



# Connector Development

*Oracle® Identity Governance Connector for  
Keycloak Realm*

*Developer Guide*

*Release 1.0.0*

*June 2023*

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# Preface

This guide describes the development of the connector that is used to onboard Red Hat Keycloak Realm as an applications into Oracle® Identity Governance.

## Audience

This document is intended for people who deal with the administration of resources as well as teams who deal with the integration of target systems.

## Related Documents

For information about installing and using Oracle® Identity Governance 12c, visit the following Oracle® Help Center page:

- <https://docs.oracle.com/en/middleware/idm/suite/12.2.1.3/index.html>
- <https://docs.oracle.com/en/middleware/idm/suite/12.2.1.4/index.html>

For information about Identity Governance Connectors documentation, visit the following Oracle® Help Center page:

- <https://docs.oracle.com/en/middleware/idm/identity-governance-connectors/12.2.1.3/index.html>

## Typographical Conventions

The following table describes the typographic conventions that are used in this document.

Convention	Meaning
<b>boldface</b>	Boldface type indicates graphical user interface elements associated with an action, or terms defined in text or the glossary.
<i>italic</i>	Italic type indicates book titles, emphasis, or placeholder variables for which you supply particular values.
<code>monospace</code>	Monospace type indicates commands within a paragraph, URLs, code in examples, text that appears on the screen, or text that you enter.

## Symbol Conventions

The following table explains symbols that might be used in this document.

Convention	Meaning
[ ]	Contains optional arguments and command options.
{   }	Contains a set of choices for a required command option.
\${ }	Indicates a variable reference.
-	Joins simultaneous multiple keystrokes.
+	Joins consecutive multiple keystrokes.
>	Indicates menu item selection in a graphical user interface.

# Installing the Connector Bundle

The connector supports deployment in a connector server. This is particularly helpful for testing the functionality of the connector outside of the deployment in Oracle® Identity Governance.



## Note

The project provides source code that implements JUnit test cases. These test cases can run in this topology.

This section contains the following topics:

- [Install Required Libraries](#)
- [Install Connector Bundle](#)

## Install Required Libraries

Make sure following jars are in the class path:



## Note

Copy the libraries mentioned below to `<CONNECTOR_SERVER_HOME>/lib/endorsed`.

## Installing the Connector Bundle

Library	Description
<code>javax.annotation.javax.annotation-api.jar</code>	Common Annotations for the Java™ Platform API.  <i>&lt;MW_HOME&gt;/oracle_common/modules/ javax.annotation.javax.annotation-api.jar</i>
<code>javax.ws.rs.javax.ws.rs-api.jar</code>	Java API for RESTful Web Services  <i>&lt;MW_HOME&gt;/oracle_common/modules/ javax.ws.rs.javax.ws.rs-api.jar</i>
<code>javax.inject.javax.inject.jar</code>	This package provides portable dependency injection annotations that can be used by any dependency injection framework.  <i>&lt;MW_HOME&gt;/oracle_common/modules/ javax.inject.javax.inject.jar</i>
<code>com.sun.jersey.jersey-core.jar</code>	Jersey Core  <i>&lt;MW_HOME&gt;/oracle_common/modules/ com.sun.jersey.jersey-core.jar</i>
<code>com.sun.jersey.jersey-client.jar</code>	Jersey Client  <i>&lt;MW_HOME&gt;/oracle_common/modules/ com.sun.jersey.jersey-client.jar</i>
<code>jackson-annotations-2.7.9.jar</code>	Core annotations used for value types, used by Jackson data binding package.  <i>&lt;MW_HOME&gt;/oracle_common/modules/ thirdparty/jackson-annotations-2.7.9.jar</i>
<code>jackson-core-2.7.9.jar</code>	Core Jackson processing abstractions (aka Streaming API), implementation for JSON  <i>&lt;MW_HOME&gt;/oracle_common/modules/ thirdparty/jackson-core-2.7.9.jar</i>
<code>jackson-jaxrs-base-2.7.9.jar</code>	Pile of code that is shared by all Jackson-based JAX-RS providers.  <i>&lt;MW_HOME&gt;/oracle_common/modules/ thirdparty/jackson-jaxrs-base-2.7.9.jar</i>
<code>jackson-jaxrs-json-provider-2.7.9.jar</code>	Functionality to handle JSON input/output for JAX-RS implementations (like Jersey and RESTeasy) using standard Jackson data binding.  <i>&lt;MW_HOME&gt;/oracle_common/modules/ thirdparty/jackson-jaxrs-json-provider-2.7.9.jar</i>
<code>jackson-databind-2.7.9.1.jar</code>	General data-binding functionality for Jackson: works on core streaming API.  <i>&lt;MW_HOME&gt;/oracle_common/modules/ thirdparty/jackson-databind-2.7.9.1.jar</i>
<code>org.glassfish.javax.json.jar</code>	Default provider for JSR 374:Java API for Processing JSON  <i>&lt;MW_HOME&gt;/oracle_common/modules/ thirdparty/javax.json.jar</i>



