

**Oracle® Identity Manager**

API Usage Guide

Release 9.1.0

**E10027-02**

June 2008

Oracle Identity Manager API Usage Guide, Release 9.1.0

E10027-02

Copyright © 2007, 2008, Oracle. All rights reserved.

Primary Authors: Debapriya Datta, Shiladitya Guha, Lyju Vadassery

Contributing Author: Don Gosselin

The Programs (which include both the software and documentation) contain proprietary information; they are provided under a license agreement containing restrictions on use and disclosure and are also protected by copyright, patent, and other intellectual and industrial property laws. Reverse engineering, disassembly, or decompilation of the Programs, except to the extent required to obtain interoperability with other independently created software or as specified by law, is prohibited.

The information contained in this document is subject to change without notice. If you find any problems in the documentation, please report them to us in writing. This document is not warranted to be error-free. Except as may be expressly permitted in your license agreement for these Programs, no part of these Programs may be reproduced or transmitted in any form or by any means, electronic or mechanical, for any purpose.

If the Programs are delivered to the United States Government or anyone licensing or using the Programs on behalf of the United States Government, the following notice is applicable:

U.S. GOVERNMENT RIGHTS Programs, software, databases, and related documentation and technical data delivered to U.S. Government customers are "commercial computer software" or "commercial technical data" pursuant to the applicable Federal Acquisition Regulation and agency-specific supplemental regulations. As such, use, duplication, disclosure, modification, and adaptation of the Programs, including documentation and technical data, shall be subject to the licensing restrictions set forth in the applicable Oracle license agreement, and, to the extent applicable, the additional rights set forth in FAR 52.227-19, Commercial Computer Software--Restricted Rights (June 1987). Oracle USA, Inc., 500 Oracle Parkway, Redwood City, CA 94065.

The Programs are not intended for use in any nuclear, aviation, mass transit, medical, or other inherently dangerous applications. It shall be the licensee's responsibility to take all appropriate fail-safe, backup, redundancy and other measures to ensure the safe use of such applications if the Programs are used for such purposes, and we disclaim liability for any damages caused by such use of the Programs.

Oracle, JD Edwards, PeopleSoft, and Siebel are registered trademarks of Oracle Corporation and/or its affiliates. Other names may be trademarks of their respective owners.

The Programs may provide links to Web sites and access to content, products, and services from third parties. Oracle is not responsible for the availability of, or any content provided on, third-party Web sites. You bear all risks associated with the use of such content. If you choose to purchase any products or services from a third party, the relationship is directly between you and the third party. Oracle is not responsible for: (a) the quality of third-party products or services; or (b) fulfilling any of the terms of the agreement with the third party, including delivery of products or services and warranty obligations related to purchased products or services. Oracle is not responsible for any loss or damage of any sort that you may incur from dealing with any third party.

---

---

# Contents

<b>Preface</b> .....	vii
Audience .....	vii
Documentation Accessibility .....	vii
Related Documents .....	viii
Documentation Updates .....	viii
Conventions .....	viii
<b>1 Using the Oracle Identity Manager API</b>	
Requirements of the Oracle Identity Manager API .....	1-1
Factory Class .....	1-1
Utility Classes .....	1-2
Result Set Interface .....	1-3
Administrative Queues .....	1-3
API Usage .....	1-4
Setup and Configuration .....	1-4
Initializing the Factory Class with a Digital Signature .....	1-5
Obtaining an Instance of a Utility Class .....	1-6
Using a Result Set Object .....	1-6
Handling Oracle Identity Manager Exceptions .....	1-7
Cleaning Up .....	1-7
Code Samples .....	1-7
Using the Custom API ZIP File .....	1-8
Creating a Custom Proxy Plug-in .....	1-11
<b>2 What's New</b>	
APIs Introduced in Release 9.1.0 .....	2-1
APIs Modified in Release 9.1.0 .....	2-9
New and Modified APIs When Upgrading from 9.0.1.x to 9.1.0 .....	2-25
New and Modified APIs When Upgrading From 9.0.3.x to 9.1.0 .....	2-25
New APIs .....	2-26
Modified APIs .....	2-28
Additional Changes Made in Some APIs .....	2-33
<b>A Metadata Column Codes</b>	
Extracting the Metadata Column Code .....	A-1

Mapping Information for the Metadata Column Code ..... A-2

## List of Tables

1-1	Partial Listing of Utility Interfaces Available in the API .....	1-2
2-1	New APIs in Release 9.1.0.....	2-1
2-2	APIs Modified in Release 9.1.0.....	2-10
2-3	New APIs When Upgrading from Oracle Identity Manager Release 9.0.3.x to 9.1.0 ...	2-26
2-4	APIs Modified When Upgrading From Oracle Identity Manager Release 9.0.3.x to 9.1.0.....	2-28
2-5	APIs Modified to Handle More Than 1000 Entities.....	2-31
2-6	Modified APIs to Capture the reason and reasonkey Data Items As Part of the Audit Engine Enhancements	2-33
A-1	Metadata Column Code Mapping Information .....	A-2



---

---

# Preface

This guide provides information about using the Oracle Identity Manager application programming interfaces (APIs) and the changes in the APIs for this release.

## Audience

The guide is intended for system administrators and IT personnel who are responsible for upgrading, migrating, and maintaining Oracle Identity Manager.

## Documentation Accessibility

Our goal is to make Oracle products, services, and supporting documentation accessible, with good usability, to the disabled community. To that end, our documentation includes features that make information available to users of assistive technology. This documentation is available in HTML format, and contains markup to facilitate access by the disabled community. Accessibility standards will continue to evolve over time, and Oracle is actively engaged with other market-leading technology vendors to address technical obstacles so that our documentation can be accessible to all of our customers. For more information, visit the Oracle Accessibility Program Web site at

<http://www.oracle.com/accessibility/>

### Accessibility of Code Examples in Documentation

Screen readers may not always correctly read the code examples in this document. The conventions for writing code require that closing braces should appear on an otherwise empty line; however, some screen readers may not always read a line of text that consists solely of a bracket or brace.

### Accessibility of Links to External Web Sites in Documentation

This documentation may contain links to Web sites of other companies or organizations that Oracle does not own or control. Oracle neither evaluates nor makes any representations regarding the accessibility of these Web sites.

### TTY Access to Oracle Support Services

Oracle provides dedicated Text Telephone (TTY) access to Oracle Support Services within the United States of America 24 hours a day, 7 days a week. For TTY support, call 800.446.2398. Outside the United States, call +1.407.458.2479.

## Related Documents

For more detailed information about the Java APIs included in the Oracle Identity Manager, see the following Java API reference documents:

- *Java API Base Class Reference*
- *Java API Exceptions Reference*
- *Java API Operations Reference*
- *Java API Value Object Reference*

For changes and updates in Oracle Identity Manager, see *Oracle Identity Manager Release Notes*.

For more information, see the following documents in the Oracle Identity Manager documentation set:

- *Oracle Identity Manager Installation and Configuration Guide for JBoss Application Server*
- *Oracle Identity Manager Installation and Configuration Guide for BEA WebLogic Server*
- *Oracle Identity Manager Installation and Configuration Guide for IBM WebSphere Application Server*
- *Oracle Identity Manager Best Practices Guide*
- *Oracle Identity Manager Globalization Guide*
- *Oracle Identity Manager Design Console Guide*
- *Oracle Identity Manager Administrative and User Console Guide*
- *Oracle Identity Manager Administrative and User Console Customization Guide*
- *Oracle Identity Manager Tools Reference*
- *Oracle Identity Manager Audit Report Developer's Guide*
- *Oracle Identity Manager Integration Guide for Crystal Reports*
- *Oracle Identity Manager Concepts*
- *Oracle Identity Manager Reference*

## Documentation Updates

Oracle is committed to delivering the best and most recent information available. For information about updates to the Oracle Identity Manager documentation set, visit Oracle Technology Network at

<http://www.oracle.com/technology/documentation/index.html>

## Conventions

The following table lists the text conventions used in this document.

<b>Convention</b>	<b>Meaning</b>
<b>boldface</b>	Boldface type indicates graphical user interface elements associated with an action, or terms defined in text or the glossary.



---

<b>Convention</b>	<b>Meaning</b>
<i>italic</i>	Italic type indicates book titles, emphasis, or placeholder variables for which you supply particular values.
monospace	Monospace type indicates commands within a paragraph, URLs, code in examples, text that appears on the screen (or text that you enter), and names of files, directories, attributes, and parameters.

---



---

---

# Using the Oracle Identity Manager API

Oracle provides a network-aware, Java-based application programming interface (API) that exposes commonly used functionality within Oracle Identity Manager. This API is beneficial for building clients for Oracle Identity Manager and for integrating third-party products with the Oracle Identity Manager platform.

This chapter discusses the following topics:

- [Requirements of the Oracle Identity Manager API](#)
- [Factory Class](#)
- [Utility Classes](#)
- [Result Set Interface](#)
- [Administrative Queues](#)
- [API Usage](#)
- [Code Samples](#)
- [Using the Custom API ZIP File](#)
- [Creating a Custom Proxy Plug-in](#)

## Requirements of the Oracle Identity Manager API

The following table lists the primary API features.

Requirement	Solution
Common, easy to understand language	Java
Network-aware	Built around the Java 2 Platform, Enterprise Edition (J2EE) distributed computing
Easy to use	The task of session initialization and maintenance is hidden from the API user. The underlying work necessary for the creation of utility classes is hidden through the use of the Oracle Identity Manager API. A uniform approach to the creation and use of the utility classes is provided.

## Factory Class

The `Thor.API.tcUtilityFactory` class supports a uniform approach for creating and using utility classes. This class minimizes and hides complexity when using

Oracle Identity Manager functionality exposed through the APIs. This is done through the following:

- Providing uniform functionality for APIs that are called from any source, including Web clients, adapters, and custom code.
- Creating and maintaining session information about instantiation.  
This information is used to manage resources obtained through the Utility Factory.
- Identifying when the API is working in the context of an existing session.  
This enables utility methods to be used for retrieving utility classes, for example, using static methods if a database connection exists.

The following are scenarios for the use of this class:

- A session and database connection already exists.  
In this case, the class can be employed as a utility class through the use of static methods, for example, adapters that are created through the Adapter Factory.
- A session and database connection has not been created.  
In this case, the class can be instantiated and provided with the necessary information to connect to the database. When connecting to the database, it creates and manages session and database objects. This scenario arises only when the API is instantiated on the client side, typically by third parties that use the API to integrate with Oracle Identity Manager.

For a list of the methods available in this class, see the Java API Reference provided for the APIs. For an explanation on how to use the class, see "[API Usage](#)" on page 1-4.

## Utility Classes

The Oracle Identity Manager API exposes commonly used Oracle Identity Manager functionality through the utility classes and interfaces defined in the `Thor.API.Operations` package. These classes and interfaces group methods by their functional areas.

[Table 1-1](#) provides a partial listing of the interfaces available in the API.

**Table 1-1 Partial Listing of Utility Interfaces Available in the API**

Interfaces	Description
<code>tcUserOperationsIntf</code>	Exposes common user operations, such as searching for users, creating users, and disabling and enabling users.
<code>tcGroupOperationsIntf</code>	Exposes common group operations. For example, searching for groups, creating groups, and adding and removing users from groups.
<code>tcRequestOperationsIntf</code>	Exposes common request operations. For example, creating a request and adding comments to a request.

**See Also:** For a full listing of the classes and interfaces, including an explanation of all the methods available in them, see the API JavaDoc documentation.

All classes in the `Thor.API.Operations` package extend the base utility class, `Thor.API.Base.tcBaseUtility`, and implement the `Thor.API.Base.tcUtilityOperationsIntf` interface.

The base utility class provides a basic functionality common to all utility classes. It is an abstract class that provides common functionality inherited by all other utility classes. The inherited functionality focuses on the interaction between the factory class and the utility classes. All utility classes implement the interface `tcUtilityOperationsIntf` that labels the class as a utility class.

## Result Set Interface

The `Thor.API.tcResultSet` interface is a data structure that stores records retrieved from the database. Methods in the Oracle Identity Manager API that must return a set of data use a result set. This is a two-dimensional data structure in which the columns correspond to the attributes and rows correspond to the entities. For example, a result set that is returned by the method that searches for users, each row would represent data pertaining to one user, and each column in the row would be an attribute for that user.

You can scroll through the result set and retrieve individual entries corresponding to particular attributes by using the various methods provided. To locate a particular row in the result set, use the `goToRow()` method with the row number as a parameter. To retrieve the values for the columns from a row, use appropriate accessor methods, such as `getStringValue()`. To obtain the value from a specific column, pass the column name as a parameter to the accessor method. The column name is the descriptive code defined in the Oracle Identity Manager Meta-Data system.

The following table shows some sample metadata values. This mapping is based on lookup codes and can be looked up in the Administrative and User Console by using the Lookup Definition Form.

Column Code	Explanation
<code>Users.First Name</code>	The first name of the user.
<code>Groups.Group Name</code>	The name of a group.

**Note:** Keep track of the result set objects that are retrieved, because they will be required when updating an existing record.

## Administrative Queues

You assign groups of users to manage a provisioning request by using an entity called a queue. A queue is a collection of group definitions. Queues can be nested within other queues.

Administrative queues increase the efficiency and manageability of requests. A queue that you assign to one request can be reused for other requests.

A request can specify different administrative privileges for each group in the queue. For example, suppose that you assign a queue with three user groups to a request. The members of the three groups can each have different administrative privileges for the request. The first user group can be allowed to read, modify, and delete the request. The second user group can be allowed to read and modify only, while the third user group can only be able to read and delete the request.

**Note:** The Administrative Queues form in the Design Console is defunct. However, you can still view this form in the Design Console.

You can work with administrative queues by using the `Thor.API.tcQueueOperationsIntf` interface. The following are some of the tasks that you can perform by implementing the methods of this interface:

- Create, modify, and edit queues.
- Add and remove administrative groups from queues.
- Add and remove member groups.

See the Javadocs for more information about this interface.

## API Usage

This section includes the following topics:

- [Setup and Configuration](#)
- [Initializing the Factory Class with a Digital Signature](#)
- [Obtaining an Instance of a Utility Class](#)
- [Using a Result Set Object](#)
- [Handling Oracle Identity Manager Exceptions](#)
- [Cleaning Up](#)

### Setup and Configuration

To install the API:

1. Create the following directory structure:

```
Custom Client\config\lib\ext
```

2. Copy the files from the `config`, `lib`, and `ext` folders of a standard Oracle Identity Manager desktop client installation to the `config`, `lib`, and `ext` folders, respectively, of your custom client installation.
3. Copy the `basecp.bat` and `classpath.bat` files to the *Custom Client* directory.
4. Open the `classpath.bat` file in a text editor and append the following line to the end of the file:

```
;. \ext\javagroups-all.jar;. \ext\oscache.jar;. \ext\commons-logging.jar
```

5. Append the following in the `classpath.bat` file:

#### For JBoss Application Server

Create a batch file with the following commands:

```
call classpath
set CLIENT_CLASS=fully qualified name of your custom API client class
java -Djava.security.manager -DXL.HomeDir=.
-Djava.security.policy=config\xl.policy
-Djava.security.auth.login.config=config\auth.conf
-Djava.naming.provider.url=jnp://host_name:port CLIENT_CLASS
```

#### For BEA WebLogic Server

Create a batch file with the following commands:

```
call classpath
```

```

set CLIENT_CLASS=fully qualified name of your custom API client class
java -Djava.security.manager -DXL.HomeDir=.
-Djava.security.policy=config\xl.policy
-Djava.security.auth.login.config=config\authwl.conf
-Djava.naming.provider.url=t3://host_name:port CLIENT_CLASS

```

### For IBM WebSphere Application Server

For IBM WebSphere Application Server, perform the following steps:

1. Install WebSphere Application Client.
2. Extract the XLCustomClient.ear file by unzipping the `OIM_DC_HOME\xlclient\CustomClient.zip` file.
3. Create a batch file with the following commands:

```

call basecp.bat
set WS_HOME=c:\Websphere
"%WS_HOME%\bin\launchclient" XLCustomClient.ear -CCclasspath=%CLASSPATH%
-CCsecurityMgrPolicy=./config/xl.policy -CCDXL.HomeDir=.
-CCDjava.security.auth.login.config=./config/authws.conf
-CCDwas.home="%WS_HOME%"
-CCDXL.ClientClassName name_of_class_file

```

---

**Note:** The `name_of_class_file` argument should be contained within a JAR file that is in the class path.

---

### For Oracle Application Server

Create a batch file with the following commands:

```

call classpath
set CLIENT_CLASS=<fully qualified name of your custom API client class>
java -Djava.security.manager -DXL.HomeDir=.
-Djava.security.policy=config\xl.policy
-Djava.security.auth.login.config=config\authoc4j.conf
-Djava.naming.provider.url=ormi://hostname:rmi_port/Xellerate CLIENT_CLASS

```

## Initializing the Factory Class with a Digital Signature

When using the APIs with your own application, for example, a Web application, a client might be unable to obtain the Oracle Identity Manager password from the user. For example, in a Single Sign-On environment, the authentication application might not be available to Oracle Identity Manager for checking the user ID. In situations like this, you must establish a trust between Oracle Identity Manager and the entity providing only the user ID to Oracle Identity Manager.

You establish trust by using digital signatures. See the `init()` method in [Example 1-2](#).

```
tcUtilityFactory moFactory = new tcUtilityFactory("development",signedMessage);
```

The `tcSignatureMessage` object contains the Oracle Identity Manager user ID, a signed version of the user ID, and an X.509 certificate that establishes the identity of the entity that is connecting to Oracle Identity Manager.

To create the object, use the static utility method `sign` in the utility class `tcCryptoUtil`, as follows:

```
tcSignatureMessage moSignature = tcCryptoUtil.sign("xelsysadm", "PrivateKey");
```

The entity using the APIs must maintain security of the private key for the signature. The private key is the basis for establishing trust between the two systems.

Oracle Identity Manager must also know what certificates to trust. To trust a certificate, the signer of the certificate must be added as a trusted CA in .xlkeystore or in the keystore configured in the `security` section in the `xlconfig.xml` file on the server.

## Obtaining an Instance of a Utility Class

After you have created an instance of the factory class, you can use this to obtain instances of utility classes by calling the `getUtility()` method. The `getUtility()` method returns instances of `tcUtilityOperationsIntf`. The return object must be cast to the particular utility class that was requested.

```
tcUserOperationsIntf moUserUtility = (tcUserOperationsIntf)
moFactory.getUtility("Thor.API.Operations.tcUserOperationsIntf");
```

---

---

**Note:** For a Scheduled Task, these instructions are different. For Oracle Identity Manager installations later than release 9.0.2, see the following:

- *Oracle Identity Manager Installation and Configuration Guide for JBoss Application Server*
  - *Oracle Identity Manager Installation and Configuration Guide for BEA WebLogic Server*
  - *Oracle Identity Manager Installation and Configuration Guide for IBM WebSphere Application Server*
- 
- 

## Using a Result Set Object

The following is an example of how to use a result set. This example obtains a result set by calling the `findAllUsers()` method. This method searches for all users matching certain criteria:

```
tcResultSet moResultSet = moUserUtility.findAllUsers(mhAttribs);
```

To check if the `findAllUsers()` method returned any records, use the `isEmpty()` method, for example:

```
boolean mbEmpty = moResultSet.isEmpty();
```

To retrieve the number of records found, use the `getRowCount()` method. If no records are found, then the method returns 0. The following is an example:

```
int mnNumRec = moResultSet.getRowCount();
```

To select a particular record in the system, use the `goToRow()` method:

```
moResultSet.goToRow(5);
```

To retrieve the values of attributes from the current row, use the appropriate accessor method, for example:

```
String msUserLastName = moResultSet.getStringValue("Users.Last Name");
```



## Handling Oracle Identity Manager Exceptions

The API methods throw Oracle-defined Java exceptions. Instead of using the `getMessage()` method on the exception object received, you can access the `isMessage` internal variable to retrieve the exception message.

## Cleaning Up

The `tcUtilityFactory` class manages all resources used by a utility or factory instance and provides a means to release these resources after they are used.

If you instantiate and use `tcUtilityFactory` to obtain utility class instances, to release the resources that are associated with the utility class, call the `close(utility Object)` method on the factory class. If the session has ended, call the `close()` method on the factory instance to release all the utility classes, the session objects, and the database objects.

If you obtain a utility class directly by using static calls, after the utility object is no longer needed, call the `close(object)` method on the utility object.

## Code Samples

[Example 1–1](#) illustrates how to retrieve Oracle Identity Manager information. This example creates an instance of the utility factory. This instance is then employed several times to retrieve individual utility classes and use them to retrieve Oracle Identity Manager information.

### **Example 1–1 Retrieving Oracle Identity Manager Information**

```
/** The utility factory instance. */
tcUtilityFactory ioUtilityFactory

public void init(){
    ConfigurationClient.ComplexSetting config =
        ConfigurationClient.getComplexSettingByPath("Discovery.CoreServer");
    final Hashtable env = config.getAllSettings();
    tcUtilityFactory ioUtilityFactory = new tcUtilityFactory(env, "xelsysadm",
        "xelsysadm");
}

/** Retrieves user login based on the first name. */
public List getUserLogin(String psFirstName){
    Vector mvUsers=new Vector();
    tcUserOperationsIntf moUserUtility =
(tcUserOperationsIntf)ioUtilityFactory.getUtility("Thor.API.Operations.tcUserOpera
tionsIntf");
    Hashtable mhSearchCriteria = new Hashtable();
    mhSearchCriteria.put("Users.First Name", psFirstName);
    tcResultSet moResultSet = moUserUtility.findUsers(mhSearchCriteria);
    for (int i=0; i<moResultSet.getRowCount(); i++){
        moResultSet.goToRow(i);
        mvUsers.add(moResultSet.getStringValue("Users.User ID"));
    }
}

/** Retrieves the administrators of an organization based on the organization
name. */
public List getAdministratorsOfOrganization(String psOrganizationName){
```

```

    Vector mvOrganizations=new Vector();
    tcOrganizationOperationsIntf moOrganizationUtility =
(tcOrganizationOperationsIntf)ioUtilityFactory.getUtility("Thor.API.Operations.tcO
rganizationOperationsIntf");
    Hashtable mhSearchCriteria = new Hashtable();
    mhSearchCriteria.put("Organizations.Organization Name", psOrganizationName);
    tcResultSet moResultSet =
        moOrganizationUtility.findOrganizations(mhSearchCriteria);
    tcResultSet moAdmins;
    for (int i=0; i<moResultSet.getRowCount(); i++){
        moResultSet.goToRow(i);
        moAdmins=moOrganizationUtility.getAdministrators(moResultSet.getLongValue("Org
anizations.Key"));
    mvOrganizations.add(moAdmins.getStringValue("Groups.Group Name"));
    }
}
public void example(){
    List moList;
    // initialize resources
    init();
    // retrieve user logins with first name 'Joe'
    moList=getUserLogin("Joe");
    // retrieve user logins with first names starting with 'D'
    moList=getUserLogin("D*");
    // retrieve the administrators of an organization with name 'Example
Organization'
    moList=getAdministratorsOfOrganization("Example Organization");
    // release resources
    ioUtilityFactory.close();
}

```

[Example 1–2](#) demonstrates how to create an instance of the utility factory by using a digital signature-based method.

#### **Example 1–2 Using the Digital Signature-Based Method**

```

/** The utility factory instance. */
public void init() {
    try {
        ConfigurationClient.ComplexSetting config =
            ConfigurationClient.getComplexSettingByPath("Discovery.CoreServer");
        final Hashtable env = config.getAllSettings();
        tcSignatureMessage moSignature = tcCryptoUtil.sign("xelsysadm",
            "PrivateKey");
        tcUtilityFactory m_utilFactory = new tcUtilityFactory(env, moSignature);
    }
    catch(Exception ex) {
        ex.printStackTrace();
    }
}
}

```

## Using the Custom API ZIP File

As of Oracle Identity Manager 8.0.2, a custom API ZIP file is installed with the Oracle Identity Manager desktop client. The purpose of this ZIP file is to ease the API development cycle. This ZIP file is located at:

```
XL_installation_directory\xlclient\CustomClient.zip
```

Configure the custom API ZIP file as follows:

1. Extract the custom API ZIP file.
2. For Oracle Application Server, JBoss Application Server, and BEA WebLogic Server, modify and run `xlCustomClient`.  
For IBM WebSphere Application Server, modify and run `wsCustomClient`.  
Information about configuring these scripts is provided in the following sections.

### JBoss Application Server Configuration

Modify `classpath.bat` by adding JARs associated with the custom client installation to the CLASSPATH.

Modify `xlCustomClient.bat` as follows:

1. Set the `CLIENT_CLASS` variable to the custom client main class name.
2. Add the following properties after `-Dlog4j.configuration=config/log.properties`:  
`-Djava.naming.provider.url=t3://hostname:port`

Modify `Custom Client/config/xlconfig.xml` as follows:

1. Modify the application server name.  
`<appServerName>jboss</appServerName>`
2. Modify the application URL as follows:  
`<ApplicationURL>http://hostname:port/xlWebApp/loginWorkflowRenderer.do</ApplicationURL>`
3. Modify the Discovery setting for JBoss-specific values.  
`<Discovery>`  
`<CoreServer>`  
`<java.naming.provider.url>jnp://hostname:port</java.naming.provider.url>`  
`</java.naming.provider.url>`  
`<java.naming.factory.initial>org.jnp.interfaces.NamingContextFactory</java.naming.factory.initial>`  
`</CoreServer>`  
`</Discovery>`

### BEA WebLogic Server Configuration

Modify `classpath.bat` by adding JARs associated with the custom client installation to the CLASSPATH.

Modify `xlCustomClient.bat` as follows:

1. Set `CLIENT_CLASS` to the custom client main class name.
2. Modify the following property:  
`-Djava.security.auth.login.config=config\auth.conf`  
To:  
`-Djava.security.auth.login.config=config\authwl.conf`
3. After `-Dlog4j.configuration=config/log.properties`, add the following property:  
`-Djava.naming.provider.url=t3://hostname:port`

Modify `Custom Client/config/xlconfig.xml` as follows:

1. Modify the application server name.

```
<appServerName>weblogic</appServerName>
```

2. Modify the application URL:

```
<ApplicationURL>http://hostname:port/xlWebApp/loginWorkflowRenderer.do</ApplicationURL>
```

3. Modify the Discovery setting for WebLogic-specific values.

```
<Discovery>
<CoreServer>
<java.naming.provider.url>t3://hostname:port</java.naming.provider.url>
<java.naming.factory.initial>weblogic.jndi.WLInitialContextFactory</java.naming
.factory.initial>
</CoreServer>
</Discovery>
```

### IBM WebSphere Configuration

Modify the CLASSPATH to add JARs associated with the custom client installation.

Modify `wsCustomClient.bat` as follows:

1. Set `CLIENT_CLASS` to the custom client main class name.
2. Set `WS_HOME` to the WebSphere home directory.

Modify `Custom Client/config/xlconfig.xml` as follows:

1. Modify the application server name.

```
<appServerName>websphere</appServerName>
```

2. Modify the Discovery setting for WebSphere-specific values.

```
<Discovery>
  <CoreServer>
<java.naming.provider.url>corbaloc:iiop:hostname:port</java.naming.provider.url
>
<java.naming.factory.initial>com.ibm.websphere.naming.WsnInitialContextFactory<
/java.naming.factory.initial>
  </CoreServer>
</Discovery>
```

### Oracle Application Server Configuration

Modify `classpath.bat` by adding JARs associated with the custom client installation to the CLASSPATH.

Modify `xlCustomClient.bat` as follows:

1. Set the `CLIENT_CLASS` variable to the custom client main class name.
2. Modify the following properties:

Change:

```
-Djava.security.auth.login.config=config\auth.conf
```

To:

```
-Djava.security.auth.login.config=config\authoc4j.conf
```

3. After `-Dlog4j.configuration=config/log.properties`, add the following property:

```
-Djava.naming.provider.url=ormi://hostname:rmi_port/Xellerate
```

Modify *Custom Client*/config/xlconfig.xml as follows:

1. Modify the application server name:

```
<appServerName>oracle</appServerName>
```

2. Modify the Discovery setting for Oracle Application Server-specific values.

```
<Discovery>
<CoreServer>
<java.naming.provider.url>ormi://hostname:rmi_port/Xellerate
</java.naming.provider.url>
<java.naming.factory.initial>oracle.j2ee.rmi.RMIInitialContextFactory
</java.naming.factory.initial>
<CoreServer>
<Discovery>
```

## Creating a Custom Proxy Plug-in

By default, when a user selects a proxy with the Administrative and User Console, the user is presented with a list of all Oracle Identity Manager users in the current environment. To restrict the users that can be selected as a proxy, you can create a custom proxy plug-in by customizing the following API:

```
tcResultSet tcUserOperationsIntf->getProxyList(Map, String[])
```

The preceding API first determines whether the `XL.CustomProxyClassName` system property is defined. By default, the `XL.CustomProxyClassName` system property is not defined and the API uses criteria that were passed with the `Map` parameter to filter the list of users. However, if the `XL.CustomProxyClassName` system property is defined, then its value is used as the custom proxy class name. The API then loads the custom proxy class, executes the `getProxyList()` method, and returns a result set containing the proxy list.

The data object layer in the custom proxy plug-in API is configured with the following two classes:

- `com.thortech.xl.dataobj.plugins.AbstractBasePlugin.java`—Abstract base class that contains various utility methods and other code for accessing the Oracle Identity Manager API interfaces.
- `com.thortech.xl.dataobj.plugins.CustomUserProxyPlugin.java`—Base class from which a custom proxy plug-in class should derive. This class contains various utility methods and an abstract `getProxyList()` method that you can use to implement your own functionality for returning a list of proxy users.

