

Oracle® Communications IP Service Activator

SDK Configuration Management Developer Guide



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The Oracle logo, consisting of a solid red square with the word "ORACLE" in white, uppercase, sans-serif font centered within it.

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Preface

This guide explains how to use the Oracle Communications IP Service Activator Software Development Kit (SDK) to create cartridges which support the IP Service Activator Configuration Management tool.

Audience

This guide is intended for developers who want to include support for Configuration Management in base and service cartridges.

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1

Overview

This chapter provides an overview of how to include support for Oracle Communications Configuration Management in Oracle Communications IP Service Activator base and service cartridges.

Supported Cartridge Types

The network processor supports the following types of cartridges:

- Base cartridges: provide support for simple device interactions and simple functionality, such as configlets and audits
- Core cartridges: provide a rich set of configuration and audit functionality across a variety of services
- Service cartridges: provide support for one or more specific IP Service Activator services for a specific vendor. Service cartridges must be deployed as extensions to either a base or core cartridge. They deploy services based on information provided from configuration policies, or from IP Service Activator objects.
- Configuration management cartridges: provide support for configuration management services

A vendor cartridge is a combination of a base or core cartridge with a number of service cartridges.

A configuration policy provides a schema-validated HTML GUI input mechanism for services implemented in service cartridges.

2

Supporting Configuration Management

This chapter explains how to use the Oracle Communications IP Service Activator Software Development Kit (SDK) to include support for Oracle Communications Configuration Management in base and service cartridges. With support enabled, devices connected to IP Service Activator through the network processor have access to certain facilities in the Configuration Management module.



Note:

For details about installing the SDK and the required third party tools, plus a detailed overview of all SDK concepts, a discussion of cartridge components, and an explanation of how cartridges integrate with the network processor, see *IP Service Activator SDK Developer Overview Guide* and *IP Service Activator SDK Installation and Setup Guide*.

Table 2-1 lists the directory placeholders used in this guide.

Table 2-1 Directory Placeholders

Placeholder	Description
<i>SDK_home</i>	The directory in which the SDK is installed.
<i>Service_Activator_home</i>	The directory to which IP Service Activator is deployed. Typically C:\Program Files\Oracle Communications\IP Service Activator

This guide assumes:

- That the required versions of additional third party tools to support the SDK are installed correctly.
- That you have set up the required environment variables to support the SDK functions.

For details about installing the SDK and the third party tool versions, refer to *IP Service Activator SDK Installation and Setup Guide*.

Additional Procedures and References

Key components from the SDK and concepts from their documentation are required in order to configure support for Configuration Management.

Configuration Management Integration

The following services provided by Configuration Management can be supported in the network processor through various SDK components:

- Audit: supported through base and service cartridges

- Configuration activation: supported from configuration policies through service cartridges in conjunction with a base cartridge.
- Restore: can be implemented in base cartridges

Audit

Configuration Management's audit services let you identify configuration changes between the archive version and the running configuration. Basic audit support is pre-configured in the base cartridge source files generated by the SDK.

When you create a skeleton set of base cartridge source files, `...audit\auditTemplate.xml` is automatically created for you. It contains the basic commands needed to support Configuration Management audit services.

The audit template is integrated into the base cartridge through the **Registry.xml** file.

An example section of the **Registry.xml** file follows:

```
<audit>
  <auditTemplate>
    <auditTemplateEntry>
      <auditTemplateFile>com/metasolv/service activator/cartridges/cisco/audit/
auditTemplate.xml</auditTemplateFile>
      <appliesTo>
        <deviceTypes useRegex="true">Cisco.*</deviceTypes>
        <osVersions useRegex="true">.*</osVersions>
      </appliesTo>
    </auditTemplateEntry>
  </auditTemplate>
</audit>
```

Supporting Audit for New Commands

If you add additional services through customized service cartridges, audit support for the new commands can be implemented through the `audit\auditTemplate.xml` template in the service cartridge source.

Refer to the generated base cartridge `auditTemplate.xml` template file for examples of how to support commands.

The `auditTemplate.xml` file is registered with the service cartridge in the **Extensions.xml** file. This is pre-configured when the service cartridge source is generated by the SDK skeleton generator tool.

For more details on Audit services, refer to *IP Service Activator SDK Developer Overview Guide*, *IP Service Activator SDK Base Cartridge Developer Guide*, and *IP Service Activator System Administrator's Guide*.