## Install Connector Bundle



### Note

Copy the Connector Bundle mentioned below to `<CONNECTOR_SERVER_HOME>/bundle`.

Bundle	Description
<code>gfn.identity.connector.bundle-12.2.1.3.jar</code>	The connector bundle.

# Project Properties

## Project Source Path

Property	Value
Java Source Paths	<code>./src/main/java</code>
Included	(All)
Excluded	(None)
Output Directory	<code>./bin</code>
Default Package	<code>oracle.iam.identity.icf</code>

Table 1. Project Source Paths

## Ant Build Sources

Property	Value
Ant Build Source Paths	<code>./ant</code>
Included	(All)
Excluded	(None)

Table 2. Ant Build Source Paths

## Resources

Property	Value
Resources	<code>./src/main/resources</code>
Included	(All)
Excluded	(None)

Table 3. Project Source Path Resources

## Site Document Sources

Property	Value
Site Document Source Paths	<code>./src/site</code>
Included	(All)
Excluded	(None)

Table 4. Site Document Sources

## Unit Test Sources

Property	Value
Unit Test Source Paths	<code>./src/test/java</code>

## Project Properties

Property	Value
Included	(All)
Excluded	(None)

Table 5. Unit Test Sources

## Javadoc

Property	Value
Destination	. / doc
Visibility	public and protected
Excluded	(None)

Table 6. Javadoc

## Libraries and Classpath

These are the libraries required to compile and build the connector:

Library	Location
JUnit 4 Runtime	Extension
MDS Runtime	Extension
JAX-RS Jersey 2.x Jackson	Extension
<a href="#">WLS Platform 12c Jersey Core</a>	User
<a href="#">WLS Platform 12c Jersey Client</a>	User
<a href="#">ICF Platform 12c Connector</a>	User
<a href="#">IGD Platform 12c Server</a>	User
<a href="#">IGD Platform 12c Adapter</a>	User
<a href="#">IGD Platform 12c Scheduler</a>	User
<a href="#">OCS Headstart 12c Foundation</a>	User
<a href="#">OCS Identity 12c Foundation</a>	User
<a href="#">OCS Identity 12c Utility</a>	User
<a href="#">ICF Platform 12c Integration</a>	User
<a href="#">ICF Platform 12c Foundation</a>	User
<a href="#">ICF Platform 12c REST</a>	User

Table 7. Classpath Entries



### Note

JUnit 4 Runtime needs only be part *Libraries and Classpath* if you want to run the Junit Test.

# Preferences

## IDE Preferences

These are the preferences specific to the product installation:



### Warning

These preferences are not provided by the version control system due to they are heavily depended on your product installation and the check out of the source code.

Property Name	Property Value
fmw.base	/opt/oracle/product/ide/12.2.1
fmw.base.ide	<i>\${fmw.base}</i> /jdeveloper
fmw.base.jrf	<i>\${fmw.base}</i> /oracle_common/modules
fmw.base.wls	<i>\${fmw.base}</i> /wlserver
fmw.base.soa	<i>\${fmw.base}</i> /soa/soa/modules

These are the preferences specific to the project and workspace folder structure:

Property Name	Property Value
wks.base	/Users/dsteding/Project
ocs.base	/Users/dsteding/Project

## Identity Workspace Preferences

This build file references [IDE Preferences](#)

These are the preferences specific to the version control:

Property Name	Property Value
application.release	12.2.1.3
application.version	./\${application}.version
application.jar	\${application}.jar

These are the preferences specific to the project installation:

Property Name	Property Value
ocs.base.icf	<i>\${ocs.home}</i> /IdentityConnector
ocs.base.oim	<i>\${ocs.home}</i> /IdentityManager
wks.base.icf	<i>\${wks.home}</i> /IdentityManager