Perform the following steps to implement a custom proxy plug-in:

1. Define a class that derives from the `CustomUserProxyPlugin.java` class and provide an implementation for the abstract `getProxyList()` method. The abstract `getProxyList()` method must return an array containing user keys for each user who can be selected as a proxy. You can use any of the Oracle Identity Manager APIs to identify and filter the user keys that are returned in the array.
2. Compile your custom proxy plug-in class, store it in a JAR file, and then copy the JAR file to the `OIM_HOME\JavaTasks` directory.

3. Log in to the Design Console as an administrative user and open the **System Configuration** form.
4. Click **New** to create a new entry, and then enter the following values in the **Name**, **Keyword**, and **Value** fields:
  - Name**—*custom proxy class name*
  - Keyword**—`XL.CustomProxyClassName`
  - Value**—*fully qualified class name of your custom proxy class*
5. Click **Save** to create the new property definition.
6. Restart the server.

## What's New

This chapter contains the following sections:

- [APIs Introduced in Release 9.1.0](#)
- [APIs Modified in Release 9.1.0](#)
- [New and Modified APIs When Upgrading from 9.0.1.x to 9.1.0](#)
- [New and Modified APIs When Upgrading From 9.0.3.x to 9.1.0](#)
- [Additional Changes Made in Some APIs](#)

### APIs Introduced in Release 9.1.0

[Table 2–1](#) lists the new application programming interfaces (APIs) that are added in release 9.1.0.

**Table 2–1** *New APIs in Release 9.1.0*

Operation	API Method	Description
Attestation	<code>public void attestSpecificTask(String[] attestationTaskKeys , long attestationTaskKey) throws MissingResponsesException, tcAPIException, tcInvalidPermissionsException</code>	Attests the specific tasks and initiates the setup of any workflow. This is called when the process owner delegates some of the records from the attestation run.
Attestation	<code>public tcDataSet getAttestationTaskDetailKeys(long attestationRequestKey) throws tcAPIException</code>	Returns the attestation records associated with an attestation request. Results are sorted by the following columns in the order: <ol style="list-style-type: none"> <li>1. <code>Attestation Tasks.Reviewer</code></li> <li>2. <code>Provisioned User.Key</code></li> <li>3. <code>Objects.Key</code></li> </ol>
Attestation	<code>public void updateResponses(String[] atd_keys, String apd_key, String apt_key) throws tcDataAccessException, tcAPIException, tcDataSetException</code>	Submits the attestation task when the grace period expires, and response for each task is to be set to <code>Delegated</code> . As a result, the process is to be delegated to some other user.
Attestation	<code>public void sendWarningEmails(List lstKeys) throws tcAPIException</code>	Sends warning e-mails to reviewers before the attestation assigned to the reviewer expires
Audit	<code>public boolean processAuditMessageOnline(int audJmsKey) throws tcAPIException</code>	Processes the specific <code>AUD_JMS_KEY</code> online.
Connector Installation	<code>public long createConnectorInstallationHistory(Map phAttributes) throws tcAPIException, tcInvalidAttributeException</code>	Creates a new connector installation history with the list of specified attributes.

**Table 2–1 (Cont.) New APIs in Release 9.1.0**

Operation	API Method	Description
Connector Installation	<code>public tcResultSet getConnectorInstallationHistory(Map phAttributeList) throws tcAPIException</code>	Returns a connector history, in the form of <code>tcResultSet</code> , which matches the provided attribute list. This list includes only the connector history on which the user, who has logged in, has read permissions.
Connector Installation	<code>public void updateConnectorInstallationHistory(long cihKey, Map attributes) throws tcAPIException</code>	Updates connector history information based on the attributes that are passed to this method.
Error	<code>public tcResultSet getErrorDetails(String error_code) throws tcAPIException</code>	Returns error detail information table based on <code>error_code</code> from the ERR table.
Generic Technology Connector	<code>public String checkResourceObject(String connectorName) throws tcAPIException</code>	Returns the entity name of the resource.
Generic Technology Connector	<code>public List getColumnNames(String tableName) throws tcAPIException</code>	Returns the column names of a table that is to be used in a lookup query associated to a lookup field.
Generic Technology Connector	<code>public String getDefaultDateFormat() throws tcAPIException</code>	Returns the default date format that is used in Oracle Identity Manager for reconciliation.
Generic Technology Connector	<code>public List getFieldValues(String selection, GenericAdapter gtcModel, String childDataSetName) throws tcAPIException</code>	Returns the column names of a table that is to be used in a lookup query associated to a lookup field.
Generic Technology Connector	<code>public boolean isValidFieldProperty(String propertyName, String propertyValue) throws tcAPIException</code>	Returns true or false after checking if a lookup field is valid.
Adapter	<code>public void compileAdapter (String adpaterName) throws tcAPIException, tcNoAdapterException</code>	Compiles an adapter with specified name.
Adapter	<code>public void compileAll () throws tcBulkException</code>	Compiles all adapters programmatically.
Audit	<code>public void generateGPASnapshot(long groupKey)</code>	Creates the snapshots for each group. This is part of the Group auditing update script.
Form Definition	<code>public tcResultSet getFormFieldsAttestation(long plFormKey, long plFormUDFKey) throws tcAPIException, tcFormNotFoundException</code>	Returns information about the user-defined fields and system fields of a specified form in the form of a <code>tcResultSet</code> . Each record in the result set holds information about one field of the form. <code>LookupCode</code> column in result set has lookup code value property set against the form field if at all it is defined.
Form Definition	<code>public tcResultSet getDataFlowForProcess (long plProcessKey) throws tcAPIException, tcProcessNotFoundException</code>	Returns data flow information about the specified process in the form of a <code>tcResultSet</code> .
Form Definition	<code>public void addFormDataFlow(long plProcessKey, long plObjectKey, String sourceName, String targetName) throws tcAPIException, tcProcessNotFoundException, tcObjectNotFoundException</code>	Adds a new data flow mapping.
Form Definition	<code>public void removeFormDataFlowMapping (long plProcessKey, String sourceName, String targetName) throws tcAPIException, tcProcessNotFoundException</code>	Removes an existing data flow mapping.



**Table 2–1 (Cont.) New APIs in Release 9.1.0**

<b>Operation</b>	<b>API Method</b>	<b>Description</b>
Form Definition	<code>public tcResultSet getReconDataFlowForProcess(long plProcessKey) throws tcAPIException, tcProcessNotFoundException</code>	Returns reconciliation data flow information about the specified process in the form of a <code>tcResultSet</code> .
Form Definition	<code>public void addReconDataFlow(long plProcessKey, long plObjectKey, String sourceKey, String targetName, boolean isKeyField) throws tcAPIException, tcProcessNotFoundException, tcObjectNotFoundException</code>	Adds a new reconciliation data flow mapping.
Form Definition	<code>public void removeReconDataFlowMapping(long plProcessKey, long plObjectKey, String sourceKey) throws tcAPIException, tcProcessNotFoundException, tcObjectNotFoundException</code>	Removes an existing reconciliation data flow mapping.
Form Definition	<code>public void editReconDataFlow(long plProcessKey, long plObjectKey, String sourceKey, boolean isKeyField) throws tcAPIException, tcProcessNotFoundException,tcObjectNotFo undException</code>	Edits an existing reconciliation data flow mapping to change the key field mapping information.
Form Definition	<code>public String getUDFLabelForCode(String metaDataCode) throws tcAPIException</code>	Returns the label Defined for the UDF field. It takes input as the Lookup Code defined for the field.
Group	<code>public Boolean isUserGroupMember(long plGroupKey, long plUserKey) throws tcAPIException, tcGroupNotFoundException, tcUserNotFoundException</code>	Specifies whether or not the given user is a member of the given group.
IT Resource Instance	<code>public long createITResourceInstance(Map phAttributes) throws tcAPIException, tcAttributeMissingException, DuplicateITResourceInstanceException, tcInvalidAttributeException</code>	Create an IT Resource with the list of specified attributes.
IT Resource Instance	<code>public tcResultSet getAdministrators(long plITResourceInstanceKey) throws tcAPIException, tcITResourceNotFoundException</code>	Gets a list of the groups that have administrative control over the specified IT resource.
IT Resource Instance	<code>public tcResultSet getUnassignedAdministrators(long plITResourceInstanceKey) throws tcITResourceNotFoundException, tcAPIException</code>	Gets a list of groups that are not assigned as the administrator groups of a specified IT resource.
IT Resource Instance	<code>public void addAdministrators(long plITResourceInstanceKey, long[] palAdminGroupKeys, boolean[] read, boolean[] write, boolean[] delete) throws tcAdminNotFoundException, tcAdminGroupInvalidException, tcITResourceNotFoundException, tcAPIException, tcBulkException</code>	Adds a list of groups as administrators to the specified IT Resource.
IT Resource Instance	<code>public void updateAdministrators(long plITResourceInstanceKey, long[] palAdminGroupKeys, boolean[] read, boolean[] write, boolean[] delete) throws tcAdminNotFoundException, tcITResourceNotFoundException, tcAPIException, tcBulkException</code>	Updates a list of groups that have administrative access over the specified IT Resource.

**Table 2–1 (Cont.) New APIs in Release 9.1.0**

Operation	API Method	Description
IT Resource Instance	<code>public void removeAdministrators(long plITResourceInstanceKey, long[] paAdminGroupKeys) throws tcAdminNotFoundException, tcITResourceNotFoundException, tcAPIException, tcBulkException</code>	Removes a list of administrator groups from the specified IT Resource.
IT Resource Instance	<code>public void deleteITResourceInstance(long plITResourceInstanceKey) throws tcAPIException, tcITResourceNotFoundException</code>	Deletes the specified IT Resource instance.
IT Resource Instance	<code>public void updateITResourceInstance(long msITResourceKey, Map attributes) throws tcITResourceNotFoundException, tcInvalidAttributeException, tcAPIException</code>	Updates the specified IT Resource instance.
IT Resource Instance	<code>public tcResultSet findITResourceInstancesByRemoteManagerFiltered(Map phAttributeList, String[] pasFieldList) throws tcAPIException, tcInvalidAttributeException</code>	<ul style="list-style-type: none"> <li>■ Returns the IT Resource instances that have the specified Remote Manager.</li> <li>■ Checks the permissions for the current user or group to find out if accessing the IT Resource Instances is allowed.</li> </ul>
Lookup	<code>public tcResultSet getLookupValuesForEncoded(String psLookupCode, String encodedValues) throws tcAPIException, tcInvalidLookupException</code>	Returns the lookup values of the lookup assigned to the specified column or field.
Password	<code>public HashMap getObjectPasswordPolicyDescription(long objectKey) throws tcAPIException</code>	Returns hashmap containing description of the password policy attached by using default rule to that Resource Object with key as <code>objectKey</code> .
Password	<code>public HashMap getObjectPasswordPolicyDescription(long objectKey, long userKey) throws tcAPIException</code>	Returns hashmap containing description of the highest priority password policy attached to that Resource Object associated with the input <code>objectInstanceKey</code> , which is applicable (based on Rule evaluation) on user with key as <code>userKey</code> .
Password	<code>public HashMap getUserPasswordPolicyDescription(long userKey) throws tcAPIException</code>	Returns hashmap containing description of the highest priority password policy attached to the Xellerate User Resource Object that is applicable (based on Rule evaluation) on user with key as <code>userKey</code> .
Password	<code>public HashMap getUserPasswordPolicyDescription(String msUserId) throws tcAPIException</code>	Returns password policy description in hashmap that is applicable to the user with <code>UserID</code> as <code>msUserId</code> .
Password	<code>public HashMap getObjectInstancePasswordPolicyDescription(long objectInstanceKey) throws tcAPIException</code>	Returns hashmap containing description of the password policy attached by using default rule to that Resource Object which is associated with the input <code>objectInstanceKey</code> .
Password	<code>public HashMap getProcessPasswordPolicyDescription(long processInstanceKey) throws tcAPIException</code>	Returns hashmap containing description of the highest priority password policy attached to that Resource Object associated with input <code>processInstanceKey</code> that is applicable (based on Rule evaluation) on target user associated with input <code>processInstanceKey</code> .
Resource	<code>public void addAuditObjective(long plObjectKey, long plLKVKey) throws tcAPIException, tcObjectNotFoundException</code>	Adds an audit objective to the list.
Resource	<code>public void addAuditObjectives(long plObjectKey, long[] plLKVKeys) throws tcAPIException, tcObjectNotFoundException</code>	Adds multiple audit objectives in bulk.

**Table 2–1 (Cont.) New APIs in Release 9.1.0**

<b>Operation</b>	<b>API Method</b>	<b>Description</b>
Resource	<code>public tcResultSet getAuditObjectives(long pObjectKey) throws tcAPIException, tcObjectNotFoundException</code>	Gets a list of all resource audit objectives for the specified object.
Resource	<code>public tcResultSet getUnassignedAuditObjectives(long pObjectKey) throws tcAPIException, tcObjectNotFoundException</code>	Gets a list of all the resource audit objectives that are defined and unassigned to given resource object.
Resource	<code>public void removeAuditObjectives(long pObjectKey, long[] pLKVKeys) throws tcAPIException, tcObjectNotFoundException, tcGroupNotFoundException</code>	Removes Resource Audit Objective for the specified object.
Resource	<code>public void removeAuditObjective(long pObjectKey, long pLKVKey) throws tcAPIException, tcObjectNotFoundException</code>	Removes Resource Audit Objective for the specified object.
Resource	<code>public tcResultSet getReconciliationFields(long pObjectKey) throws tcAPIException,tcObjectNotFoundException</code>	Retrieves the reconciliation fields for the resource object.
Resource	<code>public tcResultSet getUnassignedAdministrators(long pObjectKey, String groupName) throws tcAPIException, tcObjectNotFoundException</code>	Gets a list of all the groups whose name match the value provided in <code>groupName</code> that are not assigned as administrators of the given resource.
Resource	<code>public tcResultSet getUnassignedAuthorizers(long pObjectKey, String groupName) throws tcAPIException, tcObjectNotFoundException</code>	Gets a list of all the groups whose name match the value provided in <code>groupName</code> that are not assigned as authorizers of the given resource.
Reconciliation	<code>public void processReconciliationEvent(long rceKey) throws tcAPIException</code>	Processes reconciliation events without going through JMS. This API processes the current reconciliation event by applying matching rules and action rules and by linking the reconciliation event to the appropriate user, organization, or process instance.
Reconciliation	<code>public void closeReconciliationEvent(long rceKey) throws tcAPIException</code>	Closes the current reconciliation event. The status of the event is <code>Event Closed</code> .
Reconciliation	<code>public tcResultSet findReconciliationEvent(Map moAttributeMap, String startDate, String endDate) throws tcAPIException</code>	Returns reconciliation events (in the form of <code>tcResultSet</code> ) that match the provided attribute list. The <code>startDate</code> and <code>endDate</code> parameters are used for date range. You can use these parameters to narrow down search and to avoid FULL-Table scan.
Scheduler	<code>public void updateScheduleTask(long scheduledTaskKey, Map attributes) throws tcAPIException, tcScheduledTaskNotFoundException, tcInvalidAttributeException, tcAttributeMissingException</code>	Updates scheduled task information based on the attributes that are passed to this method.
Scheduler	<code>public void updateScheduleTaskAttribute(long scheduledTaskKey, long taskAttributeKey, Map attributes) throws tcAPIException, tcScheduledTaskNotFoundException, tcNoSuchTaskAttributeException</code>	Updates scheduled task attribute information based on the attributes that are passed to this method.

**Table 2–1 (Cont.) New APIs in Release 9.1.0**

Operation	API Method	Description
Scheduler	<code>public tcResultSet getScheduleTaskAttributes(long scheduleTaskKey) throws tcAPIException, tcScheduledTaskNotFoundException</code>	Returns, in the form of a <code>tcResultSet</code> , a list of scheduled task attributes that are associated with the specified scheduled task.
Scheduler	<code>public long createScheduleTask(Map phAttributes) throws tcAPIException, tcAttributeMissingException, DuplicateScheduleTaskException, tcInvalidAttributeException</code>	Creates a scheduled task with the list of specified attributes.
Scheduler	<code>public long addScheduleTaskAttribute(long scheduledTaskKey, Map attributes) throws tcAPIException, tcInvalidAttributeException, DuplicateScheduleTaskAttributeException</code>	Adds a schedule task attribute against a given task key with information based on the attribute that are passed to this method.
Scheduler	<code>public tcResultSet findScheduleTasks (Map phAttributeList) throws tcAPIException</code>	Returns, in the form of a <code>tcResultSet</code> , a list of scheduled tasks with detail that matches the provided attribute list.
Scheduler	<code>public tcResultSet findScheduleTaskAttributes (Map phAttributeList) throws tcAPIException</code>	Returns, in the form of a <code>tcResultSet</code> , a list of scheduled task attributes with detail that matches the provided attribute list.
Scheduler	<code>public void deleteScheduleTaskAttribute(long taskAttributeKey) throws tcAPIException, tcNoSuchTaskAttributeException</code>	Deletes a specified schedule task attribute.
Scheduler	<code>public void deleteScheduleTask (long scheduleTaskKey) throws tcAPIException, tcScheduledTaskNotFoundException</code>	Deletes a specified schedule task.
Scheduler	<code>public tcResultSet findScheduleTaskClassesFiltered (Map phAttributeList, String[] pasFieldList) throws tcAPIException, tcInvalidAttributeException</code>	Returns, in the form of a list of <code>tcDataRecord</code> , a list of scheduled task classes that matches the provided attribute list.
Workflow Definition	<code>public void createProcess (ProcessDefinition process) throws tcAPIException</code>	Creates a new workflow.
Workflow Definition	<code>public tcResultSet getForms () throws tcAPIException</code>	Gets all the available forms in the system.
Workflow Definition	<code>public tcResultSet getChildForms (long parentFormKey, int parentCurrentFormVersion) throws tcAPIException</code>	Gets all the child forms for a given parent form.
Workflow Definition	<code>public tcResultSet getAvailableEventHandlers () throws tcAPIException</code>	Gets all the available event handlers in the system.
Workflow Definition	<code>public tcResultSet getAvailableAdapters () throws tcAPIException</code>	Gets all the available adapters in the system.
Workflow Definition	<code>public tcResultSet getAvailableTaskAssignmentAdapters () throws tcAPIException</code>	Gets all the available task assignment adapters in the system.
Workflow Definition	<code>public tcResultSet getUserDefinedFields (String formName) throws tcAPIException</code>	Gets all the user defined fields for a form.
Workflow Definition	<code>public tcResultSet getTaskAssignmentRule () throws tcAPIException</code>	Gets all the task assignment rules in the system.

**Table 2–1 (Cont.) New APIs in Release 9.1.0**

<b>Operation</b>	<b>API Method</b>	<b>Description</b>
Workflow Definition	<code>public void updateWorkflow(WorkflowDefinition workflow) throws tcAPIException</code>	Updates and saves a workflow.
Workflow Definition	<code>public tcResultSet getTaskStatusKeyMapping() throws tcAPIException</code>	Retrieves the mapping of status key and the corresponding status mapping.
Workflow Definition	<code>public tcResultSet getObjectStatuses(long objectKey) throws tcAPIException</code>	Retrieves the object statuses defined on a object.
Workflow Definition	<code>public tcResultSet getAllRules() throws tcAPIException</code>	Retrieves the list of rules in the system.
Workflow Definition	<code>public tcResultSet getTaskAssignmentTypes() throws tcAPIException</code>	Retrieves various task assignment types.
Workflow Definition	<code>public boolean isWorkflowCreationPermitted() throws tcAPIException</code>	Checks if the logged in user has permissions to create new workflows.
Workflow Definition	<code>public void addAdministrators(long plWorkflowKey, long[] plGroupKeys, boolean[] pbWrite, boolean[] pbDelete) throws tcAdminNotFoundException, tcAPIException, tcProcessNotFoundException, tcGroupNotFoundException</code>	Adds groups to the list of groups that have administrative access over the specified workflow.
Workflow Definition	<code>public boolean isWorkflowUpdatePermitted() throws tcAPIException</code>	Checks if the logged in user has permissions to update existing workflows.
Workflow Definition	<code>public tcResultSet getAdapterMappings(String adpType, long adpKey) throws tcAPIException</code>	Returns the adapter mappings for an adapter.
Workflow Definition	<code>public String getColumnLength(String psTable, String psColName) throws tcAPIException</code>	Retrieves the column length in the table.
Workflow Definition	<code>public Vector getUserAttributesForTrustedSourceReconciliation() throws tcAPIException</code>	Retrieves the user attributes from user profile to be used for trusted source reconciliation mappings.
Workflow Definition	<code>public Vector getOrgAttributesForTrustedSourceReconciliation() throws tcAPIException</code>	Retrieves the organization attributes from organization profile to be used for trusted source reconciliation mappings.
Unauthenticated	<code>public void lockUser(String psUserId) throws tcAPIException</code>	Locks a user with a given user ID.
Unauthenticated	<code>public void checkUserLogin(String psUser, String psPassword) throws tcLoginException</code>	This method logs the user in with the given username and password.
Unauthenticated	<code>public HashMap getUserPasswordPolicyDescription(String msUserId) throws tcAPIException</code>	This method returns password policy description in hashmap that is applicable to the user with UserID as msUserId.
User	<code>public void updateUser(tcResultSet poUserResultSet, Map phAttributeList, boolean changePassword) throws tcAPIException, tcUserNotFoundException, tcStaleDataUpdateException</code>	Updates a user in Oracle Identity Manager. Requires a result set to maintain locking mechanism to ensure that the changes by the user are not lost. In addition to the user information, a boolean parameter is also passed which specifies whether or not this update is triggered for a password change.

**Table 2–1 (Cont.) New APIs in Release 9.1.0**

Operation	API Method	Description
Provisioning	<pre>public tcResultSet getAssignedOpenProvisioningTasks(long userKey, Map attributeList , String[] statuses) throws tcAPIException, tcUserNotFoundExpection, tcAttributeNotFoundExpection</pre>	Returns a list of all the provisioning tasks with details that are assigned to the given user or to the groups to which the user belongs. For displaying the open pending and rejected tasks, the status argument filter can be used. The returned object is a result set with each row consisting of information about each task. The returned result set also contains a column mentioning whether or not the specified user can see the task because the user is a proxy for some other user. In addition, this method returns a new column called Date Assigned, which consists of the date when the task was assigned to the user or group. This method uses the OTI table that has a subset of data present in OSI or SCH table.
Provisioning	<pre>public int getNumberOfProvisioningTasksAssignedToUs er(long userKey, String[] statuses) throws tcUserNotFoundExpection, tcAPIException</pre>	Returns the number of provisioning tasks that are assigned to a given user based on the given status. This uses the OTI table that has a subset of data present in OSI or SCH table.
Provisioning	<pre>public tcResultSet getOpenProvisioningTasksAssignedToManage dUsers(long userKey, Map attributeList, String[] statuses) throws tcAPIException, tcUserNotFoundExpection, tcAttributeNotFoundExpection</pre>	Returns a list of all the provisioning tasks with details that are assigned to the users for whom the specified user is a manager. For displaying the open pending and rejected tasks, the status argument filter can be used. The returned object is a result set with each row consisting of information about each task. The result set also contains a column mentioning whether or not the specified user is a proxy for some other user. In addition, this method returns a new column called Date Assigned, which consists of the date when the task was assigned to the user or group. The method also includes a map as an argument that contains name-value pairs so that the result set can be filtered over multiple columns. The attribute list must support the date search feature so that the tasks can be searched with start and end date ranges.
Provisioning	<pre>public tcResultSet getOpenProvisioningTasksAssignedToSubgro ups(long userKey, Map attributeList,String[] statuses , boolean hierarchyOrder) throws tcAPIException, tcUserNotFoundExpection, tcAttributeNotFoundExpection</pre>	Returns a list of all the assigned provisioning tasks that are visible to the specified user based on the user's indirect group membership. The attributeList parameter contains the name-value pairs used to filter the results returned by the result set. This uses the OTI table, which has a subset of the data present in the OSI or SCH table.
Provisioning	<pre>public long getTasksArchived(String reqKey ) throws tcUserNotFoundExpection, tcAPIException</pre>	Specifies whether or not the tasks for a particular process instance are archived.
Request	<pre>public void cancelRequest(String plRequestId) throws tcAPIException, tcRequestInvalidExpection</pre>	Cancels a request made in the system by the request Id.
Request	<pre>public int getNumberOfPendingApprovalTasksAssignedT oUser(long userKey) throws tcUserNotFoundExpection, tcAPIException</pre>	Returns the number of approval tasks assigned to a given user, to any user that this user is a proxy of, and to any groups that this user is a member based on the given status.
Request	<pre>public long getNumberOfPendingRequestsAssignedToUser (long userKey) throws tcUserNotFoundExpection, tcAPIException</pre>	Returns the number of pending requests given a user key. This uses the OTI table that consists of a subset of the data present in the OSI or SCH table.

**Table 2–1 (Cont.) New APIs in Release 9.1.0**

Operation	API Method	Description
Request	<code>public tcResultSet getPendingApprovalTasksAssigned(Map attributeList) throws tcAPIException, tcAttributeNotFoundException</code>	Returns a list of all the pending approval tasks that are assigned to the specified user. The <code>attributeList</code> parameter contains the name-value pairs used to filter the results returned by the result set. This method returns the tasks not only assigned to the user passed in as a parameter, but also to the users who assigned the passed-in-user as a proxy. The same is applicable to groups as well. This method looks into the OTI table for information.
Request	<code>public tcResultSet getPendingApprovalTasksAssignedToManaged Users(long userKey, Map attributeList) throws tcUserNotFoundException, tcAPIException, tcAttributeNotFoundException</code>	Functions similar to the <code>getApprovalTasksAssignedToUser</code> method, except for the fact that this method returns only the tasks assigned to the users managed by the user passed into this method, represented by <code>userKey</code> . The proxy functionality will have no effect on the results of this API method. This method uses the OTI table, which has a subset of data present in OSI or SCH table.
Request	<code>public tcResultSet getPendingApprovalTasksAssignedToSubgroups(long userKey, Map attributeMap, boolean hierarchyOrder) throws tcAPIException, tcUserNotFoundException, tcAttributeNotFoundException</code>	Returns a list of all the pending approval tasks that are visible to the specified user based on the user's indirect group membership. The <code>attributeList</code> parameter contains the name-value pairs used to filter the results returned by the result set. This method looks at both the standard approval and object approval processes and returns a resultset of tasks from both. This method uses the OTI table, which has a subset of data present in the OSI or SCH table.
Request	<code>public tcResultSet getPendingApprovalTasksAssignedToUser(long userKey, Map attributeList) throws tcUserNotFoundException, tcAPIException, tcAttributeNotFoundException</code>	<ul style="list-style-type: none"> <li>▪ Returns a list of all the pending approval tasks that are assigned to the specified user. The <code>attributeList</code> parameter contains the name-value pairs used to filter the results returned by the result set. This method returns tasks not only assigned to the user passed in as a parameter, but also to the users who assigned the passed-in-user as a proxy. The same is applicable to groups as well. This method uses the OTI table, which has a subset of data present in the OSI or SCH table.</li> <li>▪ Fixed the issue in which null values were displayed in the Assigned To User column of the Pending Approvals page for the Assignment types Group User With Highest Priority, Object Authorizer User With Highest Priority, Object Authorizer User With Least Load, and Group User With Least Load.</li> </ul>
Request	<code>public tcResultSet getRequestsForUserTarget(long pUserKey, String[] pasStatus, Map attributeList, Date startDate, Date endDate) throws tcAPIException, tcUserNotFoundException</code>	Returns, in the form of a <code>tcResultSet</code> , a list of requests made for the specified user created between the specified start and end dates. It also can narrow down the requests by the status.
Request	<code>public long[] addRequestObjects(long pRequestKey, long[] pObjectKeys) throws tcAPIException, tcRequestNotFoundException, tcRequestObjectInvalidException</code>	Adds all resources to be provisioned to a request. Assumes that a resource is not a service account.

## APIs Modified in Release 9.1.0

Table 2–2 lists the APIs that are modified in release 9.1.0.

---



---

**Note:** Microsoft SQL Server is not supported in Oracle Identity Manager release 9.1.0. See “Certified Components” in *Oracle Identity Manager Release Notes* for information about certified components.

