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Preface

This guide explains how to install the Oracle Communications IP Service Activator Software Development Kit (SDK). It details the components and related environment for installing and running SDK tools.

This guide provides details for installing, validating, and uninstalling the SDK.

Related Documents

For details about how to use the SDK to develop cartridges and configuration policies, refer to:

- IP Service Activator SDK Developer Overview Guide
- IP Service Activator SDK Base Cartridge Developer Guide
- IP Service Activator SDK Service Cartridge Developer Guide
- IP Service Activator SDK Configuration Policy Extension Developer Guide

Accessing Oracle Communications Documentation

IP Service Activator for Oracle Communications documentation, and additional Oracle documentation, is available from Oracle Help Center:

http://docs.oracle.com

Online References

Online references are included in the ipsaSDK-devGuides-versionString-sdk1.0.zip distribution file. See "Installing the SDK".

IP Service Activator Schema Online Documentation

An online reference is provided containing schema documentation which outlines how to populate and read XML instance documents used by the IP Service Activator Network Processor.

It is accessed through:

Service_Activator_home\ipsaSDK\doc\schemaDoc\index.html

IP Service Activator Configuration Policy Online Documentation

An online reference is provided documenting the Configuration Policies that are provided with the IP Service Activator core.

It is accessed through:
where Service_Activator_home is the directory to which IP Service Activator is deployed.

Web References
You can obtain the XML Schema Primer from the W3C, located at:
http://www.w3.org/TR/xmlschema-0/

Documentation Accessibility
For information about Oracle’s commitment to accessibility, visit the Oracle Accessibility Program website at

Access to Oracle Support
Oracle customers that have purchased support have access to electronic support through My Oracle Support. For information, visit
http://www.oracle.com/pls/topic/lookup?ctx=acc&id=info or visit
http://www.oracle.com/pls/topic/lookup?ctx=acc&id=trs if you are hearing impaired.

Documentation History
The following table lists the revision history for this guide.

<table>
<thead>
<tr>
<th>Version</th>
<th>Date</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>E61095-02</td>
<td>June 2016</td>
<td>Documentation updates.</td>
</tr>
<tr>
<td>E61095-01</td>
<td>July 2015</td>
<td>Initial release.</td>
</tr>
</tbody>
</table>
Installing the Software Development Kit

This chapter explains how to install the Oracle Communications IP Service Activator Software Development Kit (SDK), how to install the required third-party utilities that support the SDK, and how to set up required environment variables.

About the SDK

The SDK is for developing cartridges and configuration policies. The cartridges are deployable into an IP Service Activator Network Processor installation, and the configuration policies are deployable into an IP Service Activator client installation.

Together, the developed cartridges and configuration policies extend the functionality of IP Service Activator. This can include, for example, support for additional services, and support for vendor devices not directly supported by the IP Service Activator product.

About the SDK Environment

The SDK is intended to be used on either a Windows-based or Oracle Solaris system. The documentation assumes that a Windows-based system is being used.

The SDK can run independently of IP Service Activator and Configuration Management. It does not need to be installed on a IP Service Activator or Configuration Management host. However, there may be some advantages to installing on a test IP Service Activator host, for example, to make it simpler to perform end-to-end testing.

Table 1–1 lists the placeholders used in this guide.

<table>
<thead>
<tr>
<th>Placeholder</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SDK_home</td>
<td>The directory in which the SDK is installed. This directory name as delivered is ipsaSDK.</td>
</tr>
<tr>
<td>Service_Activator_home</td>
<td>The directory to which IP Service Activator is deployed.</td>
</tr>
</tbody>
</table>

Examples giving paths are expressed with backslashes ('\') to conform to Windows. If you are using Solaris, use forward slashes ('/') in path names.

Third Party Tools and Versions

In order to use the SDK you must download and install the following third party utilities:
About the SDK Environment

- Java Development Kit (JDK) version 1.7.x
  Download from:

- Ant 1.6.2
  Download the apache-ant-1.6.2-bin.zip file from:
  http://archive.apache.org/dist/ant/binaries/

- JUnit 3.8.1
  Download from:

  **Note:** After JUnit is installed, copy the junit.jar file to the ant library directory.

  On Windows:
  copy path_to_junit_install_dir\junit.jar path_to_ant_install_dir\lib

  On Solaris:
  cp path_tojunit_install_dir/junit.jar path_to_ant_install_dir/lib

- Saxon 8.8.0.7
  Download:

  **Note:** Ensure that you have the Saxon 8.8.0.7 release. The name of the .jar file (saxon8.jar) does not change with different sub-versions of Saxon 8.