## Connector Workspace Preferences

This build file references [Identity Workspace Preferences](#)

# Library References

## JDeveloper Library References

### Consulting Foundation Services

#### *OCS Headstart 12c Foundation*

##### *General*

Property	Value
Id	oracle-hst-12c-foundation
Library Name	OCS Headstart 12c Foundation
Location	User
Description	

##### *Path*

Property	Value
Class Path	<ocs-root>/FoundationFramework/hstFoundation/lib/hst-foundation.jar
Source Path	<ocs-root>/FoundationFramework/hstFoundation/lib/hst-foundation-src.jar
Doc Path	<ocs-root>/FoundationFramework/hstFoundation/lib/hst-foundation-doc.jar

##### *Dependencies*

If you include this library in a project its required to include also:

Library	Location
Java EE	Extension
<a href="#">WLS Platform 12c Groovy</a>	User

#### *OCS Headstart 12c Deployment*

This library is not indended to be used in the classpath of the project.

## Library References

### **General**

Property	Value
id	oracle-hst-12c-deployment
Library Name	OCS Headstart 12c Deployment
Location	User
Description	

### **Path**

Property	Value
Class Path	<ocs-root>/FoundationFramework/hstDeployment/lib/hst-deployment.jar
Source Path	<ocs-root>/FoundationFramework/hstDeployment/lib/hst-deployment-src.jar
Doc Path	<ocs-root>/FoundationFramework/hstDeployment/lib/hst-deployment-doc.jar

### **Dependencies**

If you include this library in a project its required to include also:

Library	Location
<a href="#">OCS Headstart 12c Foundation</a>	User

### **OCS Headstart 12c Security**

#### **General**

Property	Value
Id	oracle-hst-12c-security
Library Name	OCS Headstart 12c Security
Location	User
Description	



**Path**

Property	Value
Class Path	<ocs-root>/FoundationFramework/hstSecurity/lib/hst-security.jar
Source Path	<ocs-root>/FoundationFramework/hstSecurity/lib/hst-security-src.jar
Doc Path	<ocs-root>/FoundationFramework/hstSecurity/lib/hst-security-doc.jar

**Dependencies**

If you include this library in a project its required to include also:

Library	Location
Java EE	Extension

**OCS Headstart 12c Faces****General**

Property	Value
Id	oracle-hst-12c-faces
Library Name	OCS Headstart 12c Faces
Location	User
Description	

**Path**

Property	Value
Class Path	<ocs-root>/FoundationFramework/hstFaces/lib/hst-faces.jar
Source Path	<ocs-root>/FoundationFramework/hstFaces/lib/hst-faces-src.jar
Doc Path	<ocs-root>/FoundationFramework/hstFaces/lib/hst-faces-doc.jar

**Dependencies**

If you include this library in a project its required to include also:

Library	Location
Java EE	Extension
JSP Runtime	Extension
JSF 2.2	Extension
JSTL 1.2	Extension
Trinidad Runtime 11	Extension
Resource Bundle Support	Extension
Resource Bundle Variable Resolver	Extension
ADF Common Runtime	Extension
ADF Model Runtime	Extension
ADF Controller Runtime	Extension
ADF Controller Schema	Extension
ADF Faces Runtime 11	Extension
ADF Common Web Runtime	Extension
<a href="#">OCS Headstart 12c Foundation</a>	User

## Platform Foundation Services

### *OCS Platform 12c Core*

#### *General*

Property	Value
Id	oracle-hst-12c-core
Library Name	OCS Platform 12c Core
Location	User
Description	

#### *Path*

Property	Value
Class Path	<ocs-root>/FoundationService/platformCore/lib/ocs-hst-core.jar
Source Path	<ocs-root>/FoundationService/platformCore/lib/ocs-hst-core-src.jar
Doc Path	<ocs-root>/FoundationService/platformCore/lib/ocs-hst-core-doc.jar

**OCS Platform 12c Json****General**

Property	Value
Id	oracle-hst-12c-json
Library Name	OCS Platform 12c Json
Location	User
Description	

**Path**

Property	Value
Class Path	<ocs-root>/FoundationService/platformJson/lib/ocs-hst-json.jar
Source Path	<ocs-root>/FoundationService/platformJson/lib/ocs-hst-json-src.jar
Doc Path	<ocs-root>/FoundationService/platformJson/lib/ocs-hst-json-doc.jar

**OCS Platform 12c Rest****General**

Property	Value
Id	oracle-hst-12c-rest
Library Name	OCS Platform 12c Rest
Location	User
Description	REST APIs provide a convenient and efficient way for clients to access data and functionality. This approach has thus been widely adopted, and building a REST API is a core skill for software developers working in any language, including Java.