---



---

**Table 2–2 APIs Modified in Release 9.1.0**

Operation	API Method	Description
Attestation Definition	<pre>public long createAttestationDefinition(AttestationProcessDefinitionVO definition) throws DuplicateAttestationProcessException, tcAPIException</pre>	<ul style="list-style-type: none"> <li>Changed the method signature to accept the <code>AttestationProcessDefinitionVO</code> object instead of the <code>AttestationProcessDefinition</code> object.</li> <li>Added code to insert data in the column <code>apd_attestation_definition</code>.</li> <li>Removed the insertion for the <code>APD_DESCRIPTION</code>, <code>APD_SCOPE_TYPE</code>, <code>APD_SCOPE_PARAMETER</code>, <code>APD_SCHEDULE_TYPE</code>, <code>APD_SCHEDULE_FREQUENCY</code>, <code>APD_SENDEMAIL_TO_OWNER</code>, and <code>APD_INCLUDE_SUB_ORGS</code> columns.</li> <li>Modified for grace period on the Attestation Detail page.</li> </ul>
Attestation Definition	<pre>public AttestationProcessDefinitionVO getAttestationProcessDefinition(long processDefKey) throws tcAPIException, AttestationProcessNotFoundException</pre>	<ul style="list-style-type: none"> <li>Added fields for reviewer first name and reviewer last name.</li> <li>Changed the method signature so that it returns <code>AttestationProcessDefinitionVO</code> object instead of <code>AttestationProcessDefinition</code> object.</li> <li>Modified to return the fields from the XML.</li> </ul>
Attestation Definition	<pre>public void updateAttestationDefinition(long processDefKey, AttestationProcessDefinitionVO definition) throws DuplicateAttestationProcessException, tcInvalidPermissionsException, tcAPIException, AttestationProcessNotFoundException</pre>	<ul style="list-style-type: none"> <li>Changed the method signature to accept <code>AttestationProcessDefinitionVO</code> object instead of <code>AttestationProcessDefinition</code> object.</li> <li>Added code to modify data in the column <code>apd_attestation_definition</code>.</li> <li>Removed the insertion for the <code>APD_DESCRIPTION</code>, <code>APD_SCOPE_TYPE</code>, <code>APD_SCOPE_PARAMETER</code>, <code>APD_SCHEDULE_TYPE</code>, <code>APD_SCHEDULE_FREQUENCY</code>, <code>APD_SENDEMAIL_TO_OWNER</code>, and <code>APD_INCLUDE_SUB_ORGS</code> columns.</li> <li>Modified for grace period on the Attestation Detail page.</li> </ul>
Attestation Definition	<pre>public tcResultSet getUnassignedAdministrators(long processDefKey) throws tcAPIException, AttestationProcessNotFoundException</pre>	<ul style="list-style-type: none"> <li>Modified SQL statements to handle a situation where there are more than 1000 groups in the IN clause</li> <li>Fixed the issue of duplicate groups being displayed when assigning administrators to attestation process</li> </ul>
Attestation Definition	<pre>public tcResultSet findAttestationProcesses(Map attributes) throws tcAPIException</pre>	<ul style="list-style-type: none"> <li>Modified SQL statements to handle a situation where there are more than 1000 groups in the IN clause</li> <li>Removed the search on the basis of scope parameter and scope type.</li> </ul>



**Table 2–2 (Cont.) APIs Modified in Release 9.1.0**

Operation	API Method	Description
Attestation Definition	public void enableAttestationDefinition(long processDefKey) throws tcInvalidPermissionsException, tcAPIException	Takes data from the XML and gets ScheduleType from AttestationProcessDefinitionVO.
Attestation	public tcResultSet getAttRequestDetailsForDashBoard(long attestationRequestKey, String attestationresponse, int startRow, int pageSize) throws tcAPIException	Modified call to the changed Xl_Sp_Getattreqdtls_For_Dboard stored procedure to include the Attestation Record Status.
Attestation	public void submitReponses(long attestationTaskKey, AttestationItemResponse [] responses, String defaultDelegate, String defalutComment) throws TaskAlreadyAttestedException, tcAPIException, tcInvalidPermissionsException, UnknownAttestationRecordResponse	<ul style="list-style-type: none"> <li>Modified for the query to check if the logged in user is a reviewer or a member of the process owner group.</li> <li>Added check to see if the logged in user is a reviewer or a member of the process owner group.</li> </ul>
Attestation	public tcResultSet getRequestDetailsForDashBoard(long attestationRequestKey, Map attributes, int startRow, int pageSize) throws tcAPIException	Updated the stored procedure and accordingly the parameters passed to it, to take care of the filter criteria when searching the attestation details.
Attestation	public tcResultSet getAttestationRecordDelegatedPath(long recordKey) throws tcAPIException, AttestationRecordNotDelegatedException	Updated code to show the delegation path. This takes care of instances where the same attestation request is now delegated multiple times, either by the reviewer or by the system.
Attestation	public tcResultSet getAttestationRequestDetails(long attestationRequestKey, Map attributes, int startRow, int pageSize) throws tcAPIException	Updated the stored procedure and accordingly the parameters passed to it, to take care of the filter criteria while searching the attestation details.
Attestation	public tcResultSet getAttestationProcessExecutionHistory(long processDefKey) throws tcAPIException, AttestationProcessNotFoundException	<ul style="list-style-type: none"> <li>Updated the code to remove the Scope type parameter check.</li> <li>Fixed the issue in which an exception was thrown when running an attestation process when Reviewer was selected as Group User with Highest Priority.</li> </ul>
Attestation	public void initiateAttestationProcess(String processName) throws tcAPIException, tcInvalidPermissionsException, AttestationProcessNotFoundException	Fixed the issue in which an exception was thrown when running an attestation process when Reviewer was selected as Group User with Highest Priority.
Access Policy	public void assignGroups(long policyKey, long[] groupKeys) throws tcPolicyNotFoundException, tcBulkException, tcAPIException	<ul style="list-style-type: none"> <li>Fixed to avoid changing the <b>Retrofit Access Policy</b> option in Access Policies to No, although it is set to Yes if a new assignment is done or entries in other sets, such as resources to be assigned or revoked, are unassigned.</li> <li>Enhanced error handling mechanism so that if a user, who does not have write permissions, tries to update an access policy, then an appropriate error message is generated.</li> </ul>

**Table 2–2 (Cont.) APIs Modified in Release 9.1.0**

Operation	API Method	Description
Access Policy	public void assignObjects(long policyKey, long[] objectKeys, Map attributeList) throws tcPolicyNotFoundException, tcBulkException, tcInvalidAttributeException, tcAPIException	<ul style="list-style-type: none"> <li>Fixed to avoid changing the <b>Retrofit Access Policy</b> option in Access Policies to No, although it is set to Yes if a new assignment is done or entries in other sets, such as resources to be assigned or revoked, are unassigned.</li> <li>Enhanced error handling mechanism so that if a user, who does not have write permissions, tries to update an access policy, then an appropriate error message is generated.</li> </ul>
Access Policy	public void unAssignGroups(long policyKey, long[] groupKeys) throws tcPolicyNotFoundException, tcAPIException, tcBulkException	<ul style="list-style-type: none"> <li>Fixed to avoid changing the <b>Retrofit Access Policy</b> option in Access Policies to No, although it is set to Yes if a new assignment is done or entries in other sets, such as resources to be assigned or revoked, are unassigned.</li> <li>Enhanced error handling mechanism so that if a user, who does not have write permissions, tries to update an access policy, then an appropriate error message is generated.</li> </ul>
Access Policy	public void unAssignObjects(long policyKey, long[] objectKeys) throws tcPolicyNotFoundException, tcAPIException, tcBulkException	<ul style="list-style-type: none"> <li>Fixed to avoid changing the <b>Retrofit Access Policy</b> option in Access Policies to No, although it is set to Yes if a new assignment is done or entries in other sets, such as resources to be assigned or revoked, are unassigned.</li> <li>Enhanced error handling mechanism so that if a user, who does not have write permissions, tries to update an access policy, then an appropriate error message is generated.</li> </ul>
Access Policy	public void updateAccessPolicy(tcResultSet accessPolicyResultSet, Map attributeList) throws tcPolicyNotFoundException, tcInvalidAttributeException, tcAPIException	Enhanced error handling mechanism so that if a user, who does not have write permissions, tries to update an access policy, then an appropriate error message is generated.
Access Policy	public long createAccessPolicy(Map attributeList, long[] provObjKeys, boolean[] revokeObjectIfNotApply, long[] denyObjKeys, long[] groupKeys) throws tcObjectNotFoundException, tcGroupNotFoundException, tcInvalidAttributeException, tcAPIException	Enhanced error handling mechanism so that when creating an access policy, if a user selects <b>Revoke if no longer applies</b> and also selects a resource to deny, then an appropriate error message is generated.
Access Policy	public void setDataSpecifiedForObject(long policyKey, long objectKey, long formKey, AccessPolicyResourceData resourceData) throws tcPolicyNotFoundException, tcObjectNotAssignedException, tcAPIException	Changed the API to ensure that the policy data is stored in the correct format on the parent and child forms. If a type is a date field and cannot be parsed by using Time stamp, then the time stamp 00:00:00.000000 is added to it.
Form Instance	public void setProcessFormData(long plProcessInstanceKey, Map phAttributeList) throws tcAPIException, tcInvalidValueException, tcNotAtomicProcessException, tcFormNotFoundException, tcRequiredDataMissingException, tcProcessNotFoundException	Enhanced error handling so that the appropriate tcAPIException is generated to the calling function to more effectively surface the correct error.

**Table 2–2 (Cont.) APIs Modified in Release 9.1.0**

Operation	API Method	Description
Form Instance	<code>public long addProcessFormChildData(long plChildFormDefinitionKey, long plProcessInstanceKey, Map phAttributeList) throws tcProcessNotFoundException, tcFormNotFoundException, tcRequiredDataMissingException, tcInvalidValueException, tcNotAtomicProcessException, tcAPIException</code>	Enhanced error handling capability to more effectively surface the correct error.
Form Instance	<code>public void setObjectFormData(long plObjectInstanceKey, UDFormData resourceData) throws tcAPIException, tcInvalidValueException, tcRequiredDataMissingException, tcObjectNotFoundException, tcFormNotFoundException</code>	Enhanced error handling capability to more effectively surface the correct error to avoid displaying the <b>Edit</b> link under the Data column in the Request Detail page.
Form Instance	<code>public void updateObjectFormChildData(long plChildFormDefinitionKey, long plChildFormPrimaryKey, Map phAttributeList) throws tcFormNotFoundException, tcFormEntryNotFoundException, tcInvalidValueException, tcAPIException</code>	Enhanced error handling capability to more effectively surface the correct error to avoid displaying the <b>Edit</b> link under the Data column in the Request Detail page.
IT Resource Instance	<code>public void updateITResourceInstanceParameters(long plITResourceInstanceKey, Map attributes) throws tcITResourceNotFoundException, tcInvalidAttributeException, tcAPIException</code>	Modified to add support for allowing semicolon (;) in IT Resource input fields in Deployment Manager.
IT Resource Instance	<code>public tcResultSet getITResourceInstanceParameters(long plITResourceInstanceKey) throws tcITResourceNotFoundException, tcAPIException</code>	Fixed to avoid returning duplicate rows if administrator is part of more than one group.
Group	<code>public tcResultSet findGroups(Map phAttributeList) throws tcAPIException</code>	Fixed to avoid searching integer or date type UDF on Manage Group page.
Group	<code>public long createGroup(Map phAttributes) throws tcAPIException, tcDuplicateGroupException, tcInvalidAttributeException</code>	Modified to ensure that a group name entered by the creator of the group is stored. It also ensures that the same user cannot create two groups that differ only in casing.
Group	<code>public void updateAdministrator(long plGroupKey, long plAdminGroupKey, boolean pbWrite, boolean pbDelete) throws tcAPIException, tcGroupNotFoundException, tcAdminNotFoundException</code>	Modified to add handling for delete permission passed as a parameter.
Group	<code>public tcResultSet getUnassignedMemberGroups(long groupKey, Map attributeMap) throws tcGroupNotFoundException, tcAPIException</code>	Added support for searching on UDF fields.
Group	<code>public tcResultSet getUnassignedMemberUsers(long groupKey, Map attributeMap) throws tcGroupNotFoundException, tcAPIException</code>	Added support for searching on UDF fields.

**Table 2–2 (Cont.) APIs Modified in Release 9.1.0**

Operation	API Method	Description
Group	<code>public void addObjectPermission(long plGroupKey, long plDobKey, boolean insertAllow, boolean updateAllow, boolean deleteAllow) throws tcAPIException, tcGroupNotFoundException, tcDataObjectNotFoundException</code>	Fixed to set permissions correctly.
Group	<code>public void updateObjectPermission(long groupKey, long dobKey, Map attribute) throws tcAPIException, tcGroupNotFoundException, tcDataObjectNotFoundException</code>	Fixed to set permissions correctly.
Group	<code>public void addMemberUser(long plGroupKey, long plUserKey) throws tcAPIException, tcGroupNotFoundException, tcUserNotFoundException</code>	Added check so that the user is added to the group only if it is not already present.
Group	<code>public void addMemberUsers(long plGroupKey, long[] paUserKeys) throws tcAPIException, tcGroupNotFoundException, tcUserNotFoundException</code>	Added check so that the users are added to the group only if they are not already present.
Group	<code>public void removeMemberUser(long plGroupKey, long plUserKey) throws tcAPIException, tcGroupNotFoundException, tcUserNotFoundException</code>	Added check so that the user is removed from the group only if it is currently present in the group.
Group	<code>public void removeMemberUsers(long plGroupKey, long[] paUserKeys) throws tcAPIException, tcGroupNotFoundException, tcUserNotFoundException</code>	Added check so that the users are removed from the group only if they are currently present in the group.
Group	<code>public void removeObjectPermissions(long groupKey, long[] dobKeys) throws tcAPIException, tcGroupNotFoundException, tcDataObjectNotFoundException, tcBulkException</code>	Fixed the issue in which the search on the Manage Group page was not configurable.
Import	<code>public void performImport(Collection col) throws DDMEException, SQLException, NamingException</code>	<ul style="list-style-type: none"> <li>■ Enhanced to automatically compile the adapters when importing them by using the Deployment Manager.</li> <li>■ Enhanced Error handling to surface adapter compilation errors to API level. Changed signature to add the throws clause for <code>tcBulkException</code>.</li> <li>■ Changed signature to add the throws clause for <code>tcBulkException</code>.</li> </ul>
Import	<code>public Collection findITResourceTypeParams (RootObject obj) throws SQLException, DDMEException</code>	Fixed issue in which a user can enter password, and the password is shown in plain text when importing an IT resource with the password field
Lookup	<code>public String getLookupCodeForColumn (String psColumnName ) throws tcAPIException, tcInvalidColumnException, tcNoLookupException</code>	Fixed to stop by using the <code>lookupQuery</code> option for a lookup field, which displays encoded values. The issue is now fixed to display decoded values for the field.

**Table 2–2 (Cont.) APIs Modified in Release 9.1.0**

Operation	API Method	Description
Lookup	<pre>public tcResultSet getLookupValuesForColumn(String psColumnName, Map poFilters, long obiOrOrcKey, ProvisioningData provData) throws tcAPIException, tcInvalidColumnException, tcNoLookupException</pre>	Fixed the failure to handle the user-defined lookup fields with an exception when creating a user.
Lookup	<pre>public tcResultSet getLookupValuesForColumn(String psColumnName, Map poFilters) throws tcAPIException, tcInvalidColumnException, tcNoLookupException</pre>	Fixed the failure to handle the user-defined lookup fields with an exception when creating a user.
Lookup	<pre>public tcResultSet getLookupValuesForColumn(String psColumnName, Map poFilters, long obiOrOrcKey) throws tcAPIException, tcInvalidColumnException, tcNoLookupException</pre>	Fixed the failure to handle the user-defined lookup fields with an exception when creating a user.
Lookup	<pre>public tcResultSet getLookupValuesForColumn(String psColumnName, Map poFilters, ProvisioningData provData) throws tcAPIException, tcInvalidColumnException, tcNoLookupException</pre>	Fixed the failure to handle the user-defined lookup fields with an exception when creating a user.
Resource	<pre>public tcResultSet findObjects(Map phAttributeList) throws tcAPIException</pre>	<ul style="list-style-type: none"> <li>■ Added handling of Resource Audit Objective as a search criteria. This is fixed to avoid searching integer or date type UDF on Manage Group page.</li> <li>■ Enhanced to return the column OBJ_TRUSTED_SOURCE in the result set.</li> </ul>
Resource	<pre>public tcResultSet getProcessesForObject(long objectKey) throws tcAPIException, tcObjectNotFoundException</pre>	Added the Process.Process Definition.Process Key column to the returned tcResultSet. The API is changed so that permissions are set and only those workflows are returned, on which the logged in user has permissions.
Resource	<pre>public tcResultSet getServiceAccountList(long objectKey, Map filterMap) throws tcObjectNotFoundException, tcAPIException</pre>	Modified query to fix issue concerning duplicate rows returned by this method.
Resource	<pre>public tcResultSet getAssociatedOrganizations(long objectKey, Map attributeMap) throws tcObjectNotFoundException, tcAPIException</pre>	<ul style="list-style-type: none"> <li>■ Fixed the issue of the API not returning data for the Waiting status.</li> <li>■ Changed to add support for allowing semi-colon (;) in IT Resource input fields in Deployment Manager.</li> </ul>
Resource	<pre>public tcResultSet getAssociatedUsers(long objectKey, Map attributeMap) throws tcObjectNotFoundException, tcAPIException</pre>	<ul style="list-style-type: none"> <li>■ Fixed the issue of the API not returning data for the Waiting status.</li> <li>■ Fixed the issue of duplicate records being returned by the API.</li> <li>■ Fixed the issue in which resources with Waiting and Revoked statuses were not displayed on the Resource Detail &gt;&gt; Users Associated With This Resource page.</li> <li>■ Changed to add support for allowing semicolon (;) in IT Resource input fields in the Deployment Manager.</li> </ul>

**Table 2–2 (Cont.) APIs Modified in Release 9.1.0**

Operation	API Method	Description
Resource	<pre>public tcResultSet getAssociatedOrganizations(long objectKey, Map attributeMap) throws tcObjectNotFoundException, tcAPIException</pre>	<p>Fixed known issues in the code with SQL-injection and cross-site scripting attack possibilities.</p> <p>A New System property <code>XL.UseSemiColonAsDelimiter</code> is added. This property is used to specify if semicolon should be used as a delimiter to the API input parameter values. Some APIs accepted String input values that were separated by semicolon. This has been changed to use a vertical bar " " instead. To keep backward compatibility, this new property can be used to go back to using semicolons. The default value is <code>FALSE</code> signifying usage of " ". When set to <code>TRUE</code>, the input for those APIs will be accepted with semicolon as separator.</p>
Resource	<pre>public tcResultSet getAssociatedUsers(long objectKey, Map attributeMap) throws tcObjectNotFoundException, tcAPIException</pre>	<p>Fixed known issues in the code with SQL-injection and cross-site scripting attack possibilities.</p> <p>A New System property <code>XL.UseSemiColonAsDelimiter</code> is added. This property is used to specify if semicolon should be used as a delimiter to the API input parameter values. Some APIs accepted String input values that were separated by semicolon. This has been changed to use a vertical bar " " instead. To keep backward compatibility, this new property can be used to go back to using semicolons. The default value is <code>FALSE</code> signifying usage of " ". When set to <code>TRUE</code>, the input for those APIs will be accepted with semicolon as separator.</p>
Organization	<pre>public tcResultSet findOrganizations (Map phAttributeList) throws tcAPIException</pre>	Fixed to avoid searching integer or date type UDF on Manage Organization page.
Organization	<pre>public tcResultSet getSubOrganizations (long plOrganizationKey) throws tcAPIException, tcOrganizationNotFoundException</pre>	Added permission check so that if the logged in user, who is running the API, is not an administrator of a given sub organization, then the API must not return that organization.
Organization	<pre>public tcResultSet findOrganizationsFiltered (Map phAttributeList, String[] pasFieldList) throws tcAPIException</pre>	Fixed potential SQL Injection issue.
Password	<pre>public void setXelleratePassword (long plUserKey, String psPassword) throws tcAPIException, tcPolicyFailedException</pre>	<ul style="list-style-type: none"> <li>■ Enhanced error handling so that correct exception is thrown depending on the error.</li> <li>■ Fixed so that the API method now throws <code>tcPolicyFailedException</code> when password policy fails instead of <code>tcAPIException</code>.</li> </ul>

**Table 2–2 (Cont.) APIs Modified in Release 9.1.0**

Operation	API Method	Description
Reconciliation	<p>The change has been made in all four versions of this method:</p> <pre> - public long addDirectMultiAttributeData(long plReconciliationEventKey, String psFieldName, Map poData, String psDateFormat) throws tcAPIException, tcEventNotFoundException, tcEventDataReceivedException  - public long addDirectMultiAttributeData(long plReconciliationEventKey, long plReconciliationAttributeKey, String psFieldName, Map poData, String psDateFormat) throws tcAPIException, tcEventNotFoundException, tcAttributeNotFoundException, tcEventDataReceivedException, tcInvalidAttributeException  - public long addDirectMultiAttributeData(long plReconciliationEventKey, long plReconciliationAttributeKey, String psFieldName, Map poData) throws tcAPIException, tcEventNotFoundException, tcAttributeNotFoundException, tcEventDataReceivedException, tcInvalidAttributeException  - public long addDirectMultiAttributeData(long plReconciliationEventKey, String psFieldName, Map poData) throws tcAPIException, tcEventNotFoundException, tcEventDataReceivedException </pre>	Fixed date parsing exception to clear an existing value of a date field through reconciliation.

**Table 2–2 (Cont.) APIs Modified in Release 9.1.0**

Operation	API Method	Description
Reconciliation	<p>The change has been made in all four versions of this method:</p> <pre>-public long addMultiAttributeData(long plReconciliationEventKey, String psFieldName, Map poData, String psDateFormat) throws tcAPIException, tcEventNotFoundExcepion, tcEventDataReceivedException  -public long addMultiAttributeData(long plReconciliationEventKey, String psFieldName, Map poData) throws tcAPIException, tcEventNotFoundExcepion, tcEventDataReceivedException  -public long addMultiAttributeData(long plReconciliationEventKey, long plReconciliationAttributeKey, String psFieldName, Map poData, String psDateFormat) throws tcAPIException, tcEventNotFoundExcepion, tcAttributeNotFoundExcepion, tcEventDataReceivedException, tcInvalidAttributeExcepion  -public long addMultiAttributeData(long plReconciliationEventKey, long plReconciliationAttributeKey, String psFieldName, Map poData) throws tcAPIException, tcEventNotFoundExcepion, tcAttributeNotFoundExcepion, tcEventDataReceivedException, tcInvalidAttributeExcepion</pre>	<p>Fixed date parsing exception to clear an existing value of a date field through reconciliation.</p>
Reconciliation	<p>The change has been made in both versions of this method:</p> <pre>-public long createDeleteReconciliationEvent(String psObjName, Map poAttributeList) throws tcAPIException, tcObjectNotFoundExcepion  -public long createDeleteReconciliationEvent(String psObjName, Map poAttributeList, String psDateFormat) throws tcAPIException, tcObjectNotFoundExcepion</pre>	<ul style="list-style-type: none"> <li>■ Fixed date parsing exception to clear an existing value of a date field through reconciliation.</li> <li>■ Fixed to avoid storing of the values of the reconciliation data fields mapped to encrypted or password type fields in the <code>rce_note</code> field of the <code>rce</code> table when a reconciliation event is created.</li> </ul>
Reconciliation	<p>The change has been made in both versions of this method:</p> <pre>-public long createReconciliationEvent(String psObjectName, Map poData, boolean pbFinishEvent) throws tcAPIException, tcObjectNotFoundExcepion  -public long createReconciliationEvent(String psObjectName, Map poData, boolean pbFinishEvent, String psDateFormat) throws tcAPIException, tcObjectNotFoundExcepion</pre>	<ul style="list-style-type: none"> <li>■ Fixed date parsing exception to clear an existing value of a date field through reconciliation.</li> <li>■ Fixed to avoid storing of the values of the reconciliation data fields mapped to encrypted or password type fields in the <code>rce_note</code> field of the <code>rce</code> table when a reconciliation event is created.</li> </ul>



**Table 2–2 (Cont.) APIs Modified in Release 9.1.0**

Operation	API Method	Description
Reconciliation	<p>The change has been made in both versions of this method:</p> <pre>-public boolean ignoreEvent(String psObjName, Map poData) throws tcAPIException, tcObjectNotFoundException  -public boolean ignoreEvent(String psObjName, Map poData, String psDateFormat) throws tcAPIException, tcObjectNotFoundException</pre>	Fixed date parsing exception to clear an existing value of a date field through reconciliation.
Reconciliation	<p>The change has been made in all four versions of this method:</p> <pre>-public void addDirectBulkMultiAttributeData(long plReconciliationEventKey, String psFieldName, List dataList) throws tcAPIException, tcEventNotFoundException, tcEventDataReceivedException  -public void addDirectBulkMultiAttributeData(long plReconciliationEventKey, String psFieldName, List dataList, String psDateFormat) throws tcAPIException, tcEventNotFoundException, tcEventDataReceivedException  -public void addDirectBulkMultiAttributeData(long plReconciliationEventKey, long plReconciliationAttributeKey, String psFieldName, List dataList) throws tcAPIException, tcEventNotFoundException, tcAttributeNotFoundException, tcEventDataReceivedException, tcInvalidAttributeException  -public void addDirectBulkMultiAttributeData(long reconciliationEventKey, long reconciliationAttributeKey, String tableFieldName, List dataList, String dateFormat) throws tcAPIException, tcEventNotFoundException, tcAttributeNotFoundException, tcEventDataReceivedException, tcInvalidAttributeException</pre>	Fixed to maintain the correct casing of the field names in child tables.
Reconciliation	<pre>public long[] deleteDetectedAccounts(tcResultSet poDetectedAccounts) throws tcAPIException</pre>	<p>Fixed the timing out of the transaction for creating delete reconciliation events. The API is modified to perform the following:</p> <ul style="list-style-type: none"> <li>■ Create reconciliation events in the RCE table for each missing account.</li> <li>■ Add matched user, organization, or process to the RCU, RCA, or RCP tables as appropriate.</li> <li>■ Create and send a JMS message for each delete reconciliation event in a single transaction. The delete reconciliation events are then finished in the JMS message handler.</li> </ul>

**Table 2–2 (Cont.) APIs Modified in Release 9.1.0**

Operation	API Method	Description
Reconciliation	public void providingAllMultiAttributeData(long plReconciliationEventKey, long plReconciliationAttributeKey, String psFieldName, boolean pbFlag) throws tcAPIException	Fixed to enable reconciliation when there are no key fields defined for a multi-attribute. If providingAllMultiAttributeData() is used with true flag after calling addMultiAttributeData(), addDirectMultiAttributeData(), or addDirectBulkMultiAttributeData(), then reconciliation of child table data occurs even if the child table does not contain any field as the key field. Therefore, whether or not the child table contains any key field, the RECON engine pushes this child table data to Oracle Identity Manager because the multi-attribute data passed is the final data.
Reconciliation	public void changePasswordForUser(String psUserID, String psOldPassword, String psNewPassword, String psConfirmPassword) throws tcAPIException, tcPasswordIncorrectException, tcPasswordMismatchException, tcPasswordPolicyException, tcUserAccountInvalidException, tcUserAccountDisabledException	Added enhancement to enable recording UPA changes when password for a user is changed.
Reconciliation	public void login(String psUser, String psPassword) throws tcLoginException	Added enhancement to enable recording UPA changes when any error occurs while the user is logging in.
Reconciliation	public boolean resetForgottenPassword(String psUserID, Map poQuesAns, String psPassword) throws tcAPIException, tcUserAccountDisabledException, tcUserAccountInvalidException, tcNumberOfChallengesMismatchException, tcQuestionsNotDefinedException, tcPasswordIncorrectException, tcPasswordMismatchException, tcPasswordPolicyException, tcPasswordResetAttemptsExceededException, tcUserAlreadyLoggedInException	Added enhancement to enable recording UPA changes when the user's password is reset.
Reconciliation	public void signatureLogin(String psUser, String psSignature) throws tcLoginException	Added enhancement to enable recording UPA changes when any error occurs while the user is logging in.
Reconciliation	public boolean ignoreEventAttributeData(String psObjName, Map poData, String psFieldName, Map[] paoAttributeDataList) throws tcAPIException, tcObjectNotFoundException	Fixed the issue in which the user was not able to change the value of the date type field to null or empty.
Reconciliation	public boolean ignoreEventAttributeData(String psObjName, Map poData, String psFieldName, Map[] paoAttributeDataList, String psDateFormat) throws tcAPIException, tcObjectNotFoundException	Fixed the issue in which the user was not able to change the value of the date type field to null or empty.
User	public tcResultSet findAllUsers(Map phAttributeList) throws tcAPIException	Fixed to prevent search results showing multiple entries of the same user, as many as the number of times the resource is provisioned to the user, when a user is provisioned with multiple instances of a resource object, if the search criteria Provisioned Resources = <OBJECT_NAME> is used.

**Table 2–2 (Cont.) APIs Modified in Release 9.1.0**

Operation	API Method	Description
User	<code>public tcResultSet findUsersFiltered(Map phAttributeList, String[] pasFieldList) throws tcAPIException</code>	<ul style="list-style-type: none"> <li>Fixed to avoid searching integer or date type UDF on Manage Users page returning all the data.</li> <li>Fixed to prevent search results showing multiple entries of the same user, as many as the number of times the resource is provisioned to the user, when a user is provisioned with multiple instances of a resource object, if the search criteria <code>Provisioned Resources = OBJECT_NAME</code> is used.</li> <li>Fixed the potential SQL injection issue</li> </ul>
User	<code>public tcResultSet findUsersFiltered(Map phAttributeList, String[] pasFieldList, int startRow, int pageSize, String[] order, boolean ascendingOrder) throws tcAPIException</code>	<ul style="list-style-type: none"> <li>Fixed to avoid searching integer or date type UDF on Manage Users page returning all the data.</li> <li>Fixed to prevent search results showing multiple entries of the same user, as many as the number of times the resource is provisioned to the user, when a user is provisioned with multiple instances of a resource object, if the search criteria <code>Provisioned Resources = OBJECT_NAME</code> is used.</li> </ul>
User	<code>public void disableAppsForUser(long plUserKey, long[] paObjectInstancesForUserKey) throws tcObjectNotFoundException, tcUserNotFoundException, tcAPIException, tcBulkException</code>	<ul style="list-style-type: none"> <li>Fixed to set the description correctly for bulk disable, enable, or revoke operations for resource instances.</li> <li>Fixed to avoid updates on deleted users.</li> </ul>
User	<code>public void enableAppsForUser(long plUserKey, long[] paObjectInstancesForUserKey) throws tcObjectNotFoundException, tcUserNotFoundException, tcAPIException, tcBulkException</code>	Fixed to set the description correctly for bulk disable, enable, or revoke operations for resource instances.
User	<code>public void revokeObjects(long plUserKey, long[] paObjectInstancesForUserKey) throws tcAPIException, tcObjectNotFoundException, tcRevocationNotAllowedException, tcUserNotFoundException, tcBulkException</code>	<ul style="list-style-type: none"> <li>Fixed to set the description correctly for bulk disable, enable, or revoke operations for resource instances.</li> <li>Fixed to avoid updates on deleted users.</li> </ul>
User	<code>public void changeFromServiceAccount(long plObjectInstanceForUserKey) throws tcAPIException</code>	Fixed to surface error correctly from the API layer to run the Pre-Delete entity adapter.
User	<code>public void changeToServiceAccount(long plObjectInstanceForUserKey) throws tcAPIException</code>	Fixed to surface error correctly from the API layer to run the Pre-Delete entity adapter.
User	<code>public void deleteUser(long plUserKey) throws tcAPIException, tcUserNotFoundException</code>	<ul style="list-style-type: none"> <li>Fixed to surface error correctly from the API layer to run the Pre-Delete entity adapter.</li> <li>Fixed to avoid updates on deleted users.</li> </ul>
User	<code>public void enableUser(long plUserKey) throws tcAPIException, tcUserNotFoundException</code>	<ul style="list-style-type: none"> <li>Fixed to surface error correctly from the API layer to run the Pre-Delete entity adapter.</li> <li>Fixed to avoid updates on deleted users.</li> </ul>
User	<code>public void deleteProxies(long userKey) throws tcAPIException, tcUserNotFoundException</code>	Fixed to avoid updates on deleted users. Date validation techniques are also enhanced.