- Velocity 1.4
  Download from:
  http://archive.apache.org/dist/velocity/engine/1.4/

  If velocity1-4.zip is reported to be an invalid archive, download velocity1-4.tar.gz

Setting Environmental Variables

In order to run the SDK tools, certain environment variables must be set. If one of the third party tools cannot be located because an environment variable is not set correctly, you receive an error when you run Ant.
About the SDK Environment

Installing the Software Development Kit

You can create a batch or script file to manually set up environment variables each time you are ready to work with the SDK, or you can adapt your system settings so that the environment variables are permanently configured.

The required environment variables include:

- **PATH**: must include paths to the `...\bin` directories for Java and Ant
- **JAVA_HOME**: home directory of the JDK
- **JUNIT**: directory containing JUnit binaries
- **ANT_HOME**: directory containing Ant binaries
- **SAXON**: directory containing Saxon binaries
- **VELOCITY**: directory containing Velocity binaries

**Sample Commands to Set Windows Third Party Environment Variables**

The commands to configure the required environment variables from a Windows command line session are similar to the following example.

```plaintext
set CLASSPATH=
set JAVA_HOME=C:\Program Files\Java\jdk1.6.0_03
set ANT_HOME=C:\apache-ant-1.6.2
set JUNIT=C:\junit3.8.1
set SAXON=C:\saxonb-8.8.0.7
set VELOCITY=C:\velocity-1.4
set IPSA_SDK_HOME=SDK_home
set PATH=%JAVA_HOME%\bin;%ANT_HOME%\bin;%IPSA_SDK_HOME%\bin;%PATH%
```

**Sample Commands to Set Solaris Third Party Environment Variables**

The commands to configure the required environment variables on Solaris are similar to the following example.

```plaintext
unset CLASSPATH
export JAVA_HOME='/usr/jdk/1.6.0_03'
export ANT_HOME='/opt/apache-ant-1.6.2'
export JUNIT='/opt/junit3.8.1'
export SAXON='/opt/saxonb-8.8.0.7'
export VELOCITY='/opt/velocity-1.4'
```

**Note**: An existing CLASSPATH environment variable may interfere with the CLASSPATH required by the SDK. It is therefore recommended that the CLASSPATH environment variable be cleared/unset in the session where the SDK is being used.

For example, in Windows:

```plaintext
set CLASSPATH=
```

**Note**: Replace `SDK_home` with the actual path to your SDK installation.

**Note**: Replace `SDK_home` with the actual path to your SDK installation.
export IPSA_SDK_HOME='SDK_home'
export PATH=$JAVA_HOME/bin:$ANT_HOME/bin:$IPSA_SDK_HOME/bin:$PATH

Installing the SDK

You can unzip the SDK files to any directory. If you have some IP Service Activator components already installed, it is acceptable, but not necessary to unzip the SDK files to the IP Service Activator directory (which the documentation refers to as Service_Activator_home).

The files will be copied to a new directory named ipsaSDK under the directory you select. For example, if you unzip the files to Service_Activator_home, the files will be placed under Service_Activator_home\ipsaSDK and Service_Activator_home\ipsaSDK will be referred to as SDKHome in the SDK documentation.

To install the SDK:

1. Install third party utilities as described in "Third Party Tools and Versions".
2. Ensure the SDK environment variables have been set up as described in "Setting Environmental Variables".
3. Download the IP Service Activator SDK from the Oracle software delivery website:
   http://edelivery.oracle.com
   The files to be installed are ipsaSDK-versionString-sdk1.0.zip and ipsaSDK-devGuides-versionString-sdk1.0.zip.
4. Unzip the SDK files to any directory.

---

Note: The distribution file ipsaSDK-devGuides-versionString-sdk1.0.zip includes online references. See "Online References" for more information.

---

Test Environments

Basic tests of cartridges and configuration policies created with the SDK can be performed without an IP Service Activator or Configuration Management system.

To perform end-to-end tests of installed cartridges and configuration policies that you have developed, it is recommended that you have a Solaris-based IP Service Activator installation dedicated to the purpose. This system should have access to some actual devices.

It is not recommended to perform testing on a live IP Service Activator installation.