**Path**

Property	Value
Class Path	<ocs-root>/FoundationService/platformRest/lib/ocs-hst-rest.jar
Source Path	<ocs-root>/FoundationService/platformRest/lib/ocs-hst-rest-src.jar
Doc Path	<ocs-root>/FoundationService/platformRest/lib/ocs-hst-rest-doc.jar

**OCS Platform 12c Security****General**

Property	Value
Id	oracle-hst-12c-jca
Library Name	OCS Platform 12c Security
Location	User
Description	

**Path**

Property	Value
Class Path	<ocs-root>/FoundationService/platformJps/lib/ocs-hst-jps.jar
Source Path	<ocs-root>/FoundationService/platformJps/lib/ocs-hst-jps-src.jar
Doc Path	<ocs-root>/FoundationService/platformJps/lib/ocs-hst-jps-doc.jar

**OCS Platform 12c Faces****General**

Property	Value
Id	oracle-hst-12c-faces
Library Name	OCS Platform 12c Faces
Location	User
Description	

**Path**

Property	Value
Class Path	<ocs-root>/FoundationService/platformFaces/lib/ocs-hst-faces.jar
Source Path	<ocs-root>/FoundationService/platformFaces/lib/ocs-hst-faces-src.jar
Doc Path	<ocs-root>/FoundationService/platformFaces/lib/ocs-hst-faces-doc.jar

## Platform Access Services

### IAD Platform 12c Core

#### General

Property	Value
Id	oracle-iad-12c-core
Library Name	IAD Platform 12c Core
Location	User
Description	

#### Path

Property	Value
Class Path	<ocs-root>/AccessService/platformCore/lib/ocs-iad-core.jar
Source Path	<ocs-root>/AccessService/platformCore/lib/ocs-iad-core-src.jar
Doc Path	<ocs-root>/AccessService/platformCore/lib/ocs-iad-core-doc.jar

### IAD Platform 12c Authentication

#### General

Property	Value
Id	oracle-iad-12c-authn
Library Name	IAD Platform 12c Authentication
Location	User
Description	

#### Path

Property	Value
Class Path	<ocs-root>/AccessService/platformAuthn/lib/ocs-iad-authn.jar
Source Path	<ocs-root>/AccessService/platformAuthn/lib/ocs-iad-authn-src.jar
Doc Path	<ocs-root>/AccessService/platformAuthn/lib/ocs-iad-authn-doc.jar

**IAD Platform 12c Assertion****General**

Property	Value
Id	oracle-iad-12c-saml
Library Name	IAD Platform 12c Assertion
Location	User
Description	

**Path**

Property	Value
Class Path	<ocs-root>/AccessService/platformSaml/lib/ocs-iad-saml.jar
Source Path	<ocs-root>/AccessService(platformSaml/lib/ocs-iad-saml-src.jar
Doc Path	<ocs-root>/AccessService/platformSaml/lib/ocs-iad-saml-doc.jar

**Platform Identity Services****IGD Identity 12c Core****General**

Property	Value
Id	oracle-igd-12c-core
Library Name	IGD Identity 12c Core
Location	User
Description	

**Path**

Property	Value
Class Path	<ocs-root>/IdentityService/platformServer/lib/ocs-igd-core.jar
Source Path	<ocs-root>/IdentityService/platformServer/lib/ocs-igd-core-src.jar
Doc Path	<ocs-root>/IdentityService/platformServer/lib/ocs-igd-core-doc.jar

**IGD Platform 12c SCIM****General**

Property	Value
Id	oracle-igd-12c-scim
Library Name	IGD Identity 12c SCIM
Location	User
Description	SCIM, or System for Cross-domain Identity Management, is an IETF standard that defines an extensible schema mechanism and REST API for managing users and other identity data.

**Path**

Property	Value
Class Path	<ocs-root>/IdentityService/platformServer/lib/ocs-igd-scim.jar
Source Path	<ocs-root>/IdentityService/platformServer/lib/ocs-igd-scim-src.jar
Doc Path	<ocs-root>/IdentityService/platformServer/lib/ocs-igd-scim-doc.jar

**IGD Identity 12c Client****General**

Property	Value
Id	oracle-igd-12c-client
Library Name	IGD Identity 12c Client
Location	User
Description	Oracle® provides a network-aware, Java-based application programming interface (API) that exposes Services available in Oracle® Identity Governance. This API is based on POJO's and takes care of all the plumbing required to interact with Oracle® Identity Governance.

