uninstalling Individual IP Service Activator Components

You can uninstall IP Service Activator software on a component-by-component basis. You must delete the core component last because doing so removes the main installation directory.

About IP Service Activator Components and Packages

Each IP Service Activator component is made up of a number of packages, as listed in the table below. To uninstall an IP Service Activator component you need to remove the relevant packages. See "Uninstalling an IP Service Activator Component" for the uninstallation procedure.

When uninstalling for upgrade purposes, we recommend that you uninstall all packages associated with IP Service Activator components on a single host machine before reinstalling the relevant components.

Table 9–1 summarizes IP Service Activator components and their packages.

Table 9–1 IP Service Activator Packages

Package	Abbreviation	Policy Server	Client	Proxy Agent	Network Processor	OIM	Event Handler	SLA
Core Package	ORCHcore (**Note 1**)	Y	Y	Y	Y	Y	Y	Y
GCC STLport Libraries	ORCHgstl	Y	Y	Y	Y	Y	Y	Y
Sun Pro STLport Libraries	ORCHsstl	Y	N	N	Y	Y	Y	Y
GCC Xerces XML Libraries	ORCHgxerc	Y	N	Y	Y	Y	Y	Y
Oracle client		Y	Y	N	N	N	Y	N
Naming Service	ORCHname	Y	N	N	N	N	N	N
Component Manager	ORCHcmmgr	Y	N	Y	Y	Y	Y	Y
System Logger	ORCHslog	Y	N	N	N	N	N	N
Policy Server	ORCHplcy	Y	N	N	N	N	N	N
Sun Pro Xerces XML Libraries	ORCHsxerc	N	Y	N	Y	Y	Y	Y
Driver Scripts	ORCHdrscr	N	Y	N	N	Y	N	N
Telnet Plugin	ORCHplgtel	N	Y	N	N	N	N	N
CatOs Device Driver	ORCHcatos	N	N	Y*	N	N	N	N
Cisco Device Driver	ORCHcisco	N	N	Y*	N	N	N	N
Generic Device Driver	ORCHgdd	N	N	Y*	N	N	N	N
Juniper M-series Device Driver	ORCHjunip	N	N	Y*	N	N	N	N
Network Processor	ORCHnetproc	N	N	N	Y	N	N	N
Proxy Agent	ORCHprxy	N	N	Y	N	N	N	N
Python Libraries	ORCHgccpy	N	N	Y	Y	N	N	N
Netcool Libraries	ORCHncool	N	N	N	N	Y	N	N
OSS Integration Manager	ORCHoim	N	N	N	N	Y	N	N
Event Handler	ORCHehand	N	N	N	N	N	Y	N
OSA List Components	ORCHlstcp	N	N	N	N	N	N	N
OSA Component Parameters	ORCHcompar	N	N	N	N	N	N	N

* All Device Drivers are installed with the Proxy Agent, unless one or more were deselected during installation.

Note: Supplemental software components are removed along with the ORCHcore package.

Uninstalling an IP Service Activator Component

To uninstall an IP Service Activator component:

1. Start with the procedure "Uninstalling Individual IP Service Activator Components".

2. Run Admintool:

   ```
   # admintool
   ```

3. Click Browse, and then click Software.

   Admintool lists the software currently installed on the machine.

4. By default, the deinstallation script prompts you to confirm deletion of each package. If you want to apply a global **Yes** response to these prompts:

   Click Properties, and then click Package Administration.

   The Admintool: Package Administration dialog box opens.

   Set the following options:

   - Install setuid/setgid Files: **Yes**
   - Run setuid/setgid Scripts: **Yes**
   - Removal Dependencies Not Met: **Ignore**
   - Install/Remove Interactively: **No**

5. Select the relevant IP Service Activator packages for deletion.

   For more information, see "About IP Service Activator Components and Packages".

   Note: Do not delete the OSA Core Package until you have deleted all other packages.

6. In the Edit menu, select **Delete**.

   Admintool prompts you to confirm the deletion.

7. Click **Delete**.

   Admintool displays the components to be deleted and prompts you to confirm the deletion.