**Table 2–2 (Cont.) APIs Modified in Release 9.1.0**

Operation	API Method	Description
User	<code>public void deleteUsers(long[] paUserKeys) throws tcAPIException, tcUserNotFoundException, tcBulkException</code>	Fixed to avoid updates on deleted users.
User	<code>public void disableAppForUser(long plUserKey, long plObjectInstanceForUserKey) throws tcObjectNotFoundException, tcUserNotFoundException, tcAPIException</code>	Fixed to avoid updates on deleted users.
User	<code>public void disableUser(long plUserKey) throws tcAPIException, tcUserNotFoundException</code>	Fixed to avoid updates on deleted users.
User	<code>public void disableUsers(long[] paUserKeys) throws tcAPIException, tcUserNotFoundException, tcBulkException</code>	Fixed to avoid updates on deleted users.
User	<code>public void enableAppForUser(long plUserKey, long plObjectInstanceForUserKey) throws tcObjectNotFoundException, tcUserNotFoundException, tcAPIException</code>	Fixed to avoid updates on deleted users.
User	<code>public void enableAppsForUser(long plUserKey, long[] paObjectInstancesForUserKey) throws tcObjectNotFoundException, tcUserNotFoundException, tcAPIException, tcBulkException</code>	Fixed to avoid updates on deleted users.
User	<code>public void enableUsers(long[] paUserKeys) throws tcAPIException, tcUserNotFoundException, tcBulkException</code>	Fixed to avoid updates on deleted users.
User	<code>public long provisionObject(long plUserKey, long plObjectKey, boolean pbServiceAccount) throws tcAPIException, tcObjectNotFoundException, tcProvisioningNotAllowedException, tcUserNotFoundException</code>	<ul style="list-style-type: none"> <li>■ Fixed to avoid updates on deleted users.</li> <li>■ Enhanced to redirect the user to the appropriate page if direct provisioning fails because of incomplete adapter mappings.</li> </ul>
User	<code>public ResourceData provisionResource(long plUserKey, long plObjectKey, boolean pbServiceAccount) throws tcAPIException, tcObjectNotFoundException, tcProvisioningNotAllowedException, tcUserNotFoundException</code>	Fixed to avoid updates on deleted users.
User	<code>public void revokeObject(long plUserKey, long plObjectInstanceForUserKey) throws tcAPIException, tcObjectNotFoundException, tcRevocationNotAllowedException, tcUserNotFoundException</code>	Fixed to avoid updates on deleted users.
User	<code>public void updateUser(tcResultSet poUserResultSet, Map phAttributeList) throws tcAPIException, tcUserNotFoundException, tcStaleDataUpdateException</code>	Fixed to avoid updates on deleted users.
User	<code>public void updateUser(tcResultSet poUserResultSet, Map phAttributeList, boolean changePassword) throws tcAPIException, tcUserNotFoundException, tcStaleDataUpdateException</code>	Fixed to avoid updates on deleted users.

**Table 2–2 (Cont.) APIs Modified in Release 9.1.0**

Operation	API Method	Description
Provisioning	<code>public tcResultSet getProcessDetail(long plProcessInstanceKey) throws tcAPIException, tcNotAtomicProcessException</code>	<ul style="list-style-type: none"> <li>Added the Process Instance.Task Information.Assign Type column to the returned tcResultSet.</li> <li>Ordered the list of tasks by the task status</li> <li>Fixed the issue in which a task instance that was already retried and failed resulting in addition of another task instance was still available for retrying. If a task instance is already retried, then it must not be allowed to retry.</li> </ul>
Provisioning	<code>public tcResultSet getTasksAvailableForUpdate (long taskInstanceKey) throws tcAPIException</code>	Fixed to provide the ability to cancel a task with Rejected status. If a task has Rejected status, it can be canceled from the Change Status functionality on the Task Details page.
Provisioning	<code>public tcResultSet getAssignedProvisioningTasks(long userKey, Map attributeList, String[] statuses) throws tcAPIException, tcUserNotFoundException, tcAttributeNotFoundException</code>	Improved the performance of the API so that the Open Tasks page does not take a long time to load.
Provisioning	<code>public int getNumberOfProvisioningTasksAssignedToUser(long userKey, String[] statuses) throws tcUserNotFoundException, tcAPIException</code>	Improved the performance of the API so that the Open Tasks page does not take a long time to load.
Provisioning	<code>public tcResultSet getProvisioningTaskDetails(long taskInstanceKey) throws tcAPIException</code>	Enhanced to return the Process Instance.Task Information.Assign Type column in the result set.
Provisioning	<code>public long addProcessTaskInstance (long plTaskKey, long plOrckKey) throws tcTaskNotFoundException, tcAPIException</code>	Fixed the API to prevent addition of any task after the resource status is set to revoked.
Provisioning	<code>public void updateTask(long plTaskInstanceKey, Map phAttributeList) throws tcTaskNotFoundException, tcAPIException, tcAwaitingObjectDataCompletionException, tcAwaitingApprovalDataCompletionException</code>	Fixed to refresh the Request Details page when a task is approved and the subsequent tasks that get inserted do not have adapters mapped.
Provisioning	<code>public void updateTask(long taskInstanceKey, byte[] taskInstanceRowVer, Map phAttributeList) throws tcTaskNotFoundException, tcAPIException, tcAwaitingObjectDataCompletionException, tcAwaitingApprovalDataCompletionException, tcStaleDataUpdateException</code>	Fixed to refresh the Request Details page when a task is approved and the following tasks that get inserted have adapters mapped.
Request	<code>public tcResultSet getApprovalTasksAssignedToUser(long userKey, Map attributeList) throws tcUserNotFoundException, tcAPIException, tcAttributeNotFoundException</code>	Fixed to prevent all the users of the group to act on an approval request even if the Target Type is Group User with Highest Priority.
Request	<code>public tcResultSet getApprovalTasksAssigned (Map attributeList) throws tcAPIException, tcAttributeNotFoundException</code>	Enhanced performance.

**Table 2–2 (Cont.) APIs Modified in Release 9.1.0**

Operation	API Method	Description
Request	<code>public tcResultSet findRequests(Map phAttributeList, Date startDate, Date endDate) throws tcAPIException</code>	<ul style="list-style-type: none"> <li>Enhanced so that the API method can search by Requester.User ID.</li> <li>Fixed so that the API works correctly on Microsoft SQL Server.</li> <li>Enhanced performance by removing call to the upper() function when not required.</li> <li>Enhanced so that the API method specifies the meridian indicator in the correct format, that is A.M. or AM and P.M. or PM.</li> </ul>
Request	<code>public tcResultSet findRequests(Map phAttributeList) throws tcAPIException</code>	<ul style="list-style-type: none"> <li>Enhanced so that the API method can search by Requester.User ID.</li> <li>Fixed so that the API works correctly on Microsoft SQL Server.</li> <li>Enhanced performance by removing call to the upper() function when not required.</li> <li>Enhanced so that the API method specifies the meridian indicator in the correct format, that is A.M. or AM and P.M. or PM.</li> </ul>
Request	<code>public tcResultSet findRequests(Map phAttributeList, int startRow, int pageSize, String[] order, boolean ascendingOrder, Date startDate, Date endDate) throws tcAPIException</code>	Fixed date-related issue by specifying a valid meridian indicator.
Request	<code>public tcResultSet findRequests(Map phAttributeList, int startRow, int pageSize, String[] order, boolean ascendingOrder) throws tcAPIException</code>	Fixed date-related issue by specifying a valid meridian indicator.
Request	<code>public tcResultSet getApprovalTasksAssignedToSubgroups(long userKey, Map attributeMap, boolean hierarchyOrder) throws tcAPIException, tcUserNotFoundException, tcAttributeNotFoundException</code>	Fixed the performance of the API so that the Pending Approvals page does not take a long time load.
Request	<code>public tcResultSet getApprovalTasksAssignedToUser(long userKey, Map attributeList) throws tcUserNotFoundException, tcAPIException, tcAttributeNotFoundException</code>	Fixed the performance of the API so that the Pending Approvals page does not take a long time load.
Request	<code>public int getNumberOfApprovalTasksAssignedToUser(long userKey, String[] statuses) throws tcUserNotFoundException, tcAPIException</code>	Fixed the performance of the API so that the Pending Approvals page does not take a long time load.
Request	<code>public tcResultSet getRequestsForUserTarget(long pUserKey, String[] pasStatus, Date pdEndDate) throws tcAPIException, tcUserNotFoundException</code>	<ul style="list-style-type: none"> <li>Fixed to avoid errors on the Requests Raised for Me page when filter criteria is used.</li> <li>Fixed date-related issue by specifying a valid meridian indicator.</li> <li>Enhanced so that the API method specifies the meridian indicator in the correct format, that is A.M. or AM and P.M. or PM.</li> </ul>
Request	<code>public tcResultSet getRequestsForUserTarget(long pUserKey, String[] pasStatus, Map attributeList, Date startDate, Date endDate) throws tcAPIException, tcUserNotFoundException</code>	<ul style="list-style-type: none"> <li>Fixed to avoid errors on the Requests Raised for Me page when filter criteria is used.</li> <li>Fixed date-related issue by specifying a valid meridian indicator.</li> <li>Enhanced so that the API method specifies the meridian indicator in the correct format, that is A.M. or AM and P.M. or PM.</li> </ul>

**Table 2–2 (Cont.) APIs Modified in Release 9.1.0**

Operation	API Method	Description
Request	<code>public tcResultSet getRequestsForUserTarget(long pUserKey, String[] pasStatus, Map attributeList) throws tcAPIException, tcUserNotFoundException</code>	API now specifies the meridian indicator in the correct format, A.M. or AM and P.M. or PM.
Request	<code>public long addRequestObject(long pRequestKey, long pObjectKey, boolean pbServiceAccount) throws tcAPIException, tcRequestNotFoundException, tcRequestObjectInvalidException</code>	<ul style="list-style-type: none"> <li>Fixed the issue that occurred when requesting two resources, out of which one was dependent on the other, and the <b>Allow Multiple</b> was cleared for parent resource.</li> <li>Fixed the issue in which if a resource is dependent on another resource and if both are requested together, then the Approval Task is displayed twice.</li> </ul>
Request	<code>public void requestMoreInfoFromUserWithCommentForRes ource(long pRequestKey, long pUserKey, long pObjectKey, String psComment) throws tcAPIException, tcInvalidResponseException, tcRequestApprovedException</code>	Fixed the issue in which the date when a comment was added to a request was wrong.
Request	<code>public long addRequestObject(long pRequestKey, long pObjectKey) throws tcAPIException, tcRequestNotFoundException, tcRequestObjectInvalidException</code>	This method has been deprecated in this release.
Workflow Definition	<code>public WorkflowDefinition getWorkflowDefinition(String workflowName) throws tcAPIException</code>	Removed the uppercase conversion of the workflow name because it might cause issues for non-ASCII characters.

## New and Modified APIs When Upgrading from 9.0.1.x to 9.1.0

For information about the APIs when upgrading from Oracle Identity Manager 9.0.1.x to 9.1.0, see *Oracle Identity Manager API Usage Guide* for release 9.0.3.

---

**Note:** For customers upgrading from Oracle Identity Manager release 9.0.3 to release 9.1.0, the APIs referred to in this section are in addition to those introduced and modified in 9.1.0 and are listed in the "[APIs Introduced in Release 9.1.0](#)" section on page 2-1 and the "[APIs Modified in Release 9.1.0](#)" section on page 2-9 respectively.

---

## New and Modified APIs When Upgrading From 9.0.3.x to 9.1.0

This section is divided into the following:

- [New APIs](#)
- [Modified APIs](#)

---

**Note:** For customers upgrading from Oracle Identity Manager release 9.0.3 to release 9.1.0, the APIs listed in this section are in addition to those introduced and modified in 9.1.0 and are listed in the "[APIs Introduced in Release 9.1.0](#)" section on page 2-1 and the "[APIs Modified in Release 9.1.0](#)" section on page 2-9 respectively.

---

## New APIs

Table 2–3 lists the new APIs when upgrading from Oracle Identity Manager release 9.0.3.x to 9.1.0.

**Table 2–3 New APIs When Upgrading from Oracle Identity Manager Release 9.0.3.x to 9.1.0**

Operation	API Method	Description
Task Definition	<code>public tcResultSet getTaskDetail(long processInstanceKey, Map filterMap) throws tcAPIException</code>	Returns detailed information about all the task definitions in the specified provisioning process.
E-mail	<code>public String getEmailAddressForGroup(long plGroupKey) throws tcAPIException, tcNoEmailAddressException</code>	Returns the e-mail address associated with a user group.
Group	<code>public tcResultSet getAllMembers(long plGroupKey, int startRow, int pageSize, String order, boolean ascendingOrder) throws tcAPIException, tcGroupNotFoundException</code>	Gets a list of all users and groups that are member of the specified group by direct inclusion only. Users and groups under subgroups of the specified group are not included.
Group	<code>public tcResultSet getAllMemberUsersAndGroups(long plGroupKey, int startRow, int pageSize, String order, boolean ascendingOrder) throws tcAPIException, tcGroupNotFoundException</code>	Gets a list of all users and groups that are members of the specified group by direct and indirect inclusion.
Organization	<code>public void updateOrganization(tcResultSet poOrgResultSet, Map phAttributeList) throws tcAPIException, tcOrganizationNotFoundException, tcStaleDataUpdateException</code>	Updates an organization in Oracle Identity Manager. This method is in addition to the existing <code>updateOrganization</code> method that takes organization key and attribute map as parameters. This method handles multiple users updating organizations at the same time by providing a locking mechanism.
Reconciliation	<code>public void addDirectBulkMultiAttributeData(long plReconciliationEventKey, String psFieldName, List dataList) throws tcAPIException, tcEventNotFoundException, tcEventDataReceivedException</code>	Adds data for multi-valued attributes in child tables for a reconciliation event. The data provided pertains to multiple child records. This API bypasses the data object layer for improved performance.
Reconciliation	<code>public void addDirectBulkMultiAttributeData(long plReconciliationEventKey, String psFieldName, List dataList, String psDateFormat) throws tcAPIException, tcEventNotFoundException, tcEventDataReceivedException</code>	Adds data for multi-valued attributes in child tables for a reconciliation event. The data provided pertains to multiple child records. This API bypasses the data object layer for improved performance.
Reconciliation	<code>public void addDirectBulkMultiAttributeData(long plReconciliationEventKey, long plReconciliationAttributeKey, String psFieldName, List dataList) throws tcAPIException, tcEventNotFoundException, tcAttributeNotFoundException, tcEventDataReceivedException, tcInvalidAttributeException</code>	Adds data for multi-valued attributes in child tables for a reconciliation event. The data provided pertains to multiple child records. This API bypasses the data object layer for improved performance.
Reconciliation	<code>public void addDirectBulkMultiAttributeData(long reconciliationEventKey, long reconciliationAttributeKey, String tableFieldName, List dataList, String dateFormat) throws tcAPIException, tcEventNotFoundException, tcAttributeNotFoundException, tcEventDataReceivedException, tcInvalidAttributeException</code>	Adds data for multi-valued attributes in child tables for a reconciliation event. The data provided pertains to multiple child records. This API bypasses the data object layer for improved performance.



**Table 2–3 (Cont.) New APIs When Upgrading from Oracle Identity Manager Release 9.0.3.x to 9.1.0**

Operation	API Method	Description
User	<code>public tcResultSet getProxyList(Map attributeMap, String[] fieldList) throws tcUserNotFoundException, tcAPIException</code>	Returns a result set of the proxy users for the user whose key is passed in. This API checks for the presence of a system property called <code>XL.CustomProxyClassName</code> . If this system property is set, then the value of this system property is the class name, which the API introspects and instantiates to get the custom proxies. If this system property is not set, then the API returns the list of proxies in the manner that is default in Oracle Identity Manager.
User	<code>public tcResultSet getChallengeValuesForUser(long userKey) throws tcAPIException, tcQuestionsNotDefinedException, tcUserNotFoundException</code>	Returns challenge questions and answers in the form of a result set for the given user.
Provisioning	<code>public tcResultSet getProvisioningTasksAssignedToSubgroups(long userKey, Map attributeList, String[] statuses, boolean hierarchyOrder) throws tcAPIException, tcUserNotFoundException, tcAttributeNotFoundException</code>	Returns a list of all the assigned provisioning tasks that are visible to the specified user based on the user's indirect group membership. The <code>attributeList</code> parameter contains the name-value pairs used to filter the results returned by the result set.
Provisioning	<code>public tcResultSet getTaskHistory(long taskKey) throws tcAPIException</code>	Returns a history of the assignment of the indicated task.
Provisioning	<code>public tcResultSet getTasksAvailableForUpdate (long taskInstanceKey) throws tcAPIException</code>	Returns task status and bucket against task instance key that are available for update. It is based on the current status of the task.
Provisioning	<code>public void reassignTasksToUser(long[] taskInstanceKeys, byte[][] taskInstanceRowvers, long userKey) throws tcAPIException, tcUserNotFoundException, tcTaskNotFoundException, tcStaleDataUpdateException, tcBulkException</code>	Reassigns the selected tasks to the specified user. This version of the API is introduced to have optimistic locking. When multiple users try to reassign the task at the same time, then the first user succeeds and others fail.
Provisioning	<code>public void reassignTasksToGroup(long[] taskInstanceKeys, byte[][] taskInstanceRowvers, long groupKey) throws tcAPIException, tcGroupNotFoundException, tcTaskNotFoundException, tcStaleDataUpdateException, tcBulkException</code>	Reassigns the selected tasks to the specified group. This version of API is introduced to have optimistic locking. When multiple users try to reassign the task at the same time, then the first user succeeds and others fail.
Provisioning	<code>public void updateTask(long taskInstanceKey, byte[] taskInstanceRowVer, Map phAttributeList) throws tcTaskNotFoundException, tcAPIException, tcAwaitingObjectDataCompletionException, tcAwaitingApprovalDataCompletionException, tcStaleDataUpdateException</code>	Updates the details of a specified task instance. This version of API is introduced to have optimistic locking. When multiple users try to update the task at the same time, the first user succeeds and others fail.
Request	<code>public tcResultSet findObjects(String actionType, String[] targetKeys, String type, String[] statusesIn, String[] statusesNotIn, Map searchCriteria) throws tcAPIException</code>	Returns all resource objects based on the parameters.

**Table 2–3 (Cont.) New APIs When Upgrading from Oracle Identity Manager Release 9.0.3.x to 9.1.0**

Operation	API Method	Description
Request	<code>public tcResultSet getApprovalTasksAssignedToSubgroups(long userKey, Map attributeMap, boolean hierarchyOrder) throws tcAPIException, tcUserNotFoundException, tcAttributeNotFoundException</code>	Returns a list of all the pending approval tasks that are visible to the specified user based on the user's indirect group membership. The <code>attributeList</code> parameter contains the name-value pairs used to filter the results returned by the result set. This method looks at both the standard approval and object approval processes and returns a resultset of the tasks from both the processes.
Request	<code>public int getNumberOfRequestsCreatedByUser(Map phAttributeMap) throws tcUserNotFoundException, tcAPIException</code>	Returns the number of requests that is created by a specific user.
Request	<code>public RequestDetail getRequestDetail(String requestKey, String requestID)</code>	Returns all the request details by request key.
Request	<code>public tcResultSet findRequests(Map phAttributeList, Date startDate, Date endDate) throws tcAPIException</code>	Returns a list of requests that match the provided attribute list and is created between the given start and end dates.
Request	<code>public tcResultSet findRequests(Map phAttributeList, int startRow, int pageSize, String[] order, boolean ascendingOrder) throws tcAPIException</code>	Returns a list of requests that match the provided attribute list and is created between the given start and end dates.

## Modified APIs

Table 2–4 lists the APIs modified when upgrading from Oracle Identity Manager 9.0.3.x to 9.1.0.

**Table 2–4 APIs Modified When Upgrading From Oracle Identity Manager Release 9.0.3.x to 9.1.0**

Operation	API Method	Description
Access Policy	<code>public long createAccessPolicy(Map attributeList, long[] provObjKeys, boolean[] revokeObjectIfNotApply, long[] denyObjKeys, long[] groupKeys) throws tcObjectNotFoundException, tcGroupNotFoundException, tcInvalidAttributeException, tcAPIException</code>	Made provisioning through access policy consistent with direct provisioning in case of dependent objects. The dependent object is also provisioned when the parent object is provisioned through access policy.
Audit	<code>public void reIssueAuditMessageByIdentifier(String auditor, String identifier) throws tcAPIException</code>	Modified the method so that the reissue of a message is done by sending a JMS message. The audit engine takes care of any related processing. Because messages are processed by an identifier, the identifier is passed to the API as the user to send the message.
Organization	<code>public tcResultSet getObjects(long orgKey) throws tcAPIException, tcOrganizationNotFoundException</code>	Added the <code>Process.Process Definition.Process Key</code> column to the returned <code>tcResultSet</code> .
Reconciliation	<code>public void providingAllMultiAttributeData(long plReconciliationEventKey, String psFieldName, boolean pbFlag) throws tcAPIException</code>	Modified Javadoc comment to inform the user that when used for child table data, this method should always be called after calling the <code>addMultiAttributeData()</code> , <code>addDirectMultiAttributeData()</code> , or <code>addDirectBulkMultiAttributeData()</code> methods in order.

**Table 2–4 (Cont.) APIs Modified When Upgrading From Oracle Identity Manager Release 9.0.3.x to 9.1.0**

Operation	API Method	Description
Reconciliation	public void providingAllMultiAttributeData(long plReconciliationEventKey, long plReconciliationAttributeKey, String psFieldName, boolean pbFlag) throws tcAPIException	Modified Javadoc comment to inform the user that when used for child table data, this method should always be called after calling the addMultiAttributeData(), addDirectMultiAttributeData(), or addDirectBulkMultiAttributeData() methods in order.
Group	public void updateGroup(tcResultSet poGroupResultSet, Map phAttributeList) throws tcAPIException, tcGroupNotFoundException, tcStaleDataUpdateException	<ul style="list-style-type: none"> <li>Added a check to ensure that there is no data inconsistency due to simultaneous updates to the same group.</li> <li>Changed the signature of the API to add tcStaleDataUpdateException from public void updateGroup(tcResultSet poGroupResultSet, Map phAttributeList) throws tcAPIException, tcGroupNotFoundException to public void updateGroup(tcResultSet poGroupResultSet, Map phAttributeList) throws tcAPIException, tcGroupNotFoundException, tcStaleDataUpdateException.</li> </ul>
ScheduledTask	public void approveRequestObject(String obiKey, tcDataSet dataSet) throws tcAPIException, tcObjectNotFoundException, tcRequestNotFoundException	Fixed multiple issues that caused the request to remain in Object Approval Complete and not to go to the Request Complete state.
User	public tcResultSet getAvailableObjectsForSelf() throws tcAPIException	Added check to ignore objects in the Revoked status.
User	public tcResultSet getAvailableObjectsForUser(long[] paUserKeys) throws tcUserNotFoundException, tcAPIException	Added check to ignore objects in the Revoked status.
User	public void updateUser(tcResultSet poUserResultSet, Map phAttributeList) throws tcAPIException, tcUserNotFoundException, tcStaleDataUpdateException	Added a check to ensure that there is no data inconsistency because of simultaneous updates to the same group.
User	public tcResultSet getObjectsByType(long plUserKey, String psObjectType) throws tcAPIException, tcUserNotFoundException	Added the Process Instance.Create column to the returned tcResultSet.
User	public tcResultSet getObjectsByTypeStatus(long plUserKey, String psObjectType, String psStatus) throws tcAPIException, tcUserNotFoundException	Added the Process Instance.Create column to the returned tcResultSet.
User	public tcResultSet getObjects(long plUserKey) throws tcAPIException, tcUserNotFoundException	Added the Process Instance.Create column to the returned tcResultSet. This method is also enhanced to return the Requests.Key column in the result set.

**Table 2–4 (Cont.) APIs Modified When Upgrading From Oracle Identity Manager Release 9.0.3.x to 9.1.0**

Operation	API Method	Description
Provisioning	<code>public long addProcessTaskInstance(long plTaskKey, long plOrckey) throws tcTaskNotFoundException, tcAPIException</code>	Changed method signature from <code>public void addProcessTaskInstance(long plTaskKey, long plOrckey) throws tcTaskNotFoundException, tcAPIException</code> to <code>public long ddProcessTaskInstance(long plTaskKey, long plOrckey) throws tcTaskNotFoundException, tcAPIException</code> for returning the <code>ProcessInstance.TaskDetails.Key</code> value.
Provisioning	<code>public tcResultSet getProvisioningTaskDetails(long taskInstanceKey) throws tcAPIException</code>	Added the <code>ProcessInstance.DescriptiveData</code> column to the returned <code>tcResultSet</code> .
Provisioning	<code>public tcResultSet getAssignedProvisioningTasks(long userKey, Map attributeList, String[] statuses) throws tcAPIException, tcUserNotFoundException, tcAttributeNotFoundException</code>	Enhanced to take into account the value of the system property <code>XL.OpenTask.DayLimit</code> that specifies the day limit set for open provisioning tasks.
Provisioning	<code>public int getNumberOfProvisioningTasksAssignedToUser(long userKey, String[] statuses) throws tcUserNotFoundException, tcAPIException</code>	Enhanced to take into account the value of the system property <code>XL.OpenTask.DayLimit</code> that specifies the day limit set for open provisioning tasks.
Provisioning	<code>public tcResultSet getProvisioningTasksAssignedToManagedUsers(long userKey, Map attributeList, String[] statuses) throws tcAPIException, tcUserNotFoundException, tcAttributeNotFoundException</code>	Enhanced to take into account the value of the system property <code>XL.OpenTask.DayLimit</code> that specifies the day limit set for open provisioning tasks.
Request	<code>public int getNumberOfApprovalTasksAssignedToUser(long userKey, String[] statuses) throws tcUserNotFoundException, tcAPIException</code>	<ul style="list-style-type: none"> <li>■ Fixed to avoid two duplicate pending approval records if a single request is made for a user for two different resources having approval tasks.</li> <li>■ Enhanced performance.</li> <li>■ Enhanced to take into account the value of the <code>XL.PendingApproval.DayLimit</code> system property that specifies the day limit set for open provisioning tasks.</li> </ul>
Request	<code>public tcResultSet findRequests(Map phAttributeList, int startRow, int pageSize, String[] order, boolean ascendingOrder) throws tcAPIException</code>	Enhanced to take into account the value of the system property <code>XL.RequestRaisedByYou.DayLimit</code> that specifies the day limit set for open provisioning tasks.
Request	<code>public tcResultSet getApprovalTasksAssignedToManagedUsers(long userKey, Map attributeList) throws tcUserNotFoundException, tcAPIException, tcAttributeNotFoundException</code>	Enhanced to take into account the value of the system property <code>XL.PendingApproval.DayLimit</code> that specifies the day limit set for open provisioning tasks.
Request	<code>public tcResultSet getApprovalTasksAssignedToUser(long userKey, Map attributeList) throws tcUserNotFoundException, tcAPIException, tcAttributeNotFoundException</code>	Enhanced to take into account the value of the system property <code>XL.PendingApproval.DayLimit</code> that specifies the day limit set for open provisioning tasks.
Request	<code>public int getNumberOfRequestsForTargetUser(long userKey) throws tcAPIException, tcUserNotFoundException</code>	Enhanced to take into account the value of the system property <code>XL.RequestRaisedForYou.DayLimit</code> that specifies the day limit set for open provisioning tasks.

**Table 2–4 (Cont.) APIs Modified When Upgrading From Oracle Identity Manager Release 9.0.3.x to 9.1.0**

Operation	API Method	Description
Request	<code>public tcResultSet getRequestsForUserTarget(long plUserKey, String[] pasStatus, Date pdEndDate) throws tcAPIException, tcUserNotFoundException</code>	Enhanced to take into account the value of the system property <code>XL.RequestRaisedForYou.DayLimit</code> that specifies the day limit set for open provisioning tasks.
Request	<code>public tcResultSet getRequestsForUserTarget(long plUserKey, String[] pasStatus, Map attributeList, Date startDate, Date endDate) throws tcAPIException, tcUserNotFoundException</code>	Enhanced to take into account the value of the system property <code>XL.RequestRaisedForYou.DayLimit</code> that specifies the day limit set for open provisioning tasks.