Upgrading an SDK Cartridge Installed on a Service Activator Host

The procedure for upgrading an SDK-based custom cartridge is impacted by the nature of the cartridge customization and its implementation.

If SDK-based custom cartridges and service extensions have been written in compliance with the upgrade interfaces in the SDK developer guides (configuration policy and service cartridge), the dbUpgrade and npUpgrade scripts will automatically upgrade SDK-based custom cartridges and service extensions.

It is strongly recommended that SDK developers adhere to these interfaces so that their upgrade is in line with the upgrade procedure given in this chapter.
Uninstalling

This section describes:
- How to uninstall the complete SDK
- How to delete individual SDK components (for example, a base cartridge, service cartridge, or configuration policy) from an SDK host
- How to uninstall SDK-generated cartridges or configuration policies deployed into a IP Service Activator installation

Uninstalling the SDK

Remove all sub-directories and files in the SDK_home directory.

Deleting a Generated Cartridge or Configuration Policy From an SDK Host

Cartridges and configuration policies reside in the following directories:

SDK_home/samples/baseCartridge/sdk_global_cartridgeName
SDK_home/samples/serviceCartridges/sdk_global_cartridgeName
SDK_home/samples/configPolicies/sdk_global_configPolicyName

Remove the specific cartridge or configuration policy directory you want to delete, including all of its files and sub-directories.
Uninstalling an SDK-generated Cartridge or Configuration Policy

Each SDK cartridge or configuration policy contains a manifest file that lists all of the files packaged into its zip file. When a cartridge or configuration policy is installed on an IP Service Activator host, this manifest file is placed into the `Service_Activator_home/cartridgeUninstall` directory.

To uninstall an SDK cartridge or configuration policy from an IP Service Activator host:

1. Log in to a command shell on the IP Service Activator host where the SDK cartridge or configuration policy is installed.

2. Change directory to `Service_Activator_home/cartridgeUninstall`.

   Note the manifest file name of the SDK cartridge or configuration policy that you want to remove. The file has one of the following formats:

   - `sdk_global_cartridgeName-baseCartridge-versionString.manifest`
   - `sdk_global_configPolicyName-configPolicy-versionString.manifest`

3. Change directory to `Service_Activator_home`.

4. Remove the cartridge or configuration policy by entering one of the following commands:

   ```sh
   bin/uninstallCartridge.sh [-v] [-k] cartridgeUninstall/sdk_global_cartridgeName-baseCartridge-versionString.manifest
   bin/uninstallCartridge.sh [-v] [-k] cartridgeUninstall/sdk_global_cartridgeName-serviceCartridge-versionString.manifest
   bin/uninstallCartridge.sh [-v] [-k] cartridgeUninstall/sdk_global_configPolicyName-configPolicy-versionString.manifest
   ```

   where the -v option provides extra output details about the uninstall operation and the -k option leaves intact any empty directories.

   The script removes any files and directories used by this cartridge or configuration policy. Any directories that are shared with other cartridges or configuration policies are removed only if they are empty. With the -k option, empty directories are not removed.

   The script also removes the cartridge or configuration policy manifest file.

5. Restart the network processor after the cartridge or configuration policy is uninstalled.
To remove the HTML for an SDK-generated configuration policy from an IP Service Activator client host:

1. Delete the HTML file in the Service_Activator_home/Config directory that is named after the configuration policy.

2. Remove the reference to the HTML file in the ConfigurationPolicy.cfg file. This consists of removing the object and policytype elements that refer to the configuration policy being removed. For example:

   ```xml
   <GenericRule>
   ...
   <object>
   <policytypeReference ref="banner"/>
   </object>
   ...
   <policytype name="banner">
   <policyurl>file:///C:/ProgramFiles/OracleCommunications/IPServiceActivator/Config/banner.html</policyurl>
   </policytype>
   ...
   </GenericRule>
   ```

   Both of these files are in the Service_Activator_home/Config directory.

Converting Schema Names into Java

When XMLBeans converts the schema name into Java, the algorithm used can sometimes incorrectly adapt it when there is a number in the schema. If this happens, you can use the xsdconfig file to override the default conversion.

To properly convert the schema name into Java:

1. Create a directory that contains the schema file.

2. Give that directory to the `<xmlbeans>` task.

3. Use the config policy sdk.

4. The xsdconfig file should be correctly generated by gencp.