   When the deletion process is complete, Admintool prompts you to press Return. Pressing Return closes the terminal window and returns you to the Admintool: Software dialog box.

8. In the File menu, select **Exit** to quit Admintool.

10

Troubleshooting the Installation

This chapter outlines some of the problems that can occur during the installation of Oracle Communications IP Service Activator, and explains how to fix them.

See *IP Service Activator System Administrator's Guide* for general troubleshooting information.

> **Note:** See *IP Service Activator Release Notes* for release-specific work-arounds for known issues.
>
> There is no mechanism for repairing IP Service Activator components. If faults are reported by the operating system when starting up a system component, we recommend that you remove and reinstall the software.
>
> If you cannot resolve your installation problem, contact Oracle GCS.

This chapter provides information about the following:

- Oracle Database Installation Fails Before Completion
- Manually Configuring Oracle Client Connection: Solaris
- Client Errors
- omniORB Use of TCP Wrappers
- Loading SharedPolicyData.policy to Avoid Incomplete Software Upgrade

Oracle Database Installation Fails Before Completion

Check the following:

- The parameters in the **/etc/system** file are correct and match those supplied in the template file
- The **oracle** user exists and you are installing Oracle Database 11g software as that user
- The dba group exists and the **oracle** user is assigned to that group
- You have applied all recommended Oracle Solaris patches. For more information, "Planning an IP Service Activator Installation".
- You have applied all recommended Linux patches.

Note: For more information about how this works in a Solaris environment, log into a Solaris 10 or 11 box and type man ulimit.

Manually Configuring Oracle Client Connection: Solaris

The Oracle client connection is typically automatically configured by the IP Service Activator server software installation program on Solaris, which has a pre-selected option to install the Oracle client. However, if you did not install the supplied Oracle client, you must manually configure the database connection to your own Oracle client by editing the **tnsnames.ora** file. It is located at:

ORACLE_HOME/**network/admin/tnsnames.ora**.

You might also have to create the **ORACLE_HOME** environment variable on the server.

To configure the Oracle client connection manually on Solaris:

1. Change to the **root** user:

   ```
   $ su - root
   ```

2. Change to the Oracle administration directory. For example, for Oracle8*i*:

   ```
   # cd /usr/local/oracle/u01/app/oracle/product/8.1.7/network/admin
   ```

3. Edit the **tnsnames.ora** file as follows:

   ```
   net_service_name =
   (DESCRIPTION = (ADDRESS_LIST =
   (ADDRESS = (PROTOCOL = TCP)(Host = host_name)(Port = port_no))
   )
   (CONNECT_DATA = (SERVICE_NAME = service_name))
   ```

   where:

   - *host_name* is the host name of the machine on which the database resides
   - *port_number* is the port number to be used for communication
   - *net_service_name* is the name of the Net8 (NetCA) service
   - *service_name* matches the value in the equivalent section of the Oracle server's **tnsnames.ora** file

   Consult your local Database administrator if you need additional help.

Note: The procedure for manually configuring the Linux client connection is the same as Solaris.

Client Errors

If an error occurs in the IP Service Activator client, a critical message is written to the current faults pane. These messages are displayed on a red background. See *IP Service Activator System Administrator's Guide* for more information.

omniORB Use of TCP Wrappers

Installers should be aware that omniORB uses TCP wrappers.

Incorrect configuration of TCP wrappers can trigger various CORBA-related issues including:

- Inability of the Proxy Server to register with the Naming Service on a Policy Server host
- Components can register with the Naming Service, but the Policy Server fails to communicate with the components on a Proxy Server host. Finding system components returns all the expected components, but they are in a failed state.
- Inability of the Policy Server to communicate with the Naming Service
- Inability of the client to connect
- Inability of OSS Integration Manager (OIM) processes to connect
- Other anomalies around the use of the Naming Service

To correct these issues, correct the omniOrb configuration so that IP Service Activator processes are properly named as being allowed to connect to the ORB.

If this condition has already affected your installation, correct the **/etc/hosts.*** files (**/etc/hosts.deny** and **/etc/hosts.allow**) or force omniORB to different configuration files with environment variables. For information about environment variables, see:

http://www.omniorb.sourceforge.net/docs.html

For more information, see "CORBA ORB Configuration for IP Service Activator".