Changes have been made to the APIs listed in [Table 2–5](#) to enable them to handle more than 1000 entities:

**Table 2–5 APIs Modified to Handle More Than 1000 Entities**

Operation	API Method
Attestation Definition	<code>getUnassignedAdministrators(long processDefKey)</code>
Attestation Definition	<code>findAttestationProcesses(Map attributes)</code>
Attestation	<code>getOwnerAttestationProcesses()</code>
Attestation	<code>initiateAttestationProcess(String processName)</code>
Group	<code>public tcResultSet findGroups(Map phAttributeList, String permission) throws tcAPIException</code>
Group	<code>public tcResultSet findGroups(Map phAttributeList) throws tcAPIException</code>
Group	<code>public tcResultSet findUnAssignedGroups(Map phAttributeList, long plUserKey) throws tcAPIException</code>
Group	<code>public tcResultSet getUnassignedMemberUsers(long groupKey, Map attributeMap) throws tcGroupNotFoundException, tcAPIException</code>
Group	<code>public tcResultSet getAllMemberUsersAndGroups(long groupKey) throws tcGroupNotFoundException, tcAPIException</code>
IT Resource Instance	<code>public tcDataSetData findITResourceInstances(tcMapping[] paoAttributeList) throws tcAPIException</code>
IT Resource Instance	<code>public tcResultSet findITResourceInstancesByDefinition(long plITResourceDefinitionKey) throws tcITResourceDefinitionNotFoundException, tcAPIException</code>
IT Resource Instance	<code>public tcResultSet findITResourceInstancesByRemoteManager( long plRemoteManagerInstanceKey) throws tcRemoteManagerNotFoundException, tcAPIException</code>
IT Resource Instance	<code>public tcResultSet getITResourceInstanceParameters( long plITResourceInstanceKey) throws tcITResourceNotFoundException, tcAPIException</code>
Organization	<code>public tcResultSet findOrganizations(Map phAttributeList) throws tcAPIException</code>
Organization	<code>public tcResultSet findOrganizationsFiltered(Map phAttributeList, String[] pasFieldList) throws tcAPIException</code>
Organization	<code>public tcResultSet getUnassignedAdministrators(long plOrgKey) throws tcAPIException, tcOrganizationNotFoundException</code>
Organization	<code>public tcResultSet getUnassignedResources(long plOrgKey) throws tcAPIException, tcOrganizationNotFoundException</code>
Organization	<code>public tcResultSet getUnassignedSubOrganizations(long plOrgKey) throws tcAPIException, tcOrganizationNotFoundException</code>

**Table 2–5 (Cont.) APIs Modified to Handle More Than 1000 Entities**

<b>Operation</b>	<b>API Method</b>
Organization	<code>public tcResultSet getUnassignedUsers(long p1OrgKey) throws tcAPIException, tcOrganizationNotFoundException</code>
Queue	<code>public tcResultSet getQueuesForMemberUser(long p1UserKey, String psWrite, String psDelete) throws tcAPIException, tcUserNotFoundException, tcInvalidPermissionsException</code>
User	<code>public boolean canResourceBeProvisioned(long userKey, long objectKey) throws tcAPIException, tcUserNotFoundException, tcObjectNotFoundException</code>
User	<code>public tcResultSet findAllUsers(Map phAttributeList) throws tcAPIException</code>
User	<code>public tcResultSet findUsers(Map phAttributeList) throws tcAPIException</code>
User	<code>public tcResultSet findUsers(Map phAttributeList, String permission) throws tcAPIException</code>
User	<code>public tcResultSet findUsers(Map phAttributeList, String permission, String[] status) throws tcAPIException</code>
User	<code>public tcResultSet findUsersFiltered(Map phAttributeList, String[] pasFieldList) throws tcAPIException</code>
User	<code>public tcResultSet findUsersFiltered(Map phAttributeList, String[] pasFieldList, int startRow, int pageSize, String[] order, boolean ascendingOrder) throws tcAPIException</code>
User	<code>public int findUsersFilteredCount(Map phAttributeList, String[] pasFieldList) throws tcAPIException</code>
User	<code>public tcResultSet getActiveUsers(Map attributes) throws tcAPIException</code>
User	<code>public tcResultSet getObjectAuthorizationPermissions(long p1UserKey) throws tcAPIException, tcUserNotFoundException</code>
Provisioning	<code>public boolean isTaskUpdatable(long p1TaskInstanceKey, long p1UserKey) throws tcTaskNotFoundException, tcAPIException</code>
Request	<code>public boolean canTriggerObject(long p1UserKey, long p1ObjectInstanceKey) throws tcAPIException, tcUserNotFoundException, tcRequestObjectInvalidException, tcObjectNotApprovedException</code>
Request	<code>public long getNumberOfPendingRequests(long userKey) throws tcUserNotFoundException, tcAPIException</code>
Request	<code>public String[] getRequestResponses(long p1RequestKey, long p1UserKey) throws tcAPIException</code>
Request	<code>public String[] getRequestRoles(long p1RequestKey, long p1UserKey) throws tcAPIException</code>
Request	<code>public tcResultSet getRequestsAssignedForApproval(long p1UserKey, String[] pasStatus, boolean pbUserPending, Date pdEndDate) throws tcAPIException, tcUserNotFoundException</code>
Request	<code>public tcResultSet getRequestsForAuthorization(long p1UserKey, String[] pasStatus, boolean pbUserPending) throws tcAPIException, tcUserNotFoundException</code>
Request	<code>public boolean isRequestApprovable(long p1RequestKey, long p1UserKey) throws tcAPIException</code>
Request	<code>public boolean isResourceApprovable(long p1ObjectInstanceKey, long p1UserKey) throws tcAPIException</code>

**Table 2–5 (Cont.) APIs Modified to Handle More Than 1000 Entities**

Operation	API Method
Request	<code>public void setRequestResponse(long plRequestKey, long plUserKey, String psResponse) throws tcAPIException, tcInvalidResponseException, tcAwaitingObjectDataCompletionException, tcAwaitingApprovalDataCompletionException</code>
Request	<code>public void setResourceResponse(long plUserKey, long plObjectInstanceKey, String psResponse) throws tcAPIException, tcInvalidResponseException</code>

## Additional Changes Made in Some APIs

Changes have been made to the APIs listed in [Table 2–6](#) to enable them to capture the reason and reasonKey data items that are used in profile auditing as a part of the audit engine enhancements.

**See Also:** *Oracle Identity Manager Audit Report Developer's Guide* for more information about the reason and reasonkey data items

**Table 2–6 Modified APIs to Capture the reason and reasonkey Data Items As Part of the Audit Engine Enhancements**

Operation	Description
Form Instance	<code>public void removeObjectFormChildData(long plChildFormDefinitionKey, long plChildFormPrimaryKey) throws tcFormNotFoundException, tcFormEntryNotFoundException, tcAPIException</code>
Form Instance	<code>public void removeProcessFormChildData(long plChildFormDefinitionKey, long plChildFormPrimaryKey) throws tcFormNotFoundException, tcFormEntryNotFoundException, tcAPIException</code>
Form Instance	<code>public void setObjectFormData(long plObjectInstanceKey, UDFormData resourceData) throws tcAPIException, tcInvalidValueException, tcRequiredDataMissingException, tcObjectNotFoundException, tcFormNotFoundException</code>
Group	<code>public void addAdministrator(long plGroupKey, long plAdminGroupKey, boolean pbWrite, boolean pbDelete) throws tcAPIException, tcGroupNotFoundException, tcAdminNotFoundException, tcAdminGroupInvalidException</code>
Group	<code>public void addAdministrators(long plGroupKey, long[] palAdminGroupKeys, boolean[] pbWrite, boolean[] pbDelete) throws tcAdminNotFoundException, tcAdminGroupInvalidException, tcGroupNotFoundException, tcAPIException, tcBulkException</code>
Group	<code>public void addMemberGroup(long plGroupKey, long plMemberGroupKey) throws tcAPIException, tcGroupNotFoundException, tcInvalidMemberGroupException, tcMemberGroupNotFoundException</code>
Group	<code>public void addMemberGroups(long plGroupKey, long[] palMemberGroupKeys) throws tcGroupNotFoundException, tcInvalidMemberGroupException, tcMemberGroupNotFoundException, tcAPIException, tcBulkException</code>
Group	<code>public void addMemberUser(long plGroupKey, long plUserKey) throws tcAPIException, tcGroupNotFoundException, tcUserNotFoundException</code>
Group	<code>public void addMemberUsers(long plGroupKey, long[] paUserKeys) throws tcAPIException, tcGroupNotFoundException, tcUserNotFoundException</code>

**Table 2–6 (Cont.) Modified APIs to Capture the reason and reasonkey Data Items As Part of the Audit Engine Enhancements**

Operation	Description
Group	<code>public long createGroup(Map phAttributes) throws tcAPIException, tcDuplicateGroupException, tcInvalidAttributeException</code>
Group	<code>public void decreaseMemberGroupPriority(long plGroupKey, long plMemberGroupKey) throws tcAPIException, tcGroupNotFoundException, tcMemberGroupNotFoundException</code>
Group	<code>public void decreaseMemberUserPriority(long plGroupKey, long plUserKey) throws tcAPIException, tcUserNotFoundException, tcGroupNotFoundException</code>
Group	<code>public void deleteGroup(long groupKey) throws tcAPIException, tcGroupNotFoundException</code>
Group	<code>public void deleteGroups(long[] groupKeys) throws tcAPIException, tcGroupNotFoundException</code>
Group	<code>public void increaseMemberGroupPriority(long plGroupKey, long plMemberGroupKey) throws tcAPIException, tcGroupNotFoundException, tcMemberGroupNotFoundException</code>
Group	<code>public void increaseMemberUserPriority(long plGroupKey, long plUserKey) throws tcAPIException, tcGroupNotFoundException, tcUserNotFoundException</code>
Group	<code>public void removeAdministrator(long plGroupKey, long plAdminGroupKey) throws tcAPIException, tcGroupNotFoundException, tcAdminNotFoundException</code>
Group	<code>public void removeAdministrators(long plGroupKey, long[] palAdminGroupKeys) throws tcAdminNotFoundException, tcGroupNotFoundException, tcAPIException, tcBulkException</code>
Group	<code>public void removeAllMembers(long plGroupKey) throws tcGroupNotFoundException, tcAPIException</code>
Group	<code>public void removeMemberGroup(long plGroupKey, long plMemberGroupKey) throws tcAPIException, tcGroupNotFoundException, tcMemberGroupNotFoundException</code>
Group	<code>public void removeMemberGroups(long plGroupKey, long[] palMemberGroupKeys) throws tcGroupNotFoundException, tcInvalidMemberGroupException, tcMemberGroupNotFoundException, tcAPIException, tcBulkException</code>
Group	<code>public void removeMemberUser(long plGroupKey, long plUserKey) throws tcAPIException, tcGroupNotFoundException, tcUserNotFoundException</code>
Group	<code>public void removeMemberUsers(long plGroupKey, long[] paUserKeys) throws tcAPIException, tcGroupNotFoundException, tcUserNotFoundException</code>
Group	<code>public void setMemberGroupPriority(long plGroupKey, long plMemberGroupKey, int pnPriority) throws tcAPIException, tcGroupNotFoundException, tcMemberGroupNotFoundException</code>
Group	<code>public void setMemberUserPriority(long plGroupKey, long plUserKey, int pnPriority) throws tcAPIException, tcGroupNotFoundException, tcUserNotFoundException</code>
Group	<code>public void updateAdministrator(long plGroupKey, long plAdminGroupKey, boolean pbWrite, boolean pbDelete) throws tcAPIException, tcGroupNotFoundException, tcAdminNotFoundException</code>
Group	<code>public void updateAdministrators(long plGroupKey, long[] palAdminGroupKeys, boolean[] pbWrite, boolean[] pbDelete) throws tcAdminNotFoundException, tcGroupNotFoundException, tcAPIException, tcBulkException</code>



**Table 2–6 (Cont.) Modified APIs to Capture the reason and reasonkey Data Items As Part of the Audit Engine Enhancements**

Operation	Description
Group	<code>public void updateGroup(tcResultSet poGroupResultSet, Map phAttributeList) throws tcAPIException, tcGroupNotFoundException, tcStaleDataUpdateException</code>
Organization	<code>public void moveUsers(long[] paUserKeys, long plTargetOrgKey) throws tcAPIException, tcUserNotFoundException, tcOrganizationNotFoundException, tcBulkException</code>
Password	<code>public void setObjectPasswords(long plUserKey, long[] paObjInsUsrKeys, String psPassword) throws tcAPIException, tcPolicyFailedException</code>
Password	<code>public void setXelleratePassword(long plUserKey, String psPassword) throws tcAPIException, tcPolicyFailedException</code>
Scheduled Task	<code>public void createScheduleItem(String orcKey, String milKey, Map attributes, long osiRetryCount) throws tcAPIException, tcProcessNotFoundException, tcTaskNotFoundException</code>
Scheduled Task	<code>public void executeEscalationOnTask(tcDataSet poOsiDataSet) throws tcAPIException, tcTaskNotFoundException</code>
User	<code>public void changeFromServiceAccount(long plObjectInstanceForUserKey) throws tcAPIException</code>
User	<code>public void changeToServiceAccount(long plObjectInstanceForUserKey) throws tcAPIException</code>
User	<code>public long createUser(Map phMapping) throws tcAPIException, tcDuplicateUserException, tcAttributeMissingException, tcInvalidAttributeException</code>
User	<code>public void deleteUser(long plUserKey) throws tcAPIException, tcUserNotFoundException</code>
User	<code>public void deleteUsers(long[] paUserKeys) throws tcAPIException, tcUserNotFoundException, tcBulkException</code>
User	<code>public void disableUser(long plUserKey) throws tcAPIException, tcUserNotFoundException</code>
User	<code>public void disableUsers(long[] paUserKeys) throws tcAPIException, tcUserNotFoundException, tcBulkException</code>
User	<code>public void enableUser(long plUserKey) throws tcAPIException, tcUserNotFoundException</code>
User	<code>public void enableUsers(long[] paUserKeys) throws tcAPIException, tcUserNotFoundException, tcBulkException</code>
User	<code>public void moveServiceAccount(long plObjectInstanceForUserKey, long plTargetUserKey) throws tcAPIException</code>
User	<code>public void unlockUsers(long[] paUserKeys) throws tcAPIException, tcUserNotFoundException, tcBulkException</code>
User	<code>public void updateUser(tcResultSet poUserResultSet, Map phAttributeList) throws tcAPIException, tcUserNotFoundException, tcStaleDataUpdateException</code>
User	<code>public void updateUser(tcResultSet poUserResultSet, Map phAttributeList, boolean changePassword) throws tcAPIException, tcUserNotFoundException, tcStaleDataUpdateException</code>
Provisioning	<code>public long addProcessTaskInstance(long plTaskKey, long plOrcKey) throws tcTaskNotFoundException, tcAPIException</code>
Provisioning	<code>public void reassignTasksToGroup(long[] taskInstanceKeys, byte[][] taskInstanceRowvers, long groupKey) throws tcAPIException, tcGroupNotFoundException, tcTaskNotFoundException, tcStaleDataUpdateException, tcBulkException</code>

**Table 2–6 (Cont.) Modified APIs to Capture the reason and reasonkey Data Items As Part of the Audit Engine Enhancements**

Operation	Description
Provisioning	<code>public void reassignTasksToGroup(long[] taskInstanceKeys, long groupKey) throws tcAPIException, tcGroupNotFoundException, tcTaskNotFoundException, tcBulkException</code>
Provisioning	<code>public void reassignTasksToUser(long[] taskInstanceKeys, byte[][] taskInstanceRowvers, long userKey) throws tcAPIException, tcUserNotFoundException, tcTaskNotFoundException, tcStaleDataUpdateException, tcBulkException</code>
Provisioning	<code>public void reassignTasksToUser(long[] taskInstanceKeys, long userKey) throws tcAPIException, tcUserNotFoundException, tcTaskNotFoundException, tcBulkException</code>
Provisioning	<code>public String retryTask(long plTaskInstanceKey) throws tcTaskNotFoundException, tcAPIException</code>
Provisioning	<code>public Map retryTasks(long[] taskInstanceKeys) throws tcTaskNotFoundException, tcBulkException, tcAPIException</code>
Provisioning	<code>public void setTasksCompletedManually(long[] taskInstanceKeys) throws tcTaskNotFoundException, tcBulkException, tcAPIException</code>
Provisioning	<code>public void updateTask(long taskInstanceKey, byte[] taskInstanceRowVer, Map phAttributeList) throws tcTaskNotFoundException, tcAPIException, tcAwaitingObjectDataCompletionException, tcAwaitingApprovalDataCompletionException, tcStaleDataUpdateException</code>
Provisioning	<code>public void updateTask(long plTaskInstanceKey, Map phAttributeList) throws tcTaskNotFoundException, tcAPIException, tcAwaitingObjectDataCompletionException, tcAwaitingApprovalDataCompletionException</code>
Request	<code>public void reassignApprovalTasksToGroup(long[] taskInstanceKeys, long groupKey) throws tcAPIException, tcGroupNotFoundException, tcTaskNotFoundException, tcBulkException</code>
Request	<code>public void reassignApprovalTasksToUser(long[] taskInstanceKeys, long userKey) throws tcAPIException, tcUserNotFoundException, tcTaskNotFoundException, tcBulkException</code>
Request	<code>public void requestMoreInfoFromUser(long plRequestKey, long plUserKey) throws tcAPIException, tcInvalidResponseException, tcRequestApprovedException</code>
Request	<code>public void requestMoreInfoFromUserForResource(long plRequestKey, long plUserKey, long plObjectKey) throws tcAPIException, tcInvalidResponseException, tcRequestApprovedException</code>
Request	<code>public void requestMoreInfoFromUserWithComment(long plRequestKey, long plUserKey, String psComment) throws tcAPIException, tcInvalidResponseException, tcRequestApprovedException</code>
Request	<code>public void requestMoreInfoFromUserWithCommentForResource(long plRequestKey, long plUserKey, long plObjectKey, String psComment) throws tcAPIException, tcInvalidResponseException, tcRequestApprovedException</code>
Request	<code>public void setRequestResponse(long plRequestKey, long plUserKey, String psResponse) throws tcAPIException, tcInvalidResponseException, tcAwaitingObjectDataCompletionException, tcAwaitingApprovalDataCompletionException</code>

**Table 2–6 (Cont.) Modified APIs to Capture the reason and reasonkey Data Items As Part of the Audit Engine Enhancements**

Operation	Description
Request	<code>public void setResourceResponse(long plUserKey, long plObjectInstanceKey, String psResponse) throws tcAPIException, tcInvalidResponseException</code>



---



---

## Metadata Column Codes

Metadata Column Codes are used during interactions with the Oracle Identity Manager APIs to provide information. These are used to get relevant values for the columns of the `tcResultSet` object returned by many APIs.

The Metadata Column Code used by the APIs is the same physical column name for all user defined fields in the System Form, for example, `UD_EXCH_USERID`, and all fields in the User Defined Forms created by using the Form Designer.

See "[Mapping Information for the Metadata Column Code](#)" on page A-2 for mappings between physical column names and the Metadata Column Codes.

### Extracting the Metadata Column Code

To extract the latest Metadata Column Codes, use the following query statement:

```
SELECT lku_field, lku_type_string_key FROM lku WHERE lku_type='f' ORDER BY
lku_field;
```

You can expect output similar to the following extract:

```
LKU_FIELD
-----
LKU_TYPE_STRING_KEY
-----
AAD_CREATE
Organizations-Groups.Creation Date

AAD_CREATEBY
Organizations-Groups.Create d By

AAD_DATA_LEVEL
Organizations-Groups.System Level

LKU_FIELD
-----
LKU_TYPE_STRING_KEY
-----
AAD_DELETE
Organizations-Groups.Delete Permission

AAD_NOTE
Organizations-Groups.Note

AAD_ROWVER
Organizations-Groups.Row Version
...
```

...

...

## Mapping Information for the Metadata Column Code

Table A-1 displays the mapping between the physical column names and Metadata Column Codes.

**Table A-1 Metadata Column Code Mapping Information**

Physical Column Name	Metadata Column Code
AAD_CREATE	Organizations-Groups.Creation Date
AAD_CREATEBY	Organizations-Groups.Created By
AAD_DATA_LEVEL	Organizations-Groups.System Level
AAD_DELETE	Organizations-Groups.Delete Permission
AAD_NOTE	Organizations-Groups.Note
AAD_ROWVER	Organizations-Groups.Row Version
AAD_UPDATE	Organizations-Groups.Update Date
AAD_UPDATEBY	Organizations-Groups.Updated By
AAD_WRITE	Organizations-Groups.Write Access
AAP_CREATE	Organizations.Field.Creation Date
AAP_CREATEBY	Organizations.Field.Created By
AAP_DATA_LEVEL	Organizations.Field.System Level
AAP_KEY	Organizations.Field.Key
AAP_NOTE	Organizations.Field.Note
AAP_ROWVER	Organizations.Field.Row Version
AAP_UPDATE	Organizations.Field.Update Date
AAP_UPDATEBY	Organizations.Field.Updated By
AAP_VALUE	Organizations.Field.Parameter Value
ACP_CREATE	Organizations-Resource Objects.Creation Date
ACP_CREATEBY	Organizations-Resource Objects.Created By
ACP_DATA_LEVEL	Organizations-Resource Objects.System Level
ACP_NOTE	Organizations-Resource Objects.Note
ACP_ROWVER	Organizations-Resource Objects.Row Version
ACP_SELF_SERVICABLE	Organizations-Resource Objects.Self Serviceable
ACP_UPDATE	Organizations-Resource Objects.Update Date
ACP_UPDATEBY	Organizations-Resource Objects.Updated By
ACTIVE_SDL_LABEL	Structure Utility.Structure Utility Version Label.Active Version Label
ACT_CREATE	Organizations.Creation Date
ACT_CREATEBY	Organizations.Created By

**Table A-1 (Cont.) Metadata Column Code Mapping Information**

<b>Physical Column Name</b>	<b>Metadata Column Code</b>
ACT_CUST_TYPE	Organizations.Type
ACT_DATA_LEVEL	Organizations.System Level
ACT_DISABLED	Organizations.Disabled
ACT_KEY	Organizations.Key
ACT_NAME	Organizations.Organization Name
ACT_NOTE	Organizations.Note
ACT_PARENT	Organizations.Parent Name
ACT_ROWVER	Organizations.Row Version
ACT_STATUS	Organizations.Status
ACT_UPDATE	Organizations.Update Date
ACT_UPDATEBY	Organizations.Updated By
ADJ_PARENT_KEY	Adapter Factory.Adapter Tasks.Parent Key
ADJ_CREATE	Adapter Factory.Adapter Tasks.Creation Date
ADJ_CREATEBY	Adapter Factory.Adapter Tasks.Created By
ADJ_DATA_LEVEL	Adapter Factory.Adapter Tasks.System Level
ADJ_METHOD	Adapter Factory.Adapter Tasks.Method
ADJ_NOTE	Adapter Factory.Adapter Tasks.Note
ADJ_ROWVER	Adapter Factory.Adapter Tasks.Row Version
ADJ_API_NAME	Adapter Factory.Adapter Tasks.API Name
ADJ_CONSTRUCTOR	Adapter Factory.Adapter Tasks.Constructor
ADJ_INST_NAME	Adapter Factory.Adapter Tasks.Instant Name
ADJ_JAR_FILE	Adapter Factory.Adapter Tasks.Jar File
ADJ_METHOD_DISPLAY	Adapter Factory.Adapter Tasks.Method Display
ADJ_PERSIST	Adapter Factory.Adapter Tasks.Persist
ADJ_STATIC	Adapter Factory.Adapter Tasks.static
ADJ_UPDATE	Adapter Factory.Adapter Tasks.Update Date
ADJ_UPDATEBY	Adapter Factory.Adapter Tasks.Updated By
ADP_DATA_LEVEL	Adapter Factory.System Level
ADP_NOTE	Adapter Factory.Note
ADPROWVER	Adapter Factory.Row Version
ADP_BUILD	Adapter Factory.Build
ADP_CLASS	Adapter Factory.Adapter class
ADP_CREATE	Adapter Factory.Creation Date
ADP_CREATEBY	Adapter Factory.Created By
ADP_DISABLED	Adapter Factory.Disabled
ADP_DISCRIPTION	Adapter Factory.Discription
ADP_KEY	Adapter Factory. Key

**Table A-1 (Cont.) Metadata Column Code Mapping Information**

<b>Physical Column Name</b>	<b>Metadata Column Code</b>
ADP_NAME	Adapter Factory.Name
ADP_STANDALONE	Adapter Factory.Standalone
ADP_STATUS	Adapter Factory.Status
ADP_STATUS_INFO	Adapter Factory.Status Info
ADP_TYPE	Adapter Factory.Type
ADP_UPDATE	Adapter Factory.Update Date
ADP_UPDATEBY	Adapter Factory.Updated By
ADT_CREATE	Adapter Factory.Adapter Task.Creation Date
ADT_CREATEBY	Adapter Factory.Adapter Task.Created By
ADT_DATA_LEVEL	Adapter Factory.Adapter Task.System Level
ADT_KEY	Adapter Factory.Adapter Task.Key
ADT_NOTE	Adapter Factory.Adapter Task.Note
ADT_ROWVER	Adapter Factory.Adapter Task.Row Version
ADT_UPDATE	Adapter Factory.Adapter Task.Update Date
ADT_UPDATEBY	Adapter Factory.Adapter Task.Updated By
ADT_NAME	Adapter Factory.Adapter Task.Name
ADT_PARENT_KEY	Adapter Factory.Adapter Task.Parent Key
ADT_SEQUENCE	Adapter Factory.Adapter Task.Sequence
ADT_TYPE	Adapter Factory.Adapter Task.Type
ADV_CREATE	Adapter Factory.Adapter Variables.Creation Date
ADV_CREATEBY	Adapter Factory.Adapter Variables.Created By
ADV_DATA_LEVEL	Adapter Factory.Adapter Variables.System Level
ADV_NOTE	Adapter Factory.Adapter Variables.Note
ADV_ROWVER	Adapter Factory.Adapter Variables.Row Version
ADV_UPDATE	Adapter Factory.Adapter Variables.Update Date
ADV_UPDATEBY	Adapter Factory.Adapter Variables.Updated By
ADV_DATA_TYPE	Adapter Factory.Adapter Variables.Type
ADV_DESC	Adapter Factory.Adapter Variables.Description
ADV_DISPLAY_VALUE	Adapter Factory.Adapter Variables.Display Value
ADV_FIELD_LENGTH	Adapter Factory.Adapter Variables.Field Length
ADV_FINAL	Adapter Factory.Adapter Variables.Final
ADV_KEY	Adapter Factory.Adapter Variables.Key
ADV_MAP_QUALIFIER	Adapter Factory.Adapter Variables.Map Qualifier
ADV_MAP_TO	Adapter Factory.Adapter Variables.Map To



**Table A-1 (Cont.) Metadata Column Code Mapping Information**

<b>Physical Column Name</b>	<b>Metadata Column Code</b>
ADV_MAP_VALUE	Adapter Factory.Adapter Variables.Map Value
ADV_NAME	Adapter Factory.Adapter Variables.Name
AOA_CREATE	Adapter Factory.Adapter Tasks.Open Adapter.Creation Date
AOA_CREATEBY	Adapter Factory.Adapter Tasks.Open Adapter.Created By
AOA_DATA_LEVEL	Adapter Factory.Adapter Tasks.Open Adapter.System Level
AOA_NOTE	Adapter Factory.Adapter Tasks.Open Adapter.Note
AOA_ROWVER	Adapter Factory.Adapter Tasks.Open Adapter.Row Version
AOA_UPDATE	Adapter Factory.Adapter Tasks.Open Adapter.Update Date
AOA_UPDATEBY	Adapter Factory.Adapter Tasks.Open Adapter.Updated By
AOA_FILE	Adapter Factory.Adapter Tasks.Open Adapter.File
AOA_FILE_NAME	Adapter Factory.Adapter Tasks.Open Adapter.File Name
AOA_KEY	Adapter Factory.Adapter Tasks.Open Adapter.Key
ASSIGNEDTOTYPE	Process Instance.Task Information.Assigned To Type
ASSIGNEE_FIRST_NAME	Process Instance.Task Information.Assignee First Name
ASSIGNEE_LAST_NAME	Process Instance.Task Information.Assignee Last Name
ASSIGNEE_USER_KEY	Process Instance.Task Information.Assignee User Key
ASSIGNEE_USER_LOGIN	Process Instance.Task Information.Assignee User ID
Acs_default	Organizations- IT Resource.Default
Adj_key	Adapter Factory.Adapter Tasks.Key
CHILD_SDK_NAME	Structure Utility.Child Tables.Child Table
CHILD_SVR	IT Resources.Remote Manager Name
DEP_CREATE	Process Definition.Tasks. Task Dependency.Creation Date
DEP_CREATEBY	Process Definition.Tasks. Task Dependency.Created By
DEP_DATA_LEVEL	Process Definition.Tasks. Task Dependency.System Level
DEP_KEY	Process Definition.Tasks. Task Dependency.Key
DEP_NOTE	Process Definition.Tasks. Task Dependency.Note