**Path**

Property	Value
Class Path	<ocs-root>/IdentityService/platformServer/lib/ocs-igd-client.jar
Source Path	<ocs-root>/IdentityService/platformServer/lib/ocs-igd-client-src.jar
Doc Path	<ocs-root>/IdentityService/platformServer/lib/ocs-igd-client-doc.jar

**IGD Identity 12c Server****General**

Property	Value
Id	oracle-igd-12c-server
Library Name	IGD Identity 12c Server
Location	User
Description	The Platform Services that are crucial to the business features offered by Oracle® Identity Governance, such as the Request Management Service, the Entity Manager Service, and the Scheduler Service.

**Path**

Property	Value
Class Path	<ocs-root>/IdentityService/platformServer/lib/ocs-igd-server.jar
Source Path	<ocs-root>/IdentityService/platformServer/lib/ocs-igd-server-src.jar
Doc Path	<ocs-root>/IdentityService/platformServer/lib/ocs-igd-server-doc.jar

**Platform Fusion Middleware****WLS Platform 12c Client****General**

Property	Value
Id	oracle-wls-12c-client
Library Name	WLS Platform 12c Client
Location	User
Description	The stand-alone client is are crucial to the business features offered by Oracle® Fusion Middleware.

**Path**

Property	Value
Class Path	<ide-root>/wlserver/server/lib/wlfullclient.jar
Source Path	
Doc Path	



**WLS Platform 12c Core****General**

Property	Value
Id	oracle-wls-12c-platform
Library Name	WLS Platform 12c Core
Location	User
Description	

**Path**

Property	Value
Class Path	<ide-root>/oracle_common/modules/oracle.javatools/javatools-nodeps.jar
	<ide-root>oracle_common/modules/oracle.javatools/javatools-annotations.jar
	<ide-root>jdeveloper/wlserver/lib/wls-classes-for-jdev.jar
Source Path	
Doc Path	<a href="https://docs.oracle.com/cd/E12839_01/apirefs.1111/e13941">https://docs.oracle.com/cd/E12839_01/apirefs.1111/e13941</a>

**WLS Platform 12c Groovy****General**

Property	Value
Id	oracle-wls-12c-groovy
Library Name	WLS Platform 12c Groovy
Location	User
Description	

**Path**

Property	Value
Class Path	<ide-root>/oracle_common/modules/groovy-all-2.4.11.jar
Source Path	
Doc Path	<a href="https://docs.groovy-lang.org//docs/groovy-2.4.11/html/api/">https://docs.groovy-lang.org//docs/groovy-2.4.11/html/api/</a>

**WLS Platform 12c Json****General**

Property	Value
Id	oracle-wls-12c-json
Library Name	WLS Platform 12c Json
Location	User
Description	

**Path**

Property	Value
Class Path	<ide-root>/oracle_common/modules/org.glassfish.javax.json.jar
Source Path	
Doc Path	<a href="https://javadoc.io/doc/org.glassfish/javax.json/1.1.4/">https://javadoc.io/doc/org.glassfish/javax.json/1.1.4/</a>

**Identity Governance Services****IGD Platform 12c Adapter****General**

Property	Value
Id	oracle-oim-12c-adapter
Library Name	IGD Platform 12c Adapter
Location	User
Description	

**Path**

Property	Value
Class Path	<ocs-root>/IdentityManager/CodeBaseServer/12.2.1.3/lib/xlLogger.jar
	<ocs-root>/IdentityManager/CodeBaseServer/12.2.1.3/lib/xlUtils.jar
	<ocs-root>/IdentityManager/CodeBaseServer/12.2.1.3/lib/xlAdapterUtilities.jar
	<ocs-root>/IdentityManager/CodeBaseServer/12.2.1.3/lib/xlAPI.jar
	<ocs-root>/IdentityManager/CodeBaseServer/12.2.1.3/lib/xlVO.jar
	<ocs-root>/IdentityManager/CodeBaseServer/12.2.1.3/lib/xlGenConnector.jar
	<ocs-root>/IdentityManager/CodeBaseServer/12.2.1.3/lib/xlDataObjects.jar
	<ocs-root>/IdentityManager/CodeBaseServer/12.2.1.3/lib/xlRemoteManager.jar
	<ocs-root>/IdentityManager/CodeBaseServer/12.2.1.3/lib/xlCache.jar
	<ocs-root>/IdentityManager/CodeBaseServer/12.2.1.3/lib/xlAuditor.jar
Source Path	
Doc Path	<a href="https://docs.oracle.com/middleware/12213/oig/OMJAV">https://docs.oracle.com/middleware/12213/oig/OMJAV</a>