Configuration Activation

Support for Configuration Activation exists in base cartridges. Using this facility, you can efficiently send small, specific configuration commands to devices directly through the network processor. Configuration Activation commands are sourced in this "special" configuration policy (configlet) and passed through IP Service Activator to the network processor for configuration on the device.

Configuration Restoration

To support the restoration of an archived configuration to a device through Configuration Management, you will need to create a restore template and register it with your base cartridge.

When you create your restore template, it should be integrated into the base cartridge source. A sample restore template file is created when you generate the sample cisco base cartridge. It is located in

`SDK_home\baseCartridges\ciscosrc\... \cisco\transforms\restoreTemplate.xml`

This restore template file contains commands to perform the restore actions required by Configuration Management.

The restore template is integrated into the base cartridge through the **Registry.xml** file.

An example section of the **Registry.xml** file follows:

```
<restore> <restoreTemplate> <restoreTemplateEntry> <restoreTemplateFile>com/
metasolv/serviceactivator/ cartridges/cisco/transforms/restoreTemplate.xml</
restoreTemplateFile> <appliesTo> <deviceTypes useRegex="true">Cisco.*</
deviceTypes> <osVersions useRegex="true">.*</osVersions> </appliesTo> </
restoreTemplateEntry> </restoreTemplate></restore>
```

An example restore template follows:

```
<?xml version="1.0" encoding="UTF-8"?>
<commandSession xmlns="http://www.metasolv.com/serviceactivator/climodel"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:schemaLocation="http://
www.metasolv.com/serviceactivator/climodel file:../../../../networkprocessor/
climodel/cliModel.xsd">
  <command>
    <!-- commands to restore configuration -->
    <commandString/>
    <command>
      <commandString>terminal length 0</commandString>
    </command>
    <command kind="restore">
      <commandString>copy tftp startup-config</commandString>
      <conditionalPrompt>.*Address or name of remote host.*</conditionalPrompt>
      <conditionalCommand>
        <commandString>TFTP</commandString>
        <conditionalPrompt>.*Source filename.*</conditionalPrompt>
        <conditionalCommand>
          <commandString>RESTOREFILE</commandString>
          <conditionalPrompt>.*Destination filename.*</conditionalPrompt>
          <conditionalCommand>
            <commandString>startup-config</commandString>
          </conditionalCommand>
          <timeoutSeconds>600</timeoutSeconds>
        </conditionalCommand>
        <timeoutSeconds>600</timeoutSeconds>
      </conditionalCommand>
      <timeoutSeconds>1000</timeoutSeconds>
    </command>
    <command>
      <commandString>reload</commandString>
      <conditionalPrompt>.*Proceed with reload.*</conditionalPrompt>
      <conditionalCommand>
```

```
<commandString>y</commandString>
</conditionalCommand>
</command>
</command>
</commandSession>
```

Change Tracking

To support change tracking for Cisco IOS devices, use the service cartridge cisco syslog.

For other vendors, create a service cartridge based on the cisco syslog example. Refer to *IP Service Activator SDK Service Cartridge Developer Guide* for details about creating service cartridges.

Receiving CM Events Through JMS

Events are published in the Java Message Service (JMS) topic (oracle/communications/activation/configurationmanagement/SubscriptionManagementTopic), and they are available to any subscribed client. The client first subscribes to the JMS topic by creating a topic connection and opening a session with the topic. One connection can have more than one topic session with each session having durable or non-durable subscriber. Once a third party application establishes a subscription, it listens to the topic for any published event.

The following are four types of Events generated through the Configuration Management Engine:

- **AllChangeEvent:** every time there is a change on the device(s)
- **ManualChangeEvent:** every time there is a manual change on the device(s)
- **AutomatedChangeEvent:** every time there is an automated (IPSA or CM) change on the device(s)
- **DiscrepancyChangesEvent:** after an archive, a comparison is made to see if there is a discrepancy (missing configuration). If yes, an event is generated. An event per broken service is generated.

Events contain the following data:

- Event Type
- Device Id
- Device Name,
- Device IP Address
- Device Path
- Command issued
- Raw Syslog Message
- UserName
- User IP Address

Discrepancy Event contains the following information:

- Service Name

- Service Type
- Command Document
- Concrete Id
- Device Type
- Network Name
- Interface Name
- CustomerName
- Syslog messages (which were sent between the two archives that could have lead to this discrepancy)