Oracle Universal Installer Error

You might get an error when Installing the IP Service Activator client on Windows 7.

After double-clicking on **setup.exe**, if you see the following error, either enter **y** to ignore or adjust the virtual memory setting and enter **n**.

```
Starting Oracle Universal Installer...
Checking swap space: 0 MB available, 500 MB required.     Failed <<<<
Checking monitor: must be configured to display at least 256 colors Higher than
256 .    Actual 4294967296     Passed
Some requirement checks failed. You must fulfill these  requirements before
continuing with the installation,
 Continue? (y/n) [n]
```

If you encounter errors or issues when using the Oracle Universal Installer to install IP Service Activator or the IP Service Activator client, see *Appendix B* in the Universal Installer documentation for more information:

HTML: http://download.oracle.com/docs/cd/B28359_01/em.111/b31207/toc.htm

PDF: http://download.oracle.com/docs/cd/B28359_01/em.111/b31207.pdf

Client Cannot Connect to Policy Server

- Verify that the policy server is running by running **./ipsaps** on the server machine. See *IP Service Activator System Administrator's Guide* for more information.
- Verify that you can ping the IP address to which the client is attempting to connect
- Check that you are attempting to connect a Win64 client to a 64-bit policy server, or a Win32 client to a 32-bit policy server, and not mixing 32-bit and 64-bit
- Check whether the Windows firewall is blocking access. On Windows 7, if the firewall is turned on and set to notify when Windows firewall blocks a new

program, allow access to the IP Service Activator applications when prompted and they (IP Service Activator, Explorer, omninames) will be added to the list of programs to be allowed through the Windows firewall.

Loading SharedPolicyData.policy to Avoid Incomplete Software Upgrade

Errors received while loading policy files such as **default.policy** or **advanced.policy** into IP Service Activator might be triggered by an incomplete software upgrade.

Load **SharedPolicyData.policy** to create new rows for IPv6 in the database. See *IP Service Activator System Administrator's Guide* for more information about loading configuration policies.

IPSAPS Does Not Work

IPSAPS does not work if the policy server output is too long.

If you see the following error:

```
awk: record ` 12138 ?        S  0...' too long
```

You must set up AWK_PATH, as shown in the following example:

```
AWK_PATH=/usr/xpg4/bin
```

A

Installation Checklists and Worksheet

We strongly recommend that you use the following installation checklists when installing both Oracle Database software and Oracle Communications IP Service Activator components.

These checklists are designed to:

- Provide a quick reference to the recommended installation settings for each installation task
- Enable you to record any user-specific settings you may decide to enter during an installation task
- Help you to provide important configuration information to Oracle GCS when troubleshooting installation problems

Checklists include:

- Oracle Database Installation Data
- IP Service Activator Multi-host General Installation Checklist
- Client Installation Checklist

Oracle Database Installation Data

Table A–1 is designed to help determine the size of a new network.

Table A–1 Oracle Database Installation Data Worksheet

Setting	Attribute	Recommended	Recorded value
Oracle Database home settings	Location	**/usr/local/oracle/u01/app/oracle/product/**version	
NetCA service connection settings	Global Database Name	IPSA.WORLD	
Not applicable	Net Service Name	IPSA	*
Not applicable	Host Name (IP Service Activator database)	None supplied	
Not applicable	Database SID	IPSA	*
IP Service Activator database settings	Tablespace name	IPServiceActivatorDb	

Table A–1 (Cont.) Oracle Database Installation Data Worksheet

Setting	Attribute	Recommended	Recorded value
Not applicable	Datafile Name	**/usr/local/oracle/u01/app/oracle/oradata/IPSA/IPSERVICEACTIVATORDB.dbf**	
Not applicable	File Size	250 MB	
Not applicable	Increment	5 MB	
Oracle Database Listener settings	Global name	IPSA.WORLD	
IP Service Activator database login settings	Database userID	admin	*
Not applicable	Password	admin	*

*These items are entered when installing the IP Service Activator Policy Server, client, and event handler, and must be identical to those defined here.