**IGD Platform 12c Scheduler****General**

Property	Value
Id	oracle-oim-12c-scheduler
Library Name	IGD Platform 12c Scheduler
Location	User
Description	

**Path**

Property	Value
Class Path	<ocs-root>/IdentityManager/CodeBaseServer/12.2.1.3/lib/xlScheduler.jar
Source Path	
Doc Path	<a href="https://docs.oracle.com/middleware/12213/oig/OMJAV">https://docs.oracle.com/middleware/12213/oig/OMJAV</a>

**IGD Platform 12c Client****General**

Property	Value
Id	oracle-oim-12c-client
Library Name	IGD Platform 12c Client
Location	User
Description	The stand-alone client that is crucial to the business remote features offered by Oracle® Identity Governance, such as the Request Management Service, the Entity Manager Service, and the Scheduler Service.

**Path**

Property	Value
Class Path	<ocs-root>/IdentityManager/CodeBaseClient/12.2.1.3/lib/jrf-api.jar
	<ocs-root>/IdentityManager/CodeBaseClient/12.2.1.3/lib/ipf.jar
	<ocs-root>/IdentityManager/CodeBaseClient/12.2.1.3/lib/oimclient.jar
	<ocs-root>/IdentityManager/CodeBaseClient/12.2.1.3/lib/commons-logging.jar
Source Path	
Doc Path	<a href="https://docs.oracle.com/middleware/12213/oig/OMJAV">https://docs.oracle.com/middleware/12213/oig/OMJAV</a>

**IGD Platform 12c Server****General**

Property	Value
Id	oracle-oim-12c-platform
Library Name	IGD Platform 12c Server
Location	User
Description	The Platform Services that are crucial to the business features offered by Oracle® Identity Governance, such as the Request Management Service, the Entity Manager Service, and the Scheduler Service.

**Path**

Property	Value
Class Path	<ocs-root>/IdentityManager/CodeBaseServer/12.2.1.3/lib/iam-platform-utils.jar
	<ocs-root>/IdentityManager/CodeBaseServer/12.2.1.3/lib/iam-platform-kernel.jar
	<ocs-root>/IdentityManager/CodeBaseServer/12.2.1.3/lib/iam-platform-context.jar
	<ocs-root>/IdentityManager/CodeBaseServer/12.2.1.3/lib/iam-platform-auth-client.jar
	<ocs-root>/IdentityManager/CodeBaseServer/12.2.1.3/lib/iam-platform-authopss-service.jar
	<ocs-root>/IdentityManager/CodeBaseServer/12.2.1.3/lib/iam-platform-pluginframework.jar
	<ocs-root>/IdentityManager/CodeBaseServer/12.2.1.3/lib/iam-platform-workflowservice.jar
	<ocs-root>/IdentityManager/CodeBaseServer/12.2.1.3/lib/iam-platform-entitymgr.jar
	<ocs-root>/IdentityManager/CodeBaseServer/12.2.1.3/lib/OIMServer.jar
Source Path	
Doc Path	<a href="https://docs.oracle.com/middleware/12213/oig/OMJAV">https://docs.oracle.com/middleware/12213/oig/OMJAV</a>

**OCS Identity 12c Foundation****General**

Property	Value
Id	oracle-oim-12c-foundation
Library Name	OCS Identity 12c Foundation
Location	User
Description	

**Path**

Property	Value
Class Path	<ocs-root>IdentityManager/oimFoundation/lib/ocs-foundation.jar
Source Path	<ocs-root>IdentityManager/oimFoundation/lib/ocs-foundation-src.jar
Doc Path	<ocs-root>IdentityManager/oimFoundation/lib/ocs-foundation-doc.jar

**OCS Identity 12c Adapter****General**

Property	Value
Id	oracle-oim-12c-adapter-foundation
Library Name	OCS Identity 12c Adapter
Location	User
Description	