**Table A-1 (Cont.) Metadata Column Code Mapping Information**

<b>Physical Column Name</b>	<b>Metadata Column Code</b>
DEP_ROWVER	Process Definition.Tasks. Task Dependency.Row Version
DEP_UPDATE	Process Definition.Tasks. Task Dependency.Update Date
DEP_UPDATEBY	Process Definition.Tasks. Task Dependency.Updated By
DOB_CREATE	Data Object Manager.Creation Date
DOB_CREATEBY	Data Object Manager.Created By
DOB_DATA_LEVEL	Data Object Manager.System Level
DOB_KEY	Data Object Manager.key
DOB_NAME	Data Object Manager.Data Object
DOB_NOTE	Data Object Manager.Note
DOB_ROWVER	Data Object Manager.Row Version
DOB_UPDATE	Data Object Manager.Update Date
DOB_UPDATEBY	Data Object Manager.Updated By
DVT_CREATE	Data Object Manager-Event Handler Manager.Creation Date
DVT_CREATEBY	Data Object Manager-Event Handler Manager.Created By
DVT_CRITERIA	Data Object Manager-Event handler Manager.Criteria
DVT_DATA_LEVEL	Data Object Manager-Event Handler Manager.System Level
DVT_MAP_STATUS	Data Object Manager-Event Handler Manager.Mapping Status
DVT_NOTE	Data Object Manager-Event Handler Manager.Note
DVT_POST_DELETE_SEQUENC E	Data Object Manager-Event Handler Manager.Post-Delete Seq
DVT_POST_INSERT_SEQUENC E	Data Object Manager-Event Handler Manager.Post-Insert Seq
DVT_POST_UPDATE_SEQUENC E	Data Object Manager-Event Handler Manager.Post-Update Seq
DVT_PRE_DELETE_SEQUENC E	Data Object Manager-Event Handler Manager.Pre-Delete Seq
DVT_PRE_INSERT_SEQUENC E	Data Object Manager-Event Handler Manager.Pre-Insert Seq
DVT_PRE_UPDATE_SEQUENC E	Data Object Manager-Event Handler Manager.Pre-Update Seq
DVT_ROWVER	Data Object Manager-Event Handler Manager.Row Version
DVT_UPDATE	Data Object Manager-Event Handler Manager.Update Date

**Table A-1 (Cont.) Metadata Column Code Mapping Information**

<b>Physical Column Name</b>	<b>Metadata Column Code</b>
DVT_UPDATEBY	Data Object Manager-Event Handler Manager.Updated By
EMD_BODY	Email Definition.Body
EMD_CREATE	Email Definition.Creation Date
EMD_CREATEBY	Email Definition.Created By
EMD_DATA_LEVEL	Email Definition.System Level
EMD_FROM_TYPE	Email Definition.From Type
EMD_KEY	Email Definition.Key
EMD_NAME	Email Definition.Name
EMD_NOTE	Email Definition.Note
EMD_ROWVER	Email Definition.Row Version
EMD_STATUS	Email Definition.Status
EMD_SUBJECT	Email Definition.Subject
EMD_TYPE	Email Definition.Type
EMD_UPDATE	Email Definition.Update Date
EMD_UPDATEBY	Email Definition.Updated By
ERR_ACTION	Error Message Definition.Action
ERR_CODE	Error Message Definition.Code
ERR_COUNT	Error Message Definition.Count
ERR_CREATE	Error Message Definition.Creation Date
ERR_CREATEBY	Error Message Definition.Created By
ERR_DATA_LEVEL	Error Message Definition.System Level
ERR_DESC	Error Message Definition.Description
ERR_HELP_URL	Error Message Definition.Help URL
ERR_KEY	Error Message Definition.Key
ERR_LAST_OCCURANCE	Error Message Definition.Last Occurrence
ERR_NOTE	Error Message Definition.Note
ERR_REMEDY	Error Message Definition.Remedy
ERR_ROWVER	Error Message Definition.Row Version
ERR_SEVERITY	Error Message Definition.Severity
ERR_UPDATE	Error Message Definition.Update Date
ERR_UPDATEBY	Error Message Definition.Updated By
EVT_CREATE	Event Handler Manager.Creation Date
EVT_CREATEBY	Event Handler Manager.Created By
EVT_DATA_LEVEL	Event Handler Manager.System Level
EVT_KEY	Event Handler Manager.Key
EVT_NAME	Event Handler Manager.Event Handler Name

**Table A-1 (Cont.) Metadata Column Code Mapping Information**

<b>Physical Column Name</b>	<b>Metadata Column Code</b>
EVT_NOTE	Event Handler Manager.Note
EVT_PACKAGE	Event Handler Manager.Package
EVT_POST_DELETE	Event Handler Manager.Post-Delete
EVT_POST_INSERT	Event Handler Manager.Post-Insert
EVT_POST_UPDATE	Event Handler Manager.Post-Update
EVT_PRE_DELETE	Event Handler Manager.Pre-Delete
EVT_PRE_INSERT	Event Handler Manager.Pre-Insert
EVT_PRE_UPDATE	Event Handler Manager.Pre-Update
EVT_ROWVER	Event Handler Manager.Row Version
EVT_UPDATE	Event Handler Manager.Update Date
EVT_UPDATEBY	Event Handler Manager.Updated By
FUG_CREATE	Structure Utility.Administrators.Creation Date
FUG_CREATEBY	Structure Utility.Administrators.Created By
FUG_DATA_LEVEL	Structure Utility.Administrators.System Level
FUG_DELETE	Structure Utility.Administrators.Delete
FUG_NOTE	Structure Utility.Administrators.Note
FUG_ROWVER	Structure Utility.Administrators.Row Version
FUG_UPDATE	Structure Utility.Administrators.Update Date
FUG_UPDATEBY	Structure Utility.Administrators.Updated By
FUG_WRITE	Structure Utility.Administrators.Write
GPG_CREATE	Groups-User Sub Groups.Creation Date
GPG_CREATEBY	Groups-User Sub Groups.Created By
GPG_DATA_LEVEL	Groups-User Sub Groups.System Level
GPG_NOTE	Groups-User Sub Groups.Note
GPG_PRIORITY	Groups-User Sub Groups.Priority
GPG_ROWVER	Groups-User Sub Groups.Row Version
GPG_UPDATE	Groups-User Sub Groups.Update Date
GPG_UPDATEBY	Groups-User Sub Groups.Updated By
GPP_CREATE	Groups-Group Ownership.Creation Date
GPP_CREATEBY	Groups-Group Ownership.Created By
GPP_DATA_LEVEL	Groups-Group Ownership.System Level
GPP_DELETE	Groups-Group Ownership.Delete
GPP_NOTE	Groups-Group Ownership.Note
GPP_ROWVER	Groups-Group Ownership.Row Version
GPP_UPDATE	Groups-Group Ownership.Update Date
GPP_UPDATEBY	Groups-Group Ownership.Updated By

**Table A-1 (Cont.) Metadata Column Code Mapping Information**

<b>Physical Column Name</b>	<b>Metadata Column Code</b>
GPP_WRITE	Groups-Group Ownership.Write
GPY_NOTE	System Configuration-Groups.Note
GPY_ROWVER	System Configuration-Groups.Row Version
GPY_CREATE	System Configuration-Groups.Creation Date
GPY_CREATEBY	System Configuration-Groups.Created By
GPY_DATA_LEVEL	System Configuration-Groups.System Level
GPY_UPDATE	System Configuration-Groups.Update Date
GPY_UPDATEBY	System Configuration-Groups.Updated By
LATEST_SDL_LABEL	Structure Utility.Structure Utility Version Label.Latest Version Label
LKU_CREATE	Lookup Definition.Creation Date
LKU_CREATEBY	Lookup Definition.Created By
LKU_DATA_LEVEL	Lookup Definition.System Level
LKU_FIELD	Lookup Definition.Field
LKU_KEY	Lookup Definition.Key
LKU_LOOKUP_KEY	Lookup Definition.Lookup Key
LKU_NOTE	Lookup Definition.Note
LKU_REQUIRED	Lookup Definition.Required
LKU_ROWVER	Lookup Definition.Row Version
LKU_TYPE	Lookup Definition.Type
LKU_TYPE_GROUP	Lookup Definition.Group
LKU_TYPE_STRING_KEY	Lookup Definition.Code
LKU_UPDATE	Lookup Definition.Update Date
LKU_UPDATEBY	Lookup Definition.Updated By
LKV_COUNTRY	Lookup Definition.Lookup Code Information.Country
LKV_CREATE	Lookup Definition.Lookup Code Information.Creation Date
LKV_CREATEBY	Lookup Definition.Lookup Code Information.Created By
LKV_DATA_LEVEL	Lookup Definition.Lookup Code Information.System Level
LKV_DECODED	Lookup Definition.Lookup Code Information.Decode
LKV_DISABLED	Lookup Definition.Lookup Code Information.Disabled
LKV_ENCODED	Lookup Definition.Lookup Code Information.Code Key
LKV_KEY	Lookup Definition.Lookup Code Information.Key
LKV_LANGUAGE	Lookup Definition.Lookup Code Information.Language

**Table A-1 (Cont.) Metadata Column Code Mapping Information**

<b>Physical Column Name</b>	<b>Metadata Column Code</b>
LKV_NOTE	Lookup Definition.Lookup Code Information.Note
LKV_ROWVER	Lookup Definition.Lookup Code Information.Row Version
LKV_UPDATE	Lookup Definition.Lookup Code Information.Update Date
LKV_UPDATEBY	Lookup Definition.Lookup Code Information.Updated By
LKV_VARIANT	Lookup Definition.Lookup Code Information.Variant
LOC_ADDRESS_1	Locations.Street/P.O.Box
LOC_ADDRESS_2	Locations.Address 2
LOC_CITY	Locations.City
LOC_COUNTRY	Locations.Country
LOC_CREATE	Locations.Creation Date
LOC_CREATEBY	Locations.Created By
LOC_DATA_LEVEL	Locations.System Level
LOC_INTL_STATE	Locations.Province
LOC_KEY	Locations.Key
LOC_NAME	Locations.Location Name
LOC_NOTE	Locations.Note
LOC_POSTAL_CODE	Locations.Postal Code
LOC_REGION	Locations.Region
LOC_ROWVER	Locations.Row Version
LOC_STATE	Locations.State
LOC_UPDATE	Locations.Update Date
LOC_UPDATEBY	Locations.Updated By
LOC_ZIP	Locations.Zip
LOC_ZIP4	Locations.Zip + 4 Code
MAV_CREATE	Process Definition.Tasks.Integration.Adapter Variables.Creation Date
MAV_CREATEBY	Process Definition.Tasks.Integration.Adapter Variables.Created By
MAV_DATA_LEVEL	Process Definition.Tasks.Integration.Adapter Variables.System Level
MAV_DISPLAY_VALUE	Process Definition.Tasks.Integration.Adapter Variables.Displayed Value
MAV_FIELD_LENGTH	Process Definition.Tasks.Integration.Adapter Variables.Field Length
MAV_MAP_QUALIFIER	Process Definition.Tasks.Integration.Adapter Variables.Qualifier

**Table A-1 (Cont.) Metadata Column Code Mapping Information**

<b>Physical Column Name</b>	<b>Metadata Column Code</b>
MAV_MAP_TO	Process Definition.Tasks.Integration.Adapter Variables.Map to
MAV_MAP_VALUE	Process Definition.Tasks.Integration.Adapter Variables.Mapped Value
MAV_NOTE	Process Definition.Tasks.Integration.Adapter Variables.Note
MAV_ROWVER	Process Definition.Tasks.Integration.Adapter Variables.Row Version
MAV_UPDATE	Process Definition.Tasks.Integration.Adapter Variables.Update Date
MAV_UPDATEBY	Process Definition.Tasks.Integration.Adapter Variables.Updated By
MEMBERPRIORITY	Groups.Member Priority
MIL_APP_EFFECT	Process Definition.Tasks.Task Effect
MIL_ASSIGN_TO_MANAGER	Process Definition.Tasks.Assign To User Manager
MIL_CANCEL_WHILE_PENDING	Process Definition.Tasks.Allow Cancellation While Pending
MIL_COMP_ON_REC	Process Definition.Tasks.Complete on Recovery
MIL_CONDITIONAL	Process Definition.Tasks.Conditional
MIL_CONSTANT	Process Definition.Tasks.Constant Duration
MIL_CREATE	Process Definition.Tasks.Creation Date
MIL_CREATE BY	Process Definition.Tasks.Created By
MIL_CREATE_MULTIPLE	Process Definition.Tasks.Allow Multiple Instances
MIL_DATALABEL	Process Definition.Tasks.Milestone Datalabel
MIL_DATA_LEVEL	Process Definition.Tasks.System Level
MIL_DAY	Process Definition.Tasks.Days
MIL_DELETE_FLAG	Process Definition.Tasks.Milestone Delete Flag
MIL_DEPENDENCY	Process Definition.Tasks.Milestone Dependency
MIL_DESCRIPTION	Process Definition.Tasks.Task Description
MIL_DISABLE_MANUAL_INSERT	Process Definition.Tasks.Disable Manual Insert
MIL_HOUR	Process Definition.Tasks.Hours
MIL_KEY	Process Definition.Tasks.Key
MIL_MAP_STATUS	Process Definition.Tasks.Milestone Mapping Status
MIL_MINUTE	Process Definition.Tasks.Minutes
MIL_NAME	Process Definition.Tasks.Task Name
MIL_NOTE	Process Definition.Tasks.Note

**Table A-1 (Cont.) Metadata Column Code Mapping Information**

<b>Physical Column Name</b>	<b>Metadata Column Code</b>
MIL_REQUIRED_COMPLETE	Process Definition.Tasks.Required For Completion
MIL_ROWVER	Process Definition.Tasks.Row Version
MIL_SEC	Process Definition.Tasks.Second Duration
MIL_SEQUENCE	Process Definition.Tasks.Milestone Sequence
MIL_SEQ_INTERVAL	Process Definition.Tasks.Milestone Sequence Interval
MIL_UPDATE	Process Definition.Tasks.Update Date
MIL_UPDATEBY	Process Definition.Tasks.Updated By
MSG_CREATE	Status-Groups-Milestone-Process.Creation Date
MSG_CREATEBY	Status-Groups-Milestone-Process.Created By
MSG_DATA_LEVEL	Status-Groups-Milestone-Process.System Level
MSG_NOTE	Status-Groups-Milestones-Process.Note
MSG_ROWVER	Status-Groups-Milestone-Process.Row Version
MSG_UPDATE	Status-Groups-Milestone-Process.Update Date
MSG_UPDATEBY	Status-Groups-Milestone-Process.Updated By
MST_CREATE	Status-Process Definition.Task-Object.Object Status.Creation Date
MST_CREATEBY	Status-Process Definition.Task-Object.Object Status.Created By
MST_DATA_LEVEL	Status-Process Definition.Task-Object.Object Status.System Level
MST_NOTE	Status-Process Definition.Task-Object.Object Status.Note
MST_ROWVER	Status-Process Definition.Task-Object.Object Status.Row Version
MST_UPDATEBY	Status-Process Definition.Task-Object.Object Status.Updated By
MST_UPDATE	Status-Process Definition.Task-Object.Object Status.Update Date
OBA_CREATE	Objects-Ordering Permissions.Creation Date
OBA_CREATEBY	Objects-Ordering Permissions.Created By
OBA_DATA_LEVEL	Objects-Ordering Permissions.System Level
OBA_NOTE	Objects-Ordering Permissions.Note
OBA_PRIORITY	Objects-Ordering Permissions.Priority
OBA_ROWVER	Objects-Ordering Permissions.Row Version
OBA_UPDATE	Objects-Ordering Permissions.Update Date
OBA_UPDATEBY	Objects-Ordering Permissions.Updated By
OBD_CHILD_KEY	Objects.Object Dependencies.Child Key
OBD_CREATE	Objects.Object Dependencies.Creation Date
OBD_CREATEBY	Objects.Object Dependencies.Created By



**Table A-1 (Cont.) Metadata Column Code Mapping Information**

<b>Physical Column Name</b>	<b>Metadata Column Code</b>
OBD_DATA_LEVEL	Objects.Object Dependencies.System Level
OBD_NOTE	Objects.Object Dependencies.Note
OBD_PARENT_KEY	Objects.Object Dependencies.Parent Key
OBD_ROWVER	Objects.Object Dependencies.Row Version
OBD_UPDATE	Objects.Object Dependencies.Update Date
OBD_UPDATEBY	Objects.Object Dependencies.Updated By
OBI_CREATE	Object Instance.Creation Date
OBI_CREATEBY	Object Instance.Created By
OBI_DATA_LEVEL	Object Instance.System Level
OBI_DEP_REQUIRED	Object Instance.Dependent Required
OBI_KEY	Object Instance.Key
OBI_NOTE	Object Instance.Note
OBI_ROWVER	Object Instance.Row Version
OBI_STATUS	Object Instance.Status
OBI_UPDATE	Object Instance.Update Date
OBI_UPDATEBY	Object Instance.Updated By
OBJECTFORMCOUNT	Object Instance.Object Form Entries
OBJECTFORMINSTANCEKEY	Objects.Object Instance Key In Form
OBJECTFORMKEY	Objects.Object Form Key
OBJECTFORMNAME	Objects.Object Form Name
OBJ_ALLOWALL	Objects.Allow All
OBJ_ALLOW_MULTIPLE	Objects.Allow Multiple
OBJ_AUTOLAUNCH	Objects.Auto Launch
OBJ_AUTOSAVE	Objects.Auto Save
OBJ_AUTO_PREPOP	Objects.Auto Prepopulate
OBJ_CREATE	Objects.Creation Date
OBJ_CREATEBY	Objects.Created By
OBJ_DATA_LEVEL	Objects.System Level
OBJ_KEY	Objects.Key
OBJ_NAME	Objects.Name
OBJ_NOTE	Objects.Note
OBJ_OBJADMINONLY	Objects.Admin Only
OBJ_ORDER_FOR	Objects.Order For
OBJ_ROWVER	Objects.Row Version
OBJ_SELF_REQUEST_ALLOWED	Objects.Self Request Allowed
OBJ_TYPE	Objects.Type

**Table A-1 (Cont.) Metadata Column Code Mapping Information**

<b>Physical Column Name</b>	<b>Metadata Column Code</b>
OBJ_UPDATE	Objects.Update Date
OBJ_UPDATEBY	Objects.Updated By
ODF_CREATE	Process Definition.Data Flow.Creation Date
ODF_CREATEBY	Process Definition.Data Flow.Created By
ODF_DATA_LEVEL	Process Definition.Data Flow.System Level
ODF_NOTE	Process Definition.Data Flow.Note
ODF_ROWVER	Process Definition.Data Flow.Row Version
ODF_UPDATEBY	Process Definition.Data Flow.Updated By
ODF_KEY	Process Definition.Data Flow.Key
ODF_OBJ_SDC_KEY	Process Definition.Data Flow.Object.Form Field
ODF_TOS_SDC_KEY	Process Definition.Data Flow.Process.Form Field
ODF_UPDATE	Process Definition.Data Flow.Update Date
ODV_CREATE	Objects-Events.Creation Date
ODV_CREATEBY	Objects-Events.Created By
ODV_DATA_LEVEL	Objects-Events.System Level
ODV_NOTE	Objects-Events.Note
ODV_ROWVER	Objects-Events.Row Version
ODV_UPDATE	Objects-Events.Update Date
ODV_UPDATEBY	Objects-Events.Updated By
OIO_CREATE	Organization-Object Instance-Process Instance.Creation Date
OIO_CREATEBY	Organization-Object Instance-Process Instance.Created By
OIO_DATA_LEVEL	Organization-Object Instance-Process Instance.System Level
OIO_KEY	Organization-Object Instance-Process Instance.Key
OIO_NOTE	Organization-Object Instance-Process Instance.Note
OIO_ROWVER	Organization-Object Instance-Process Instance.Row Version
OIO_SELECTED	Requests.Organization-Object Instance-Process Instance.Selected Instance
OIO_UPDATE	Organization-Object Instance-Process Instance.Update Date
OIO_UPDATEBY	Organization-Object Instance-Process Instance.Updated By
OIU_CREATE	Users-Object Instance For User.Creation Date
OIU_CREATEBY	Users-Object Instance For User.Created By
OIU_DATA_LEVEL	Users-Object Instance For User.System Level

**Table A-1 (Cont.) Metadata Column Code Mapping Information**

<b>Physical Column Name</b>	<b>Metadata Column Code</b>
OIU_KEY	Users-Object Instance For User.Key
OIU_NOTE	Users-Object Instance For User.Note
OIU_ROWVER	Users-Object Instance For User.Row Version
OIU_SELECTED	Requests.Users-Object Instance For User.Selected Instance
OIU_SERVICEACCOUNT	Users-Object Instance For User.Service Account Flag
OIU_UPDATE	Users-Object Instance For User.Update Date
OIU_UPDATEBY	Users-Object Instance For User.Updated By
OOD_CREATE	Organizations.Object Instance For Organization.Dependency.Creation Date
OOD_CREATEBY	Organizations.Object Instance For Organization.Dependency.Created By
OOD_DATA_LEVEL	Organizations.Object Instance For Organization.Dependency.System Level
OOD_NOTE	Organizations.Object Instance For Organization.Dependency.Note
OOD_ROWVER	Organizations.Object Instance For Organization.Dependency.Row Version
OOD_UPDATE	Organizations.Object Instance For Organization.Dependency.Update Date
OOD_UPDATEBY	Organizations.Object Instance For Organization.Dependency.Updated By
ORC_ASSIGNED_TO	Process Instance.Assigned To
ORC_CREATE	Process Instance.Create
ORC_CREATEBY	Process Instance.Created By
ORC_DATA_LEVEL	Process Instance.System Level
ORC_DEPENDS	Process Instance.Depends
ORC_KEY	Process Instance.Key
ORC_NOTE	Process Instance.Note
ORC_ORDERBY_POLICY	Process Instance.Order By Policy
ORC_PACKAGE_INSTANCE_KEY	Process Instance.Package Instance Key
ORC_PARENT_KEY	Process Instance.Parent Key
ORC_REFERENCEKEY	Process Instance.Reference Key
ORC_REQUIRED_COMPLETE	Process Instance.Required Complete
ORC_ROWVER	Process Instance.Row Version
ORC_SERVICEORDER	Process Instance.Service Order
ORC_STATUS	Process Instance.Status
ORC_SUBORDER	Process Instance.Suborder
ORC_SUBTOSKEY	Process Instance.Subprocess Key

**Table A-1 (Cont.) Metadata Column Code Mapping Information**

<b>Physical Column Name</b>	<b>Metadata Column Code</b>
ORC_SUPPCODE	Process Instance.Supplementary Code
ORC_TARGET	Process Instance.Target
ORC_TOS_INSTANCE_KEY	Process Instance.Descriptive Data
ORC_UPDATE	Process Instance.Update Date
ORC_UPDATEBY	Process Instance.Updated By
ORD_ASSIGNED_TO	Orders.Assigned To
ORD_BATCH	Orders.Batch
ORD_CANCEL_CODE	Orders.Cancel Code
ORD_CANCEL_DATE	Orders.Cancel Date
ORD_CARRIER_ORDERNO	Orders.Carrier Order No
ORD_CREATE	Orders.Creation Date
ORD_CREATEBY	Orders.Created By
ORD_CUST_ISSUE	Orders.Cust Issue
ORD_CUST_ORDERNO	Orders.Order No
ORD_CUST_REQUEST	Orders.Date Requested
ORD_DATA_LEVEL	Orders.System Level
ORD_EXPEDITE	Orders.Expedite
ORD_INPUT	Orders.Input
ORD_INPUTBY	Orders.Input By
ORD_KEY	Orders.Key
ORD_LATECODE	Orders.Late Code
ORD_NOTE	Orders.Note
ORD_ORDERID	Orders.Order ID
ORD_PROJECT	Orders.Project
ORD_RECEIVE	Orders.Date Received
ORD_RELORDNO	Orders.Relord No
ORD_ROWVER	Orders.Row Version
ORD_SALES_CHANNEL	Orders.Sales Channel
ORD_SERVORD	Orders.Serve Order
ORD_STATUS	Orders.Status
ORD_SUBORD	Orders.Sub Order
ORD_TRACK	Orders.Track
ORD_TYPE	Orders.Type
ORD_UPDATE	Orders.Update Date
ORD_UPDATEBY	Orders.Updated By
ORF_CREATE	Objects.Reconciliation Fields.Creation Date
ORF_CREATEBY	Objects.Reconciliation Fields.Created By

**Table A-1 (Cont.) Metadata Column Code Mapping Information**

<b>Physical Column Name</b>	<b>Metadata Column Code</b>
ORF_DATA_LEVEL	Objects.Reconciliation Fields.System Level
ORF_FIELDNAME	Objects.Reconciliation Fields.Name
ORF_KEY	Objects.Reconciliation Fields.Key
ORF_NOTE	Objects.Reconciliation Fields.Note
ORF_NULLABLE	Objects.Reconciliation Fields.Nullable
ORF_ROWVER	Objects.Reconciliation Fields.Row Version
ORF_UPDATE	Objects.Reconciliation Fields.Update Date
ORF_UPDATEBY	Objects.Reconciliation Fields.Updated By
ORR_RULE	Objects.Reconciliation Action Rules.Rules
OSI_ASSIGNED_DATE	Process Instance.Task Information.Assigned Date
OSI_ASSIGNED_TO	Process Instance.Task Information.Assigned To
OSI_ASSIGNED_TO_UGP_KEY	Process Instance.Task Information.Assigned To Group Key
OSI_ASSIGNED_TO_USR_KEY	Process Instance.Task Information.Assigned To User Key
OSI_ASSIGN_TYPE	Process Instance.Task Information.Assign Type
OSI_CREATE	Process Instance.Task Information.Creation Date
OSI_CREATEBY	Process Instance.Task Information.Created By
OSI_DATA_LEVEL	Process Instance.Task Information.System Level
OSI_LOG_KEY	Process Instance.Task Information.Log Key
OSI_NOTE	Process Instance.Task Information.Note
OSI_RECOVERY_FOR	Process Instance.Task Information.Recovery Task
OSI_RETRY_FOR	Process Instance.Task Information.Retry Task
OSI_ROWVER	Process Instance.Task Information.Row Version
OSI_UPDATE	Process Instance.Task Information.Update Date
OSI_UPDATEBY	Process Instance.Task Information.Updated By
OST_CREATE	Objects.Object Status.Creation Date
OST_CREATEBY	Objects.Object Status.Created By
OST_DATA_LEVEL	Objects.Object Status.System Level
OST_KEY	Objects.Object Status.Key
OST_LAUNCH_DEPENDENT	Objects.Object Status.Launch Dependent
OST_NOTE	Objects.Object Status.Note
OST_REMOVED	Objects.Object Status.Removed
OST_ROWVER	Objects.Object Status.Row Version
OST_STATUS	Objects.Object Status.Status

**Table A-1 (Cont.) Metadata Column Code Mapping Information**

<b>Physical Column Name</b>	<b>Metadata Column Code</b>
OST_UPDATE	Objects.Object Status.Update Date
OST_UPDATEBY	Objects.Object Status.Updated By
OUD_CREATE	Users.Object Instance For User.Dependency.Creation Date
OUD_CREATEBY	Users.Object Instance For User.Dependency.Created By
OUD_DATA_LEVEL	Users.Object Instance For User.Dependency.System Level
OUD_NOTE	Users.Object Instance For User.Dependency.Note
OUD_ROWVER	Users.Object Instance For User.Dependency.Row Version
OUD_UPDATE	Users.Object Instance For User.Dependency.Update Date
OUD_UPDATEBY	Users.Object Instance For User.Dependency.Updated By
OUG_CREATE	Objects-Groups.Creation Date
OUG_CREATEBY	Objects-Groups.Created By
OUG_DATA_LEVEL	Objects-Groups.System Level
OUG_DELETE	Objects-Groups.Delete
OUG_NOTE	Objects-Groups.Note
OUG_ROWVER	Objects-Groups.Row Version
OUG_UPDATE	Objects-Groups.Update Date
OUG_UPDATEBY	Objects-Groups.Updated By
OUG_WRITE	Objects-Groups.Write
PARENT_KEY	Organizations.Parent Key
PARENT_SDK_NAME	Structure Utility.Child Tables.Parent Table
PCQ_ANSWER	Users.Password Challenge Question.Answer
PCQ_CREATE	Users.Password Challenge Question.Creation Date
PCQ_CREATEBY	Users.Password Challenge Question.Created By
PCQ_DATA_LEVEL	Users.Password Challenge Question.System Level
PCQ_KEY	Users.Password Challenge Question.Key
PCQ_NOTE	Users.Password Challenge Question.Note
PCQ_QUESTION	Users.Password Challenge Question.Question
PCQ_ROWVER	Users.Password Challenge Question.Row Version
PCQ_UPDATE	Users.Password Challenge Question.Update Date
PCQ_UPDATEBY	Users.Password Challenge Question.Updated By
PDF_CREATE	Process Integration.Sub Processes.Set Data Flow.Creation Date

**Table A-1 (Cont.) Metadata Column Code Mapping Information**

<b>Physical Column Name</b>	<b>Metadata Column Code</b>
PDF_CREATEBY	Process Integration.Sub Processes.Set Data Flow.Created By
PDF_DATA_LEVEL	Process Integration.Sub Processes.Set Data Flow.System Level
PDF_KEY	Process Integration.Sub Processes.Set Data Flow.Key
PDF_NOTE	Process Integration.Sub Processes.Set Data Flow.Note
PDF_ROWVER	Process Integration.Sub Processes.Set Data Flow.Row Version
PDF_SINK_DOB	Process Integration.Sub Processes.Set Data Flow.Sink Process Data Object
PDF_SINK_FIELD	Process Integration.Sub Processes.Set Data Flow.Target Process Field
PDF_SINK_HIERARCHY	Process Integration.Sub Processes.Set Data Flow.Target Process Hierarchy String
PDF_SINK_PKG_KEY	Process Integration.Sub Processes.Set Data Flow.Target Process Key
PDF_SOURCE_FIELD	Process Integration.Sub Processes.Set Data Flow.Source Process Field
PDF_SOURCE_HIERARCHY	Process Integration.Sub Processes.Set Data Flow.Source Process Hierarchy String
PDF_SOURCE_PKG_KEY	Process Integration.Sub Processes.Set Data Flow.Source Process Key
PDF_SOURCE_TABLE	Process Integration.Sub Processes.Set Data Flow.Source Process Table
PDF_UPDATE	Process Integration.Sub Processes.Set Data Flow.Update Date
PDF_UPDATEBY	Process Integration.Sub Processes.Set Data Flow.Updated By
PGP_CREATE	Groups-Request Permissions.Create Date
PGP_CREATEBY	Groups-Request Permissions.Created By
PGP_DATA_LEVEL	Groups-Request Permissions.System Level
PGP_NOTE	Groups-Request Permissions.Note
PGP_ROWVER	Groups-Request Permissions.Row Version
PGP_UPDATE	Groups-Request Permissions.Update Date
PGP_UPDATEBY	Groups-Request Permissions.Updated By
PHO_ADDRESS	Phones.Number/Address
PHO_COUNTRY_CODE	Phones.Country Code
PHO_CREATE	Phones.Creation Date
PHO_CREATEBY	Phones.Created By
PHO_DATASET_ATTRIBUTE	Phones.Dataset Attribute
PHO_DATA_LEVEL	Phones.System Level