IP Service Activator Multi-host General Installation Checklist

Complete one copy of Table A–2 for each host.

Table A–2 Multi-Host General Installation Checklist

Setting	Attribute	Recommended	Recorded value
Server hostname			
Serial Number		If you were provided with a serial number by Oracle Communications for a previous deployment, you must re-enter that value for the new deployment.	
Installed Files Location	Destination Folder	Use default supplied	
Naming service settings	Hostname	None supplied Record local hostname for reference when installing other components.	
Not applicable	TCP/IP Port	2809	
Database connection settings	Data Source Name (DSN)	IPServiceActivatorDb Check Oracle Database installation	
Not applicable	Database Server IP Address	None supplied	
Not applicable	Database Server Port	Use default 1521	
Not applicable	Database Service Name (SID.DOMAIN)	IPSA.WORLD Check Oracle Database installation	

Table A–2 (Cont.) Multi-Host General Installation Checklist

Setting	Attribute	Recommended	Recorded value
Not applicable	Database Userid	admin Check Oracle Database installation	
Not applicable	Database User Password	admin Check Oracle Database installation	
IP Service Activator **Program Folder**	Program Folders	Use default supplied	

Client Installation Checklist

The task in Table A–3 is described in the additional setup tasks to be run prior to initial startup topic in *IP Service Activator Administrator's Guide*.

Table A–3 Client Installation Checklist

Setting	Attribute	Recommended	Recorded value
Install Files Location	Destination Folder	Use default supplied	
Naming service settings	Hostname	Use Policy Server hostname	
Not applicable	TCP/IP Port	2809	
IP Service Activator Program Folder	Program Folders	Use default supplied	

Site Survey Worksheet

Table A–4 can help to determine the size of a new network. Use the survey data to determine the appropriate hardware for an IP Service Activator deployment. Being able to answer the questions in this list prior to contacting Oracle Global Customer Support for assistance, can also speed the resolution of sizing and support issues.

Table A–4 Site Survey Worksheet

Deployment Characteristics	Recorded Values
Devices:	
Number of managed PEs and vendor type(s)	
Average number of interfaces/sub-interfaces/VC-endpoints per PE device	
If Configuration Management feature is deployed, average number of device configuration archives per PE to be retained	
Number of managed CEs and vendor type(s)	
Average number of interfaces/sub-interfaces/VC-endpoints per CE device	
If Configuration Management feature is deployed, average number of device configuration archives per CE to be retained	
VPNs:	

Table A–4 (Cont.) Site Survey Worksheet

Deployment Characteristics	Recorded Values
Number of user VPN connections (Sites)	
QoS:	
Number of concrete policy elements	
Breakdown on a per policy element basis if possible	
CDK scripts:	
Number of CDK scripts	
Number of CDK script concretes	
Miscellaneous IP Service Activator activity:	
Number of GUI logins per day	
Number of device discoveries and capability fetches per day (the size and nature of CEs and PEs that are likely to be discovered affect discovery times)	
PEs (average number of interfaces per device)	
CEs (average number of interfaces per device)	
System component usage:	
OSS Integration Manager (OIM) (deployment generates additional CPU demand on the Policy Server host machine)	
Event Handler (deployment generates additional CPU demand on the Policy Server host machine)	
Maximum number of concurrent GUI users	
System configuration:	
Is Citrix usage in use?	
List of all other implementation-specific restrictions:	
Bandwidth limitations (if any)	
Cost considerations	
Other deployment issues	

B

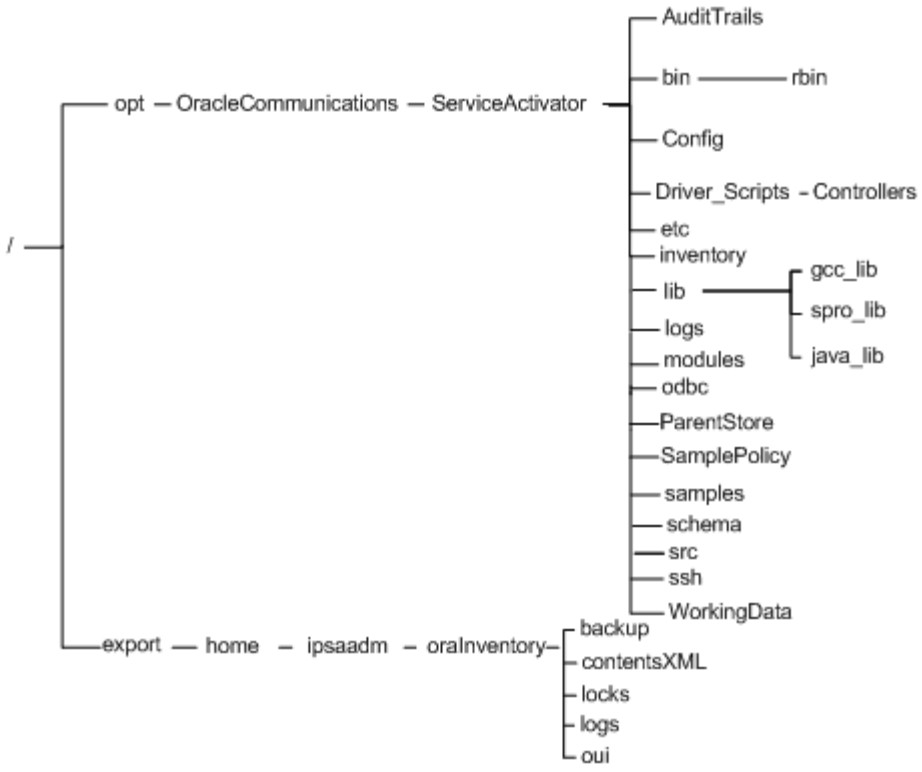
Directories and Files

This appendix describes directories and files created by the Oracle Universal Installer for Oracle Communications IP Service Activator.

Directory Structure

The Installer creates the directory structure shown in Figure B–1.

Figure B–1 IP Service Activator Directory Structure



Note: The path **/opt/OracleCommunications/ServiceActivator** is usually indicated as *Service_Activator_home* in this document.

Symbolic Links

If you choose to run the naming service and component manager automatically, the following symbolic links are created in **/opt/OracleCommunications/**ServiceActivator:

- In the **/etc/rc0.d** directory, **K09ipsamgr** links to *Service_Activator_home***/etc/init.d/ipsamgr** to shut down the naming service and component manager
- In the **/etc/rc3.d** directory, **S99ipsamgr** links to *Service_Activator_home***/etc/init.d/ipsamgr** to start up the naming service and component manager

Both links point to the file *Service_Activator_home***/etc/init.d/ipsamgr**

The contents of the IP Service Activator directory structure are listed and described in the following sections.

Directories and Contents

Table B–1 lists some of the important directories created by the IP Service Activator installation process and the types of files and programs they contain.

Table B–1 Important Directories Created by Installation Process

Directory Name	Contents
`bin` bin/rbin	IP Service Activator executable and initialization files
`Config`	Configuration files
`Driver_Scripts`	Driver scripts for import to IP Service Activator
Inventory	Contains permanent and product specific files.
`lib`	GCC, SunPro, Tom Sawyer, InfoVista and Netcool library files.
`SamplePolicy`	Example policy files for loading into IP Service Activator.
`src`	Contains the icons directory, and the **integration_manager.idl** file required for CORBA.
`AuditTrails`	The audit log files associated with the Device Drivers are stored in: **/opt/OracleCommunications/ServiceActivator/AuditTrails**
`logs`	Component manager, naming service, Policy Server, system startup log files, and core files are in **/opt/OracleCommunications/ServiceActivator/logs**. By default, minimal diagnostic output is turned on for the Proxy Agents and Device Drivers.
`ParentStore`	Files that record the relationships between components are stored in **/opt/OracleCommunications/ServiceActivator/ParentStore**. Files are created at runtime by components as they register with their parent component.
`WorkingData`	Component log files are stored in **/opt/OracleCommunications/ServiceActivator/WorkingData**.
`ipsaadm`	The IP Service Activator administrator's home directory is **/export/home/ipsaadm**.