**Path**

Property	Value
Class Path	<ocs-root>IdentityManager/oimAdapter/lib/ocs-adapter.jar
Source Path	<ocs-root>IdentityManager/oimAdapter/lib/ocs-adapter-src.jar
Doc Path	<ocs-root>IdentityManager/oimAdapter/lib/ocs-adapter-doc.jar

**OCS Identity 12c Utility****General**

Property	Value
Id	oracle-oim-12c-utility
Library Name	OCS Identity 12c Utility
Location	User
Description	

**Path**

Property	Value
Class Path	<ocs-root>IdentityManager/oimUtility/lib/ocs-utility.jar
Source Path	<ocs-root>IdentityManager/oimUtility/lib/ocs-utility-src.jar
Doc Path	<ocs-root>IdentityManager/oimUtility/lib/ocs-utility-doc.jar

**Identity Connector Services****ICF Platform 12c Connector****General**

Property	Value
Id	oracle-icf-12c-connector
Library Name	ICF Platform 12c Connector
Location	User
Description	The Identity Connector Framework (ICF) provides interoperability between identity, compliance and risk management solutions. An ICF Connector enables provisioning software, such as OIM, to manage the identities that are maintained by a specific identity provider.

**Path**

Property	Value
Class Path	<ocs-root>/IdentityManager/CodeBaseConnector/12.2.1.3/lib/icf-oim-intg.jar <ocs-root>/IdentityManager/CodeBaseConnector/12.2.1.3/lib/connector-framework.jar <ocs-root>/IdentityManager/CodeBaseConnector/12.2.1.3/lib/connector-framework-internal.jar
Source Path	
Doc Path	<a href="https://docs.oracle.com/html/E24834_02">https://docs.oracle.com/html/E24834_02</a>

**ICF Platform 12c Integration****General**

Property	Value
Id	oracle-icf-12c-integration
Library Name	ICF Platform 12c Integration
Location	User
Description	Provides support for developing and building identity connectors by using the Identity Connector Framework (ICF). ICF decouples Oracle® Identity Governance from other applications to which it connects.

**Path**

Property	Value
Class Path	<ocs-root>/IdentityConnector/icfIntegration/lib/ocs-integration.jar
Source Path	<ocs-root>/IdentityConnector/icfIntegration/lib/ocs-integration-src.jar
Doc Path	<ocs-root>/IdentityConnector/icfIntegration/lib/ocs-integration-doc.jar

**ICF Platform 12c Foundation****General**

Property	Value
Id	oracle-icf-12c-foundation
Library Name	ICF Platform 12c Foundation
Location	User
Description	

**Path**

Property	Value
Class Path	<ocs-root>/IdentityConnector/icfFoundation/lib/ocs.identity.connector.foundation.jar
Source Path	<ocs-root>/IdentityConnector/icfFoundation/lib/ocs.identity.connector.foundation-src.jar
Doc Path	<ocs-root>/IdentityConnector/icfFoundation/lib/ocs.identity.connector.foundation-doc.jar



**ICF Platform 12c JES****General**

Property	Value
Id	oracle-icf-12c-jesservice
Library Name	ICF Platform 12c JES
Location	User
Description	

**Path**

Property	Value
Class Path	<ocs-root>/IdentityConnector/icfRmiService/lib/ocs.identity.connector.jes.jar
Source Path	<ocs-root>/IdentityConnector/icfRmiService/lib/ocs.identity.connector.jes-src.jar
Doc Path	<ocs-root>/IdentityConnector/icfRmiService/lib/ocs.identity.connector.jes-doc.jar

**ICF Platform 12c DBMS****General**

Property	Value
Id	oracle-icf-12c-dbmservice
Library Name	ICF Platform 12c DBMS
Location	User
Description	

**Path**

Property	Value
Class Path	<ocs-root>/IdentityConnector/icfDbmsService/lib/ocs.identity.dbmsservice.dbms.jar
Source Path	<ocs-root>/IdentityConnector/icfDbmsService/lib/ocs.identity.dbmsservice.dbms-src.jar
Doc Path	<ocs-root>/IdentityConnector/icfDbmsService/lib/ocs.identity.dbmsservice.dbms-doc.jar

**ICF Platform 12c REST****General**

Property	Value
Id	oracle-icf-12c-restservice
Library Name	ICF Platform 12c REST
Location	User
Description	REST APIs provide a convenient and efficient way for clients to access data and functionality. This approach has thus been widely adopted, and building a REST API is a core skill for software developers working in any language, including Java.