**Table A-1 (Cont.) Metadata Column Code Mapping Information**

<b>Physical Column Name</b>	<b>Metadata Column Code</b>
PHO_DESCRIPTION	Phones.Description
PHO_EXT	Phones.Extension
PHO_FREQUENCY	Phones.Frequency
PHO_JOB	Phones.Job
PHO_KEY	Phones.Key
PHO_LABEL	Phones.Label
PHO_NOTE	Phones.Note
PHO_ORIGINATOR	Phones.Originator
PHO_PASSWORD	Phones.Password
PHO_PIN	Phones.PIN
PHO_RECEIVE_FILE	Phones.Receive File
PHO_ROWVER	Phones.Row Version
PHO_TYPE	Phones.Type
PHO_UPDATE	Phones.Update Date
PHO_UPDATEBY	Phones.Updated By
PHO_USERNAME	Phones.Username
PKD_CREATE	Process Integration.Sub Processes.Depends On.Creation Date
PKD_CREATEBY	Process Integration.Sub Processes.Depends On.Created By
PKD_DATA_LEVEL	Process Integration.Sub Processes.Depends On.System Level
PKD_KEY	Process Integration.Sub Processes.Depends On.Key
PKD_NOTE	Process Integration.Sub Processes.Depends On.Note
PKD_PREDECESSOR_PKH_KEY	Process Integration.Sub Processes.Depends On.Parent of Process Hierarchy Key
PKD_ROWVER	Process Integration.Sub Processes.Depends On.Row Version
PKD_UPDATE	Process Integration.Sub Processes.Depends On.Update Date
PKD_UPDATEBY	Process Integration.Sub Processes.Depends On.Updated By
PKG_CREATE	Process Definition.Creation Date
PKG_CREATEBY	Process Definition.Created By
PKG_DATA_LEVEL	Process Definition.System Level
PKG_DESCRIPTION	Process Definition.Process Description
PKG_KEY	Process Definition.Key
PKG_NAME	Process Definition.Name
PKG_NOTE	Process Definition.Note



**Table A-1 (Cont.) Metadata Column Code Mapping Information**

<b>Physical Column Name</b>	<b>Metadata Column Code</b>
PKG_OBJ_DEFAULT	Process Definition.Default Process
PKG_PROMO	Process Definition.Process Promo
PKG_ROWVER	Process Definition.Row Version
PKG_SYSTEM	Process Definition.System Process
PKG_TOS_INSTANCE_SRC_FIELD	Process Definition.Pkg Tos Instance Source Field
PKG_TOS_INSTANCE_SRC_HIERARCHY	Process Definition.Pkg Tos Instance Source Hierarchy
PKG_TYPE	Process Definition.Type
PKG_UPDATE	Process Definition.Update Date
PKG_UPDATEBY	Process Definition.Updated By
PKH_CHILD_PKG_KEY	Process Integration.Child Process Key
PKH_CONDITIONAL	Process Integration.Sub Processes.Conditional
PKH_CREATE	Process Integration.Sub Processes.Creation Date
PKH_CREATEBY	Process Integration.Sub Processes.Created By
PKH_DATA_LEVEL	Process Integration.Sub Processes.System Level
PKH_KEY	Process Integration.Key
PKH_NOTE	Process Integration.Sub Processes.Note
PKH_REQUIRED_COMPLETE	Process Integration.Sub Processes.Required Complete
PKH_ROWVER	Process Integration.Sub Processes.Row Version
PKH_SEQUENCE	Process Integration.Sub Processes.Sequence
PKH_UPDATE	Process Integration.Sub Processes.Update Date
PKH_UPDATEBY	Process Integration.Sub Processes.Updated By
POF_FIELD_VALUE	Access Policy.Policy Field Definition.Field Value
POF_CREATE	Access Policy.Policy Field Definition.Creation Date
POF_CREATEBY	Access Policy.Policy Field Definition.Created By
POF_KEY	Access Policy.Policy Field Definition.Key
POF_NOTE	Access Policy.Policy Field Definition.Note
POF_ROWVER	Access Policy.Policy Field Definition.Row Version
POF_DATA_LEVEL	Access Policy.Policy Field Definition.System Level
POF_FIELD_NAME	Access Policy.Policy Field Definition.Field Name
POF_UPDATE	Access Policy.Policy Field Definition.Update Date

**Table A-1 (Cont.) Metadata Column Code Mapping Information**

<b>Physical Column Name</b>	<b>Metadata Column Code</b>
POF_UPDATEBY	Access Policy.Policy Field Definition.Updated By
POG_CREATE	Access Policy-User Groups.Creation Date
POG_CREATEBY	Access Policy-User Groups.Created By
POG_DATA_LEVEL	Access Policy-User Groups.System Level
POG_NOTE	Access Policy-User Groups.Note
POG_ROWVER	Access Policy-User Groups.Row Version
POG_UPDATE	Access Policy-User Groups.Update Date
POG_UPDATEBY	Access Policy-User Groups.Updated By
POL_CREATE	Access Policies.Creation Date
POL_CREATEBY	Access Policies.Created By
POL_DATA_LEVEL	Access Policies.System Level
POL_DESCRIPTION	Access Policies.Description
POL_KEY	Access Policies.Key
POL_NAME	Access Policies.Name
POL_NOTE	Access Policies.Note
POL_PRIORITY	Access Policies.Priority
POL_REQUEST	Access Policies.By Request
POL_RETROFIT_POLICY	Access Policies.Retrofit Flag
POL_ROWVER	Access Policies.Row Version
POL_UPDATE	Access Policies.Update Date
POL_UPDATEBY	Access Policies.Updated By
POP_CREATE	Access Policy-Resource Objects.Creation Date
POP_CREATEBY	Access Policy-Resource Objects.Created By
POP_DATA_LEVEL	Access Policy-Resource Objects.System Level
POP_DENIAL	Access Policy-Resource Objects.Denial
POP_NOTE	Access Policy-Resource Objects.Note
POP_REVOKE_OBJECT	Access Policy-Resource Objects.Revoke Objects
POP_ROWVER	Access Policy-Resource Objects.Row Version
POP_UPDATE	Access Policy-Resource Objects.Update Date
POP_UPDATEBY	Access Policy-Resource Objects.Updated By
PRF_COLUMNNAME	Process Definition.Reconciliation Fields Mappings.ColumnName
PRF_CREATE	Process Definition.Reconciliation Fields Mappings.Creation Date
PRF_CREATEBY	Process Definition.Reconciliation Fields Mappings.Created By
PRF_DATA_LEVEL	Process Definition.Reconciliation Fields Mappings.System Level

**Table A-1 (Cont.) Metadata Column Code Mapping Information**

<b>Physical Column Name</b>	<b>Metadata Column Code</b>
PRF_ISKEY	Process Definition.Reconciliation Fields Mappings.Iskey
PRF_NOTE	Process Definition.Reconciliation Fields Mappings.Note
PRF_ROWVER	Process Definition.Reconciliation Fields Mappings.Row Version
PRF_UPDATE	Process Definition.Reconciliation Fields Mappings.Update Date
PRF_UPDATEBY	Process Definition.Reconciliation Fields Mappings.Updated By
PROCESSFORMCOUNT	Process Instance.Process Form Entries
PROCESSFORMINSTANCEKEY	Process.Process Definition.Process Instance Key In Form
PROCESSFORMKEY	Process.Process Definition.Process Form Key
PROCESSFORMNAME	Process.Process Definition.Process Form Name
PTY_CREATE	System Configuration.Creation Date
PTY_CREATEBY	System Configuration.Created By
PTY_DATA_LEVEL	System Configuration.System Level
PTY_KEY	System Configuration.Key
PTY_KEYWORD	System Configuration.Keyword
PTY_NAME	System Configuration.Name
PTY_NOTE	System Configuration.Note
PTY_ROWVER	System Configuration.Row Version
PTY_RUN_ON	System Configuration.Run On
PTY_SYSTEM	System Configuration.System
PTY_UPDATE	System Configuration.Update Date
PTY_UPDATEBY	System Configuration.Updated By
PTY_VALUE	System Configuration.Value
PUG_CREATE	ProcessDefinition-Groups.Creation Date
PUG_CREATEBY	ProcessDefinition-Groups.Created By
PUG_DATA_LEVEL	ProcessDefinition-Groups.System Level
PUG_DELETE	ProcessDefinition-Groups.Delete
PUG_NOTE	ProcessDefinition-Groups.Note
PUG_ROWVER	ProcessDefinition-Groups.Row Version
PUG_UPDATE	ProcessDefinition-Groups.Update Date
PUG_UPDATEBY	ProcessDefinition-Groups.Updated By
PUG_WRITE	ProcessDefinition-Groups.Write
PWP_CREATE	Password Policies.Policy Process Targets.Creation Date

**Table A-1 (Cont.) Metadata Column Code Mapping Information**

<b>Physical Column Name</b>	<b>Metadata Column Code</b>
PWP_CREATEBY	Password Policies.Policy Process Targets.Created By
PWP_DATA_LEVEL	Password Policies.Policy Process Targets.System Level
PWP_NOTE	Password Policies.Policy Process Targets.Note
PWP_ROWVER	Password Policies.Policy Process Targets.Row Version
PWP_UPDATE	Password Policies.Policy Process Targets.Update Date
PWP_UPDATEBY	Password Policies.Policy Process Targets.Updated By
PWR_CREATE	Password Policies.Creation Date
PWR_CREATEBY	Password Policies.Created By
PWR_DATA_LEVEL	Password Policies.System Level
PWR_DESC	Password Policies.Policy Description
PWR_DICTIONARY_DELIMITER	Password Policies.Password File Delimiter
PWR_DICTIONARY_LOCATION	Password Policies.Password File
PWR_DISALLOW_FNAME	Password Policies.Disallow First Name
PWR_DISALLOW_LNAME	Password Policies.Disallow Last Name
PWR_DISALLOW_USERID	Password Policies.Disallow User ID
PWR_EXPIRES_AFTER	Password Policies.Expires After(Days)
PWR_INVALID_CHARS	Password Policies.Characters Not Allowed
PWR_INVALID_STRINGS	Password Policies.Substrings Not Allowed
PWR_KEY	Password Policies.Key
PWR_MAX_LENGTH	Password Policies.Maximum Length
PWR_MAX_REPEATED	Password Policies.Maximum Repeated Characters
PWR_MAX_SPECIALCHAR	Password Policies.Maximum Special Characters
PWR_MIN_ALPHA	Password Policies.Minimum Alphabet Characters
PWR_MIN_ALPHANUM	Password Policies.Minimum Alphanumeric Characters
PWR_MIN_LENGTH	Password Policies.Minimum Length
PWR_MIN_LOWERCASE	Password Policies.Minimum Lowercase Characters
PWR_MIN_NUMBER	Password Policies.Minimum Numeric Characters
PWR_MIN_SPECIALCHAR	Password Policies.Minimum Special Characters
PWR_MIN_UNIQUE	Password Policies.Minimum Unique Characters
PWR_MIN_UPPERCASE	Password Policies.Minimum Uppercase Characters
PWR_NAME	Password Policies.Policy Name
PWR_NOTE	Password Policies.Note

**Table A-1 (Cont.) Metadata Column Code Mapping Information**

<b>Physical Column Name</b>	<b>Metadata Column Code</b>
PWR_REQD_CHARS	Password Policies.Characters Required
PWR_ROWVER	Password Policies.Row Version
PWR_STARTS_WITH_CHAR	Password Policies.Start With Character
PWR_UPDATE	Password Policies.Update Date
PWR_UPDATEBY	Password Policies.Updated By
PWR_VALID_CHARS	Password Policies.Characters Allowed
PWR_WARN_AFTER	Password Policies.Warn After (Days)
PWT_CREATE	Password Policies.Policy User Targets.Creation Date
PWT_CREATEBY	Password Policies.Policy User Targets.Created By
PWT_DATA_LEVEL	Password Policies.Policy User Targets.System Level
PWT_EMP_TYPE	Password Policies.Policy User Targets.Employee Type
PWT_KEY	Password Policies.Policy User Targets.Key
PWT_NOTE	Password Policies.Policy User Targets.Note
PWT_ROWVER	Password Policies.Policy User Targets.Row Version
PWT_UPDATE	Password Policies.Policy User Targets.Update Date
PWT_UPDATEBY	Password Policies.Policy User Targets.Updated By
PXD_CREATE	Proxy.Creation Date
PXD_CREATEBY	Proxy.Created By
PXD_DATA_LEVEL	Proxy.System Level
PXD_END_DATE	Proxy.End Date
PXD_KEY	Proxy.Key
PXD_NOTE	Proxy.Note
PXD_ORIG_USR_KEY	Proxy.Original User Key
PXD_PROXY_KEY	Proxy.Proxy User Key
PXD_ROWVER	Proxy.Row Version
PXD_START_DATE	Proxy.Start Date
PXD_UPDATE	Proxy.Update Date
PXD_UPDATEBY	Proxy.Updated By
QUE_CREATE	Queues.Creation Date
QUE_CREATEBY	Queues.Created By
QUE_DATA_LEVEL	Queues.System Level
QUE_DESCRIPTION	Queues.Description
QUE_KEY	Queues.Key

**Table A-1 (Cont.) Metadata Column Code Mapping Information**

<b>Physical Column Name</b>	<b>Metadata Column Code</b>
QUE_NAME	Queues.Queue Name
QUE_NOTE	Queues.Note
QUE_PARENT	Queues.Parent Queue Name
QUE_PARENT_KEY	Queues.Parent Queue
QUE_ROWVER	Queues.Row Version
QUE_UPDATE	Queues.Update Date
QUE_UPDATEBY	Queues.Updated By
QUG_CREATE	Queues.Administrators.Creation Date
QUG_CREATEBY	Queues.Administrators.Created By
QUG_DATA_LEVEL	Queues.Administrators.System Level
QUG_DELETE	Queues.Administrators.Delete
QUG_NOTE	Queues.Administrators.Note
QUG_ROWVER	Queues.Administrators.Row Version
QUG_UPDATE	Queues.Administrators.Update Date
QUG_UPDATEBY	Queues.Administrators.Updated By
QUG_WRITE	Queues.Administrators.Write
QUM_CREATE	Queues.Members.Creation Date
QUM_CREATEBY	Queues.Members.Created By
QUM_DATA_LEVEL	Queues.Members.System Level
QUM_DELETE	Queues.Members.Delete
QUM_NOTE	Queues.Members.Note
QUM_ROWVER	Queues.Members.Row Version
QUM_UPDATE	Queues.Members.Update Date
QUM_UPDATEBY	Queues.Members.Updated By
QUM_WRITE	Queues.Members.Write
RCD_CREATE	Reconciliation Manager.Event Data.Creation Date
RCD_CREATEBY	Reconciliation Manager.Event Data.Created By
RCD_DATA_LEVEL	Reconciliation Manager.Event Data.System Level
RCD_NOTE	Reconciliation Manager.Event Data.Note
RCD_ROWVER	Reconciliation Manager.Event Data.Row Version
RCD_UPDATE	Reconciliation Manager.Event Data.Update Date
RCD_UPDATEBY	Reconciliation Manager.Event Data.Updated By
RCD_VALUE	Reconciliation Manager.Event Data.Value
RCE_CREATE	Reconciliation Manager.Creation Date
RCE_CREATEBY	Reconciliation Manager.Created By
RCE_DATA_LEVEL	Reconciliation Manager.System Level

**Table A-1 (Cont.) Metadata Column Code Mapping Information**

<b>Physical Column Name</b>	<b>Metadata Column Code</b>
RCE_KEY	Reconciliation Manager.Key
RCE_LAST_ACTION	Reconciliation Manager.Last Action
RCE_NOTE	Reconciliation Manager.Note
RCE_ROWVER	Reconciliation Manager.Row Version
RCE_STATUS	Reconciliation Manager.Status
RCE_UPDATE	Reconciliation Manager.Update Date
RCE_UPDATEBY	Reconciliation Manager.Updated By
RCH_ACTION	Reconciliation Manager.Event Action History.Action
RCH_CREATE	Reconciliation Manager.Event Action History.Creation Date
RCH_CREATEBY	Reconciliation Manager.Event Action History.Created By
RCH_DATA_LEVEL	Reconciliation Manager.Event Action History.System Level
RCH_KEY	Reconciliation Manager.Event Action History.Key
RCH_NOTE	Reconciliation Manager.Event Action History.Note
RCH_ROWVER	Reconciliation Manager.Event Action History.Row Version
RCH_UPDATE	Reconciliation Manager.Event Action History.Update Date
RCH_UPDATEBY	Reconciliation Manager.Event Action History.Updated By
REQUESTADMIN	RequestAdmin.User ID
REQUESTADMIN_FIRST_NAME	RequestAdmin.First Name
REQUESTADMIN_KEY	RequestAdmin.Key
REQUESTADMIN_LAST_NAME	RequestAdmin.Last Name
REQUESTER	Requester.User ID
REQUESTER_FIRST_NAME	Requester.First Name
REQUESTER_LAST_NAME	Requester.Last Name
REQ_CONSOLIDATED_DATA_VALUE	Requests.Consolidated Data Value
REQ_CREATE	Requests.Creation Date
REQ_CREATEBY	Requests.Created By
REQ_DATA_LEVEL	Requests.System Level
REQ_KEY	Requests.Key
REQ_NAME	Requests.Name
REQ_NOTE	Requests.Note
REQ_NUMBER	Requests.Request ID

**Table A-1 (Cont.) Metadata Column Code Mapping Information**

<b>Physical Column Name</b>	<b>Metadata Column Code</b>
REQ_OBJ_ACTION	Requests.Object Request Type
REQ_PRIORITY	Requests.Request Priority
REQ_PROV_DATE	Requests.Provisioning Executed Date
REQ_PROV_SCHED_DATE	Requests.Provisioning Scheduled Date
REQ_ROWVER	Requests.Row Version
REQ_SCHED_PROV	Requests.Scheduled Provisioning
REQ_TARGET_TYPE	Requests.Target Type
REQ_TYPE	Requests.Type
REQ_UPDATE	Requests.Update Date
REQ_UPDATEBY	Requests.Updated By
REQ_UPDATEBY_FNAME	Requests.Updated By First Name
REQ_UPDATEBY_LNAME	Requests.Updated By Last Name
REQ_UPDATEBY_LOGIN	Requests.Updated By Login
RGM_CREATE	Tasks-Responses.Creation Date
RGM_CREATEBY	Tasks-Responses.Created By
RGM_DATA_LEVEL	Tasks-Responses.System Level
RGM_NOTE	Tasks-Responses.Note
RGM_ROWVER	Tasks-Responses.Row Version
RGM_UPDATE	Tasks-Responses.Update Date
RGM_UPDATEBY	Tasks-Responses.Updated By
RLO_CREATE	External Jar File Directory.Creation Date
RLO_CREATEBY	External Jar File Directory.Created By
RLO_DESC	External Jar File Directory.Description
RLO_KEY	External Jar File Directory.Key
RLO_NOTE	External Jar File Directory.Note
RLO_ROWVER	External Jar File Directory.Row Version
RLO_TAG	External Jar File Directory.Tag
RLO_URL	External Jar File Directory.URL
RLO_DISABLE_DIR	External Jar File Directory.Disable DIR
RLO_DATA_LEVEL	External Jar File Directory.System Level
RLO_UPDATE	External Jar File Directory.Update Date
RLO_UPDATEBY	External Jar File Directory.Updated By
ROP_CREATE	Rule Designer-Object Definition.Creation Date
ROP_CREATEBY	Rule Designer-Object Definition.Created By
ROP_DATA_LEVEL	Rule Designer-Object Definition.System Level
ROP_NOTE	Rule Designer-Object Definition.Note
ROP_PRIORITY	Rule Designer-Object Definition.Priority



**Table A-1 (Cont.) Metadata Column Code Mapping Information**

<b>Physical Column Name</b>	<b>Metadata Column Code</b>
ROP_ROWVER	Rule Designer-Object Definition.Row Version
ROP_TYPE	Rule Designer-Object Definition.Type
ROP_UPDATE	Rule Designer-Object Definition.Update Date
ROP_UPDATEBY	Rule Designer-Object Definition.Updated By
RPW_CREATE	Access Policy-Resource Objects-Rule Designer.Creation Date
RPW_CREATEBY	Access Policy-Resource Objects-Rule Designer.Created By
RPW_DATA_LEVEL	Access Policy-Resource Objects-Rule Designer.System Level
RPW_NOTE	Access Policy-Resource Objects-Rule Designer.Note
RPW_ROWVER	Access Policy-Resource Objects-Rule Designer.Row Version
RPW_UPDATE	Access Policy-Resource Objects-Rule Designer.Update Date
RPW_UPDATEBY	Access Policy-Resource Objects-Rule Designer.Updated By
RPW_PRIORTIY	Access Policy-Resource Objects-Rule Designer.Priority
RQA_CREATE	Requests.Organization Targets.Creation Date
RQA_CREATEBY	Requests.Organization Targets.Created By
RQA_DATA_LEVEL	Requests.Organization Targets.System Level
RQA_NOTE	Requests.Organization Targets.Note
RQA_ROWVER	Requests.Organization Targets.Row Version
RQA_UPDATE	Requests.Organization Targets.Update Date
RQA_UPDATEBY	Requests.Organization Targets.Updated By
RQC_COMMENT	Requests.Comments.Comments
RQC_CREATE	Requests.Comments.Creation Date
RQC_CREATEBY	Requests.Comments.Created By
RQC_CREATEBY_FNAME	Requests.Comments.Created By First Name
RQC_CREATEBY_LNAME	Requests.Comments.Created By Last Name
RQC_CREATEBY_LOGIN	Requests.Comments.Created By Login
RQC_DATA_LEVEL	Requests.Comments.System Level
RQC_KEY	Requests.Comments.Key
RQC_NOTE	Requests.Comments.Note
RQC_ROWVER	Requests.Comments.Row Version
RQC_TYPE	Requests.Comments.Type
RQC_UPDATE	Requests.Comments.Update Date
RQC_UPDATEBY	Requests.Comments.Updated By

**Table A-1 (Cont.) Metadata Column Code Mapping Information**

<b>Physical Column Name</b>	<b>Metadata Column Code</b>
RQD_ATTR_NAME	Registration.Attribute Name
RQD_ATTR_VALUE	Registration.Attribute Value
RQD_CREATE	Registration.Create Date
RQD_CREATEBY	Registration.Created By
RQD_DATA_LEVEL	Registration.System Level
RQD_DISPLAY	Registration.Display
RQD_ENCRYPTED	Registration.Encrypted
RQD_NOTE	Registration.Note
RQD_ROWVER	Registration.Row Version
RQD_UPDATE	Registration.Update Date
RQD_UPDATEBY	Registration.Updated By
RQE_CREATE	Request-Queues.Creation Date
RQE_CREATEBY	Request-Queues.Created By
RQE_DATA_LEVEL	Request-Queues.System Level
RQE_NOTE	Request-Queues.Note
RQE_ROWVER	Request-Queues.Row Version
RQE_UPDATE	Request-Queues.Update Date
RQE_UPDATEBY	Request-Queues.Updated By
RQH_CREATE	Request History.Creation Date
RQH_CREATEBY	Request History.Created By
RQH_DATA_LEVEL	Request History.System Level
RQH_KEY	Request History.Key
RQH_NOTE	Request History.Note
RQH_ROWVER	Request History.Row Version
RQH_STATUS	Request History.Status
RQH_UPDATE	Request History.Update Date
RQH_UPDATEBY	Request History.Updated By
RQO_CREATE	Requests.Request Objects.Creation Date
RQO_CREATEBY	Requests.Request Objects.Created By
RQO_DATA_LEVEL	Requests.Request Objects.System Level
RQO_FILL_IN	Requests.Request Objects.Data Provider
RQO_NOTE	Requests.Request Objects.Note
RQO_ROWVER	Requests.Request Objects.Row Version
RQO_SERVICEACCOUNT	Requests.Request Objects.Service Account Flag
RQO_UPDATE	Requests.Request Objects.Update Date
RQO_UPDATEBY	Requests.Request Objects.Updated By
RQR_MGR_FNAME	Requester.Manager First Name

**Table A-1 (Cont.) Metadata Column Code Mapping Information**

<b>Physical Column Name</b>	<b>Metadata Column Code</b>
RQR_MGR_KEY	Requester.Manager Key
RQR_MGR_LNAME	Requester.Manager Last Name
RQR_MGR_LOGIN	Requester.Manager User ID
RQU_CREATE	Requests.User Targets.Creation Date
RQU_CREATEBY	Requests.User Targets.Created By
RQU_DATA_LEVEL	Requests.User Targets.System Level
RQU_NOTE	Requests.User Targets.Note
RQU_ROWVER	Requests.User Targets.Row Version
RQU_UPDATE	Requests.User Targets.Update Date
RQU_UPDATEBY	Requests.User Targets.Updated By
RRE_CASESENSITIVE	Reconciliation Rules.Rule Element.Case-sensitive
RRE_CHILD_RRL_KEY	Reconciliation Rules.Rule Element.Reconciliation Child User Matching Rules Key
RRE_CREATE	Reconciliation Rules.Rule Element.Creation Date
RRE_CREATEBY	Reconciliation Rules.Rule Element.Created By
RRE_DATA_LEVEL	Reconciliation Rules.Rule Element.System Level
RRE_FIELDNAME	Reconciliation Rules.Rule Element.Field Name
RRE_KEY	Reconciliation Rules.Rule Element.Key
RRE_NOTE	Reconciliation Rules.Rule Element.Note
RRE_SEQUENCE	Reconciliation Rules.Rule Element.Sequence
RRE_UPDATE	Reconciliation Rules.Rule Element.Update Date
RRE_UPDATEBY	Reconciliation Rules.Rule Element.Updated By
RRE_VALID	Reconciliation Rules.Rule Element.Valid
RRL_ACTIVE	Reconciliation Rules.Active
RRL_CREATE	Reconciliation Rules.Creation Date
RRL_CREATEBY	Reconciliation Rules.Created By
RRL_DATA_LEVEL	Reconciliation Rules.System Level
RRL_KEY	Reconciliation Rules.Key
RRL_NAME	Reconciliation Rules.Name
RRL_NOTE	Reconciliation Rules.Note
RRL_OPERATOR	Reconciliation Rules.Operator
RRL_ROWVER	Reconciliation Rules.Row Version
RRL_UPDATE	Reconciliation Rules.Update Date
RRL_UPDATEBY	Reconciliation Rules.Updated By
RRL_VALID	Reconciliation Rules.Valid

**Table A-1 (Cont.) Metadata Column Code Mapping Information**

<b>Physical Column Name</b>	<b>Metadata Column Code</b>
RRT_CREATE	Reconciliation Rules.Property.Creation Date
RRT_CREATEBY	Reconciliation Rules.Property.Created By
RRT_DATA_LEVEL	Reconciliation Rules.Property.System Level
RRT_KEY	Reconciliation Rules.Property.Key
RRT_NAME	Reconciliation Rules.Property.Name
RRT_NOTE	Reconciliation Rules.Property.Note
RRT_ROWVER	Reconciliation Rules.Property.Row Version
RRT_UPDATE	Reconciliation Rules.Property.Update Date
RRT_UPDATEBY	Reconciliation Rules.Property.Updated By
RRT_VALUE	Reconciliation Rules.Property.Value
RSC_UPDATEBY	Process Definition.Tasks.Responses.Updated By
RSC_CREATE	Process Definition.Tasks.Responses.Creation Date
RSC_CREATEBY	Process Definition.Tasks.Responses.Created By
RSC_DATA	Process Definition.Tasks.Responses.Response
RSC_DATA_LEVEL	Process Definition.Tasks.Responses.System Level
RSC_DESC	Process Definition.Tasks.Responses.Description
RSC_KEY	Process Definition.Tasks.Responses.Key
RSC_NOTE	Process Definition.Tasks.Responses.Note
RSC_ROWVER	Process Definition.Tasks.Responses.Row Version
RSC_UPDATE	Process Definition.Tasks.Responses.Update Date
RUE_ATTRIBUTE	Rule Designer.Rule Element.Attribute
RUE_ATTRIBUTE_SOURCE	Rule Designer.Rule Element.Attribute Source
RUE_ATTRIBUTE_SOURCE_SD K_KEY	Rule Designer.Rule Element.User-Defined Form
RUE_CHILD_RUL_KEY	Rule Designer.Rule Element.Child Key
RUE_CREATE	Rule Designer.Rule Element.Creation Date
RUE_CREATEBY	Rule Designer.Rule Element.Created By
RUE_DATA_LEVEL	Rule Designer.Rule Element.System Level
RUE_KEY	Rule Designer.Rule Element.Key
RUE_NOTE	Rule Designer.Rule Element.Note
RUE_OPERATION	Rule Designer.Rule Element.Operation
RUE_ROWVER	Rule Designer.Rule Element.Row Version
RUE_SEQUENCE	Rule Designer.Rule Element.Sequence
RUE_UPDATE	Rule Designer.Rule Element.Update Date

**Table A-1 (Cont.) Metadata Column Code Mapping Information**

<b>Physical Column Name</b>	<b>Metadata Column Code</b>
RUE_UPDATEBY	Rule Designer.Rule Element.Updated By
RUE_VALUE	Rule Designer.Rule Element.Attribute Value
RUG_CREATE	Requests-Groups.Creation Date
RUG_CREATEBY	Requests-Groups.Created By
RUG_DATA_LEVEL	Requests-Groups.System Level
RUG_DELETE	Requests-Groups.Delete
RUG_NOTE	Requests-Groups.Note
RUG_ROWVER	Requests-Groups.Row Version
RUG_UPDATE	Requests-Groups.Update Date
RUG_UPDATEBY	Requests-Groups.Updated By
RUG_WRITE	Requests-Groups.Write
RUL_ALL_OBJECTS	Rule Designer.All Objects
RUL_ALL_PROCESSES	Rule Designer.All Processes
RUL_CREATE	Rule Designer.Creation Date
RUL_CREATEBY	Rule Designer.Created By
RUL_DATA_LEVEL	Rule Designer.System Level
RUL_KEY	Rule Designer.Key
RUL_NAME	Rule Designer.Name
RUL_NOTE	Rule Designer.Description
RUL_OPERATOR	Rule Designer.Operator
RUL_ROWVER	Rule Designer.Row Version
RUL_SUBTYPE	Rule Designer.Sub-Type
RUL_TYPE	Rule Designer.Type
RUL_UPDATE	Rule Designer.Last Update Date
RUL_UPDATEBY	Rule Designer.Updated By
RVM_CREATE	Process Definition.Tasks.Recovery Tasks.Creation Date
RVM_CREATEBY	Process Definition.Tasks.Recovery Tasks.Created By
RVM_DATA_LEVEL	Process Definition.Tasks.Recovery Tasks.System Level
RVM_NOTE	Process Definition.Tasks.Recovery Tasks.Note
RVM_ROWVER	Process Definition.Tasks.Recovery Tasks.Row Version
RVM_UPDATE	Process Definition.Tasks.Recovery Tasks.Update Date
RVM_UPDATEBY	Process Definition.Tasks.Recovery Tasks.Updated By
SCH_ACTION	Process Instance.Task Details.Action

**Table A-1 (Cont.) Metadata Column Code Mapping Information**

<b>Physical Column Name</b>	<b>Metadata Column Code</b>
SCH_ACTUAL_END	Process Instance.Task Details.Actual End Date
SCH_ACTUAL_START	Process Instance.Task Details.Actual Start Date
SCH_CREATE	Process Instance.Task Details.Creation Date
SCH_CREATEBY	Process Instance.Task Details.Created By
SCH_DATA	Process Instance.Task Details.Data
SCH_DATA_LEVEL	Process Instance.Task Details.System level
SCH_INT_KEY	Process Instance.Task Information.Int Key
SCH_KEY	Process Instance.Task Details.Key
SCH_NOTE	Process Instance.Task Details.Note
SCH_PROJ_END	Process Instance.Task Details.Projecting End
SCH_PROJ_START	Process Instance.Task Details.Projecting Start
SCH_REASON	Process Instance.Task Details.Reason
SCH_ROWVER	Process Instance.Task Details.Row Version
SCH_STATUS	Process Instance.Task Details.Status
SCH_TYPE	Process Instance.Task Details.Type
SCH_UPDATE	Process Instance.Task Details.Update Date
SCH_UPDATEBY	Process Instance.Task Details.Updated By
SDC_CREATE	Structure Utility.Additional Columns.Creation Date
SDC_CREATEBY	Structure Utility.Additional Columns.Created By
SDC_DATA_LEVEL	Structure Utility.Additional Columns.System Level
SDC_DEFAULT	Structure Utility.Additional Columns.Default
SDC_DEFAULT_VALUE	Structure Utility.Additional Columns.Default Value
SDC_ENCRYPTED	Structure Utility.Additional Columns.Encrypted
SDC_FIELD_TYPE	Structure Utility.Additional Columns.Field Type
SDC_KEY	Structure Utility.Additional Columns.Key
SDC_LABEL	Structure Utility.Additional Columns.Field Label
SDC_NAME	Structure Utility.Additional Columns.Name
SDC_NOTE	Structure Utility.Additional Columns.Note
SDC_ORDER	Structure Utility.Additional Columns.Order
SDC_PROFILE_ENABLED	Structure Utility.Additional Columns.Profile Enabled
SDC_ROWVER	Structure Utility.Additional Columns.Row Version

**Table A-1 (Cont.) Metadata Column Code Mapping Information**

<b>Physical Column Name</b>	<b>Metadata Column Code</b>
SDC_SQL_LENGTH	Structure Utility.Additional Columns.Length
SDC_UPDATE	Structure Utility.Additional Columns.Update Date
SDC_UPDATEBY	Structure Utility.Additional Columns.Updated By
SDC_VARIANT_TYPE	Structure Utility.Additional Columns.Variant Type
SDC_VERSION	Structure Utility.Additional Columns.Version
SDH_CHILD_KEY	Structure Utility.Child Tables.Child Key
SDH_CHILD_VERSION	Structure Utility.Child Tables.Child Version
SDH_CREATE	Structure Utility.Child Tables.Creation Date
SDH_CREATEBY	Structure Utility.Child Tables.Created By
SDH_DATA_LEVEL	Structure Utility.Child Tables.System Level
SDH_NOTE	Structure Utility.Child Tables.Note
SDH_PARENT_KEY	Structure Utility.Child Tables.Parent Key
SDH_PARENT_VERSION	Structure Utility.Child Tables.Parent Version
SDH_ROWVER	Structure Utility.Child Tables.Row Version
SDH_UPDATE	Structure Utility.Child Tables.Update Date
SDH_UPDATEBY	Structure Utility.Child Tables.Updated By
SDK_ACTIVE_VERSION	Structure Utility.Active Version
SDK_CREATE	Structure Utility.Creation Date
SDK_CREATEBY	Structure Utility.Created By
SDK_DATA_LEVEL	Structure Utility.System Level
SDK_DESCRIPTION	Structure Utility.Form Description
SDK_FORM_DESCRIPTION	Structure Utility.Description
SDK_KEY	Structure Utility.Key
SDK_LATEST_VERSION	Structure Utility.Latest Version
SDK_NAME	Structure Utility.Table Name
SDK_NOTE	Structure Utility.Note
SDK_ORC	Structure Utility.Request Table
SDK_ROWVER	Structure Utility.Row Version
SDK_SCHEMA	Structure Utility.Schema
SDK_TYPE	Structure Utility.Form Type
SDK_UPDATE	Structure Utility.Update Date
SDK_UPDATEBY	Structure Utility.Updated By
SDL_CHILD_VERSION	Structure Utility.Structure Utility Version Label.Child Label
SDL_CREATE	Structure Utility.Structure Utility Version Label.Creation Date

**Table A-1 (Cont.) Metadata Column Code Mapping Information**

<b>Physical Column Name</b>	<b>Metadata Column Code</b>
SDL_CREATEBY	Structure Utility.Structure Utility Version Label.Created By
SDL_DATA_LEVEL	Structure Utility.Structure Utility Version Label.System Level
SDL_KEY	Structure Utility.Structure Utility Version Label.Key
SDL_LABEL	Structure Utility.Structure Utility Version Label.Version Label
SDL_NOTE	Structure Utility.Structure Utility Version Label.Note
SDL_PARENT_VERSION	Structure Utility.Structure Utility Version Label.Parent Label
SDL_ROWVER	Structure Utility.Structure Utility Version Label.Row Version
SDL_UPDATE	Structure Utility.Structure Utility Version Label.Update Date
SDL_UPDATEBY	Structure Utility.Structure Utility Version Label.Updated By
SDP_CREATE	Structure Utility.Additional Columns.Properties.Creation Date
SDP_CREATEBY	Structure Utility.Additional Columns.Properties.Created By
SDP_DATA_LEVEL	Structure Utility.Additional Columns.Properties.System Level
SDP_KEY	Structure Utility.Additional Columns.Properties.Key
SDP_NOTE	Structure Utility.Additional Columns.Properties.Note
SDP_PROPERTY_NAME	Structure Utility.Additional Columns.Properties.Property Name
SDP_PROPERTY_VALUE	Structure Utility.Additional Columns.Properties.Property Value
SDP_ROWVER	Structure Utility.Additional Columns.Properties.Row Version
SDP_UPDATE	Structure Utility.Additional Columns.Properties.Update Date
SDP_UPDATEBY	Structure Utility.Additional Columns.Properties.Updated By
SEL_CREATE	Groups.Object Permissions.Creation Date
SEL_CREATEBY	Groups.Object Permissions.Created By
SEL_DATA_LEVEL	Groups.Object Permissions.System Level
SEL_DELETE_ALLOW	Groups.Object Permissions.Allow Delete
SEL_INSERT_ALLOW	Groups.Object Permissions.Allow Insert
SEL_KEY	Groups.Object Permissions.Key
SEL_NOTE	Groups.Object Permissions.Note



**Table A-1 (Cont.) Metadata Column Code Mapping Information**

<b>Physical Column Name</b>	<b>Metadata Column Code</b>
SEL_ROWVER	Groups.Object Permissions.Row Version
SEL_UPDATE	Groups.Object Permissions.Update Date
SEL_UPDATEBY	Groups.Object Permissions.Updated By
SEL_UPDATE_ALLOW	Groups.Object Permissions.Allow Update
SIT_CLLI	Site.CLLI
SIT_CREATE	Site.Creation Date
SIT_CREATEBY	Site.Created By
SIT_DATA_LEVEL	Site.System Level
SIT_EXT_CABLE_TYP	Site.Ext Cable Type
SIT_EXT_DISTANCE	Site.Ext Distance
SIT_EXT_FLOOR	Site.Ext Floor
SIT_EXT_JACK_PROVD	Site.Ext Jack Provider
SIT_EXT_JACK_TYPE	Site.Ext Jack Type
SIT_EXT_ROOM	Site.Ext Room
SIT_EXT_SHIELDING	Site.Ext Shielding
SIT_EXT_WIRE_ORG	Site.Ext Wire Org
SIT_FLOOR	Site.Site Number
SIT_JACK_PROVIDER	Site.Jack Provider
SIT_JACK_TYPE	Site.Jack Type
SIT_KEY	Site.Key
SIT_NOTE	Site.Note
SIT_ROOM	Site.Room
SIT_ROWVER	Site.Row Version
SIT_TYPE	Site.Site Type
SIT_UPDATE	Site.Update Date
SIT_UPDATEBY	Site.Updated By
SPD_CREATE	IT Resource Type Definition.IT Resource Type Parametr.Creation Date
SPD_CREATEBY	IT Resource Type Definition.IT Resource Type Parametr.Created By
SPD_DATA_LEVEL	IT Resource Type Definition.IT Resource Type Parametr.System Level
SPD_KEY	IT Resource Type Definition.IT Resource Type Parametr.Key
SPD_NOTE	IT Resource Type Definition.IT Resource Type Parametr.Note
SPD_ROWVER	IT Resource Type Definition.IT Resource Type Parametr.Row Version
SPD_UPDATE	IT Resource Type Definition.IT Resource Type Parametr.Update Date

**Table A-1 (Cont.) Metadata Column Code Mapping Information**

<b>Physical Column Name</b>	<b>Metadata Column Code</b>
SPD_UPDATEBY	IT Resource Type Definition.IT Resource Type Parametr.Updated By
SPD_CREATE	IT Resources Type Parameter.Creation Date
SPD_CREATEBY	IT Resources Type Parameter.Created By
SPD_DATA_LEVEL	IT Resources Type Parameter.System Level
SPD_FIELD_DEFAULT	IT Resource Type Definition.IT Resource Type Parametr.Default Value
SPD_FIELD_DEFAULT	IT Resources Type Parameter.Default
SPD_FIELD_ENCRYPTED	IT Resources Type Parameter.Encrypted
SPD_FIELD_ENCRYPTED	IT Resource Type Definition.IT Resource Type Parametr.Encrypted
SPD_FIELD_NAME	IT Resource Type Definition.IT Resource Type Parametr.Field Name
SPD_FIELD_NAME	IT Resources Type Parameter.Name
SPD_KEY	IT Resources Type Parameter.Key
SPD_NOTE	IT Resources Type Parameter.Note
SPD_ROWVER	IT Resources Type Parameter.Row Version
SPD_UPDATE	IT Resources Type Parameter.Update Date
SPD_UPDATEBY	IT Resources Type Parameter.Updated By
SRS_CREATE	IT Resource.Dependant IT Resource.Creation Date
SRS_CREATEBY	IT Resource.Dependant IT Resource.Created By
SRS_DATA_LEVEL	IT Resource.Dependant IT Resource.System Level
SRS_NOTE	IT Resource.Dependant IT Resource.Note
SRS_ROWVER	IT Resource.Dependant IT Resource.Row Version
SRS_UPDATE	IT Resource.Dependant IT Resource.Update Date
SRS_UPDATEBY	IT Resource.Dependant IT Resource.Updated By
SRS_SVR_KEY	IT Resource.Dependant IT Resource.Value
STA_BUCKET	Status.Category
STA_BUCKET_ORDER	Status.Category Order
STA_CREATE	Status.Creation Date
STA_CREATEBY	Status.Created By
STA_DATA_LEVEL	Status.System Level
STA_KEY	Status.Key
STA_NOTE	Status.Note
STA_ORDER	Status.Order
STA_ROWVER	Status.Row Version
STA_STATUS	Status.Status

**Table A-1 (Cont.) Metadata Column Code Mapping Information**

<b>Physical Column Name</b>	<b>Metadata Column Code</b>
STA_SUCCESS	Status.Successful Completion
STA_UPDATE	Status.Update Date
STA_UPDATEBY	Status.Updated By
SUBGROUPKEY	Groups.Subgroup Key
SUBGROUPNAME	Groups.Subgroup Name
SVD_CREATE	IT Resource Type Definition.Creation Date
SVD_CREATEBY	IT Resource Type Definition.Created By
SVD_DATA_LEVEL	IT Resource Type Definition.System Level
SVD_KEY	IT Resource Type Definition.Key
SVD_NOTE	IT Resource Type Definition.Note
SVD_ROWVER	IT Resource Type Definition.Row Version
SVD_UPDATE	IT Resource Type Definition.Update Date
SVD_UPDATEBY	IT Resource Type Definition.Updated By
SVD_LOCATION_BASED	IT Resource Type Definition.Location Bases
SVD_CREATE	IT Resources Type Definition.Creation Date
SVD_CREATEBY	IT Resources Type Definition.Created By
SVD_DATA_LEVEL	IT Resources Type Definition.System Level
SVD_INSERT_MULTIPLE	IT Resource Type Definition.Insert Multiple
SVD_INSERT_MULTIPLE	IT Resources Type Definition.Insert Multiple
SVD_KEY	IT Resources Type Definition.Key
SVD_NOTE	IT Resources Type Definition.Note
SVD_ROWVER	IT Resources Type Definition.Row Version
SVD_SVR_TYPE	IT Resource Type Definition.Server Type
SVD_SVR_TYPE	IT Resources Type Definition.Server Type
SVD_UPDATE	IT Resources Type Definition.Update Date
SVD_UPDATEBY	IT Resources Type Definition.Updated By
SVP_CREATE	IT Resource. Parameter.Creation Date
SVP_CREATEBY	IT Resource. Parameter.Created By
SVP_DATA_LEVEL	IT Resource. Parameter.System Level
SVP_NOTE	IT Resource. Parameter.Note
SVP_ROWVER	IT Resource. Parameter.Row Version
SVP_UPDATE	IT Resource. Parameter.Update Date
SVP_UPDATEBY	IT Resource. Parameter.Updated By
SVP_CREATE	IT Resources Type Parameter Value.Creation Date
SVP_CREATEBY	IT Resources Type Parameter Value.Created By
SVP_DATA_LEVEL	IT Resources Type Parameter Value.System Level

**Table A-1 (Cont.) Metadata Column Code Mapping Information**

<b>Physical Column Name</b>	<b>Metadata Column Code</b>
SVP_FIELD_VALUE	IT Resource.Parameter.Value
SVP_FIELD_VALUE	IT Resources Type Parameter Value.Value
SVP_KEY	IT Resource.Parameter.Key
SVP_KEY	IT Resources Type Parameter Value.Key
SVP_NOTE	IT Resources Type Parameter Value.Note
SVP_ROWVER	IT Resources Type Parameter Value.Row Version
SVP_UPDATE	IT Resources Type Parameter Value.Update Date
SVP_UPDATEBY	IT Resources Type Parameter Value.Updated By
SVR_CREATE	IT Resource.Creation Date
SVR_CREATEBY	IT Resource.Created By
SVR_DATA_LEVEL	IT Resource.System Level
SVR_NOTE	IT Resource.Note
SVR_ROWVER	IT Resource.Row Version
SVR_UPDATE	IT Resource.Update Date
SVR_UPDATEBY	IT Resource.Updated By
SVR_CHILD_KEY	IT Resource.Child Key
SVR_CHILD_KEY	IT Resources.Remote Manager Key
SVR_CREATE	IT Resources.Creation Date
SVR_CREATEBY	IT Resources.Created By
SVR_DATA_LEVEL	IT Resources.System Level
SVR_KEY	IT Resource.Key
SVR_KEY	IT Resources.Key
SVR_NAME	IT Resource.Name
SVR_NAME	IT Resources.Name
SVR_NOTE	IT Resources.Note
SVR_ROWVER	IT Resources.Row Version
SVR_UPDATE	IT Resources.Update Date
SVR_UPDATEBY	IT Resources.Updated By
SVS_CREATE	IT Resource-Site.Creation Date
SVS_CREATEBY	IT Resource-Site.Created By
SVS_DATA_LEVEL	IT Resource-Site.System Level
SVS_NOTE	IT Resource-Site.Note
SVS_ROWVER	IT Resource-Site.Row Version
SVS_UPDATE	IT Resource-Site.Update Date
SVS_UPDATEBY	IT Resource-Site.Updated By
TAS_KEY	Task Scheduler.Task Attributes.Key

**Table A-1 (Cont.) Metadata Column Code Mapping Information**

<b>Physical Column Name</b>	<b>Metadata Column Code</b>
TDV_CREATE	Process-Data Object Manager-Event Handler Manager.Creation Date
TDV_CREATEBY	Process-Data Object Manager-Event Handler Manager.Created By
TDV_DATA_LEVEL	Process-Data Object Manager-Event Handler Manager.System Level
TDV_NOTE	Process-Data Object Manager-Event Handler Manager.Note
TDV_ROWVER	Process-Data Object Manager-Event Handler Manager.Row Version
TDV_UPDATE	Process-Data Object Manager-Event Handler Manager.Update Date
TDV_UPDATEBY	Process-Data Object Manager-Event Handler Manager.Updated By
TOS_UPDATEBY	Process.Process Definition.Updated By
TOS_AUTOSAVE	Process.Process Definition.Auto Save
TOS_AUTO_PREPOP	Tasks.Auto Prepopulate
TOS_CREATE	Process.Process Definition.Creation Date
TOS_CREATEBY	Process.Process Definition.Created By
TOS_DATA_LEVEL	Process.Process Definition.System Level
TOS_KEY	Process.Process Definition.Process Key
TOS_MATCHNOTFOUND	Process.Process Definition.Match Not Found
TOS_MULTMATCHFOUND	Process.Process Definition.Mult Match Found
TOS_NOTE	Process.Process Definition.Note
TOS_ONEMATCHFOUND	Process.Process Definition.One Match Found
TOS_ROWVER	Process.Process Definition.Row Version
TOS_TYPE	Process.Process Definition.Type
TOS_UPDATE	Process.Process Definition.Update Date
TSA_CREATE	Task Scheduler.Task Attributes.Creation Date
TSA_CREATEBY	Task Scheduler.Task Attributes.Created By
TSA_DATA_LEVEL	Task Scheduler.Task Attributes.System Level
TSA_NOTE	Task Scheduler.Task Attributes.Note
TSA_ROWVER	Task Scheduler.Task Attributes.Row Version
TSA_NAME	Task Scheduler.Task Attributes.Name
TSA_UPDATE	Task Scheduler.Task Attributes.Update Date
TSA_UPDATEBY	Task Scheduler.Task Attributes.Updated By
TSA_VALUE	Task Scheduler.Task Attributes.Value
TSK_CREATE	Task Scheduler.Creation Date
TSK_CREATEBY	Task Scheduler.Created By
TSK_DATA_LEVEL	Task Scheduler.System Level

**Table A-1 (Cont.) Metadata Column Code Mapping Information**

<b>Physical Column Name</b>	<b>Metadata Column Code</b>
TSK_NOTE	Task Scheduler.Note
TSK_ROWVER	Task Scheduler.Row Version
TSK_CLASSNAME	Task Scheduler.ClassName
TSK_DISABLE	Task Scheduler.Disable
TSK_FREQTYPE	Task Scheduler.Frequency Type
TSK_INTERVAL	Task Scheduler.Interval
TSK_KEY	Task Scheduler.Key
TSK_LAST_START_TIME	Task Scheduler.Last Start Time
TSK_LAST_STOP_TIME	Task Scheduler.Last Stop Time
TSK_MAX_RETRIES	Task Scheduler.Max Retries
TSK_NAME	Task Scheduler.Name
TSK_NEXT_START_TIME	Task Scheduler.Next Start Time
TSK_RETRY_COUNT	Task Scheduler.Retry Count
TSK_START_TIME	Task Scheduler.Start Time
TSK_STATUS	Task Scheduler.Status
TSK_UPDATE	Task Scheduler.Update Date
TSK_UPDATEBY	Task Scheduler.Updated By
UGP_CREATE	Groups.Creation Date
UGP_CREATEBY	Groups.Created By
UGP_DATA_LEVEL	Groups.System Level
UGP_EMAIL	Groups.E-mail
UGP_KEY	Groups.Key
UGP_NAME	Groups.Group Name
UGP_NOTE	Groups.Note
UGP_ROWVER	Groups.Row Version
UGP_UPDATE	Groups.Update Date
UGP_UPDATEBY	Groups.Updated By
UGP_VIEWSET	Groups.Viewset
ULN_CREATE	Users-Locations.Creation Date
ULN_CREATEBY	Users-Locations.Created By
ULN_DATA_LEVEL	Users-Locations.System Level
ULN_NOTE	Users-Locations.Note
ULN_ROLE	Users-Locations.Role
ULN_ROWVER	Users-Locations.Row Version
ULN_UPDATE	Users-Locations.Update Date
ULN_UPDATEBY	Users-Locations.Updated By

**Table A-1 (Cont.) Metadata Column Code Mapping Information**

<b>Physical Column Name</b>	<b>Metadata Column Code</b>
UNM_CREATE	Process Definition.Tasks.Undo Tasks.Creation Date
UNM_CREATEBY	Process Definition.Tasks.Undo Tasks.Created By
UNM_DATA_LEVEL	Process Definition.Tasks.Undo Tasks.Sytem Level
UNM_NOTE	Process Definition.Tasks.Undo Tasks.Note
UNM_ROWVER	Process Definition.Tasks.Undo Tasks.Row Version
UNM_UPDATE	Process Definition.Tasks.Undo Tasks.Update Date
UNM_UPDATEBY	Process Definition.Tasks.Undo Tasks.Updated By
UPDATEBY_FIRST_NAME	Process Instance.Task Information.Updated By First Name
UPDATEBY_LAST_NAME	Process Instance.Task Information.Updated By Last Name
UPDATEBY_USER_KEY	Process Instance.Task Information.Updated By User Key
UPDATEBY_USER_LOGIN	Process Instance.Task Information.Updated By User ID
UPY_NOTE	System Configuration- Users.Note
UPY_ROWVER	System Configuration- Users.Row Version
UPY_CREATE	System Configuration- Users.Creation Date
UPY_CREATE	Users-Client Properties.Creation Date
UPY_CREATEBY	System Configuration- Users.Created By
UPY_CREATEBY	Users-Client Properties.Created By
UPY_DATALEVEL	Users-Client Properties.System Level
UPY_DATA_LEVEL	System Configuration- Users.System Level
UPY_NOTE	Users-Client Properties.Note
UPY_ROWVER	Users-Client Properties.Row Version
UPY_UPDATE	System Configuration-Users.Update Date
UPY_UPDATE	Users-Client Properties.Update Date
UPY_UPDATEBY	System Configuration- Users.Updated By
UPY_UPDATEBY	Users-Client Properties.Updated By
USERMANAGER	Users.Manager Login
USERMANAGERFIRSTNAME	Users.Manager First Name
USERMANAGERLASTNAME	Users.Manager Last Name
USG_CREATE	Groups-Users.Creation Date
USG_CREATEBY	Groups-Users.Created By
USG_DATA_LEVEL	Groups-Users.System Level

**Table A-1 (Cont.) Metadata Column Code Mapping Information**

<b>Physical Column Name</b>	<b>Metadata Column Code</b>
USG_NOTE	Groups-Users.Note
USG_PRIORITY	Groups-Users.Priority
USG_ROWVER	Groups-Users.Row Version
USG_UPDATE	Groups-Users.Update Date
USG_UPDATEBY	Groups-Users.Updated By
USR_CREATE	Users.Creation Date
USR_CREATEBY	Users.Created By
USR_DATA_LEVEL	Users.System Level
USR_DEPROVISIONED_DATE	Users.Deprovisioned Date
USR_DEPROVISIONING_DATE	Users.Deprovisioning Date
USR_DISABLED	Users.Disable User
USR_DISABLED_BY_PARENT	Users.Disabled By Parent
USR_EMAIL	Users.Email
USR_EMP_TYPE	Users.Role
USR_END_DATE	Users.End Date
USR_FIRST_NAME	Users.First Name
USR_FSS	Users.Identity
USR_KEY	Users.Key
USR_LAST_NAME	Users.Last Name
USR_LOCKED	Users.Lock User
USR_LOGIN	Users.User ID
USR_MANAGER_KEY	Users.Manager Key
USR_MIDDLE_NAME	Users.Middle Name
USR_NOTE	Users.Note
USR_PASSWORD	Users.Password
USR_PROVISIONED_DATE	Users.Provisioned Date
USR_PROVISIONING_DATE	Users.Provisioning Date
USR_PWD_CANT_CHANGE	Users.Password Cannot Change
USR_PWD_EXPIRE_DATE	Users.Password Expiration Date
USR_PWD_MUST_CHANGE	Users.Password Must Change
USR_PWD_NEVER_EXPIRES	Users.Password Never Expires
USR_PWD_WARN_DATE	Users.Password Warning Date
USR_ROWVER	Users.Row Version
USR_START_DATE	Users.Start Date
USR_STATUS	Users.Status
USR_TYPE	Users.Xellerate Type
USR_UPDATE	Users.Update Date



**Table A-1 (Cont.) Metadata Column Code Mapping Information**

<b>Physical Column Name</b>	<b>Metadata Column Code</b>
USR_UPDATEBY	Users.Updated By
USR_UPDATE_AD	Users.AD Reference
UWP_CREATE	Groups-Form Information.Creation Date
UWP_CREATEBY	Groups-Form Information.Created By
UWP_DATA_LEVEL	Groups-Form Information.System Level
UWP_NEST_LEVEL	Groups-Form Information.Nesting Level
UWP_NOTE	Groups-Form Information.Note
UWP_PARENT_KEY	Groups-Form Information.Parent Key
UWP_ROWVER	Groups-Form Information.Row Version
UWP_SEQUENCE	Groups-Form Information.Sequence
UWP_UPDATE	Groups-Form Information.Update Date
UWP_UPDATEBY	Groups-Form Information.Updated By
WIN_CREATE	Form Information.Creation Date
WIN_CREATEBY	Form Information.Created By
WIN_DATA_LEVEL	Form Information.System Level
WIN_DEFAULT_REPORT	Form Information.Default Report
WIN_GRAPHIC_FILENAME	Form Information.Graphic Filename
WIN_GRAPHIC_NAME	Form Information.Graphic Name
WIN_HELP_URL	Form Information.Context Sensitive Help URL
WIN_JSP_HELP_URL	Form Information.JSP Help URL
WIN_JSP_NAME	Form Information.JSP Name
WIN_KEY	Form Information.key
WIN_NOTE	Form Information.Note
WIN_ROWVER	Form Information.Row Version
WIN_UPDATE	Form Information.Update Date
WIN_UPDATEBY	Form Information.Updated By
WIN_WINDOW_DESC	Form Information.Description
WIN_WINDOW_NAME	Form Information.Class Name
WIN_WIZARD_FORM	Form Information.Wizard Form
_ROWVER	Reconciliation Rules.Rule Element.Row Version
acn_role	Organization.Contacts.Role
err_action	Conditions.Action
err_action	Conditions.Severity
lkv_decoded	User Defined Field Definition.DataType
lkv_encoded	Form Information.Type
lkv_encoded	User Defined Field Definition.FormName
obj_type	Objects.Object Type

**Table A-1 (Cont.) Metadata Column Code Mapping Information**

<b>Physical Column Name</b>	<b>Metadata Column Code</b>
orf_fieldtype	Objects.Reconciliation Fields.Type
pof_field_name	Policies.PolicyDefinitions.FieldName
req_obj_action	Request.Application Request Type
req_priority	Request.Request Priority
rml_target_type	Task Definition.Assignment Rules.Type
rqc_type	Request Comments.Type
rre_operator	Reconciliation Rules.Rule Element.Operator
rre_transform	Reconciliation Rules.Rule Element.Transform
rul_subtype	RulesDefinition.SubType
rul_type	RulesDefinition.Type
sch_action	Contacts.User Tasks.Action
sdc_field_type	Structure Utility.AdditionalColumns.FieldType
sdc_variant_type	Structure Utility.AdditionalColumns.VariantType