**Path**

Property	Value
Class Path	<ocs-root>/IdentityConnector/icfRestService/lib/ocs.identity.connector.rest.jar
Source Path	<ocs-root>/IdentityConnector/icfRestService/lib/ocs.identity.connector.rest-src.jar
Doc Path	<ocs-root>/IdentityConnector/icfRestService/lib/ocs.identity.connector.rest-doc.jar

**ICF Platform 12c SCIM****General**

Property	Value
Id	oracle-icf-12c-scimservice
Library Name	ICF Platform 12c SCIM
Location	User
Description	SCIM, or System for Cross-domain Identity Management, is an IETF standard that defines an extensible schema mechanism and REST API for managing users and other identity data.

**Path**

Property	Value
Class Path	<ocs-root>/IdentityConnector/icfScimService/lib/ocs.identity.connector.scim.jar
Source Path	<ocs-root>/IdentityConnector/icfScimService/lib/ocs.identity.connector.scim-src.jar
Doc Path	<ocs-root>/IdentityConnector/icfScimService/lib/ocs.identity.connector.scim-doc.jar

**ANT Build Library References****IAM Platform Libraries****Fusion Middleware IAM Platform****Path**

id=oracle.fmw.iam.platform

Location
<i>\${fmw.base.jrf}</i> /modules/oracle.toplink/eclipselink.jar
<i>\${iam.server.library}</i> /lib/iam-platform-utils.jar
<i>\${iam.server.library}</i> /lib/iam-platform-kernel.jar
<i>\${iam.server.library}</i> /lib/iam-platform-context.jar
<i>\${iam.server.library}</i> /lib/iam-platform-auth-client.jar
<i>\${iam.server.library}</i> /lib/iam-platform-authopss-service.jar
<i>\${iam.server.library}</i> /lib/iam-platform-entitymgr.jar
<i>\${iam.server.library}</i> /lib/iam-platform-pluginframework.jar
<i>\${iam.server.library}</i> /lib/iam-platform-workflowservice.jar
<i>\${iam.server.library}</i> /lib/OIMServer.jar

**Dependencies**

If you include this library in the project build path its required to include also:

**OIG Stand-Alone Client****Path**

id=oracle.fmw.oim.client

Location
<code>\${oim.client.library}/lib/commons-logging.jar</code>
<code>\${oim.client.library}/lib/spring.jar</code>
<code>\${oim.client.library}/lib/oimclient.jar</code>

### **Dependencies**

If you include this library in the project build path its required to include also:

### **OIG Scheduler Runtime**

#### **Path**

```
id=oracle.fmw.oim.deploy
```

Location
<code>\${oim.server.library}/lib/xlDDM.jar</code>

### **Dependencies**

If you include this library in the project build path its required to include also:

### **OIG Adapter Runtime**

#### **Path**

```
id=oracle.fmw.oim.adapter
```

Location
<code>\${oim.server.library}/lib/xlLogger.jar</code>
<code>\${oim.server.library}/lib/xlUtils.jar</code>
<code>\${oim.server.library}/lib/xlAdapterUtilities.jar</code>
<code>\${oim.server.library}/lib/xlAPI.jar</code>
<code>\${oim.server.library}/lib/xlVO.jar</code>
<code>\${oim.server.library}/lib/xlGenConnector.jar</code>
<code>\${oim.server.library}/lib/xlDataObjects.jar</code>
<code>\${oim.server.library}/lib/xlRemoteManager.jar</code>
<code>\${oim.server.library}/lib/xlCache.jar</code>
<code>\${oim.server.library}/lib/xlAuditor.jar</code>

### **Dependencies**

If you include this library in the project build path its required to include also:

### ***OIG Scheduler Runtime***

#### ***Path***

id=oracle.fmw.oim.scheduler

Location
<code>\${oim.server.library}/lib/xlScheduler.jar</code>

#### ***Dependencies***

If you include this library in the project build path its required to include also:

### ***OIG Identity Connector Integration***

#### ***Path***

id=oracle.fmw.icf.integration

Location
<code>\${icf.server.library}/lib/icf-oim-intg.jar</code>
<code>\${icf.server.library}/lib/connector-framework.jar</code>
<code>\${icf.server.library}/lib/connector-framework-internal.jar</code>

#### ***Dependencies***

If you include this library in the project build path its required to include also: