Note:
Before using this information and the product it supports, read the information in "Notices," on page 1.
# Table of Contents

Welcome to the TIM Integration and Installation Guide ........................................... 4  
Audience .................................................................................................................. 4  
**TAM E-SSO: Provisioning Adapter TIM Connector** ................................. 5  
Component Modules ............................................................................................. 5  
**Installation Overview** ...................................................................................... 7  
Pre-Requisites ......................................................................................................... 7  
**Installation Instructions** ................................................................................... 8  
Local vs. Remote Installation .................................................................................... 8  
Installing the Connectors ......................................................................................... 8  
**Configuration Options** ....................................................................................... 10  
Modify TIM Connector Configuration File ......................................................... 10  
Modify TIM Files ...................................................................................................... 13  
Add TAM E-SSO Attributes to the TIM Schema .................................................. 14  
Add Workflow Elements ......................................................................................... 16
Welcome to the TIM Integration and Installation Guide

IBM Tivoli Access Manager for Enterprise Single Sign-On: Provisioning Adapter (TAM E-SSO: Provisioning Adapter) can receive and process provisioning requests initiated by IBM Tivoli Identity Manager (ITIM or TIM). The integration of TAM E-SSO: Provisioning Adapter with TIM is accomplished through a workflow extension that TIM uses to communicate with the TAM E-SSO: Provisioning Adapter Web Service.

This workflow extension has two components, the TAM E-SSO: Provisioning Adapter Command Line Interface (CLI) and the TIM Provisioning Workflow Interface (Connector). The CLI accepts requests from the Connector and communicates them to the TAM E-SSO: Provisioning Adapter Web Service. The Connector itself can be installed locally or in a remote manner to allow remote invocation by TIM. This allows the Connector to reside on platforms that are currently not supported by the TAM E-SSO: Provisioning Adapter CLI. In the remote case, SSL is used to secure communications between machines.

Audience

This guide is intended for experienced application programmers responsible for the development of the IBM Tivoli Identity Manager. Readers are expected to understand TIM administration concepts. The person completing the installation procedure should also be familiar with the site’s system standards. Readers should be able to perform routine security administration tasks.

Important Notes:

The instructions in this guide provide an overview of TAM E-SSO: Provisioning Adapter’s TIM interface, installation instructions, and sample integration scenario. Steps for integrating into your organization’s specific workflow scenario may vary.

This guide is intended to serve purely as an example of how to integrate TIM and TAM E-SSO: Provisioning Adapter in a basic workflow scenario. Review the information provided in this guide to determine how to accomplish integration for your organization.

The TIM Connector is setup to work out-of-the-box in a local environment.
TAM E-SSO: Provisioning Adapter TIM Connector

The TAM E-SSO: Provisioning Adapter Client CLI makes it possible to use other provisioning solutions to communicate with the TAM E-SSO: Provisioning Adapter Web Service. For more information on the CLI syntax and usage, please refer to the TAM E-SSO: Provisioning Adapter Client CLI/SDK Guide.

The following diagram shows the sequence of events that takes place during the provisioning of a TAM E-SSO enabled application for a user after the application has been deployed:

Component Modules

The CLI uses a client/server model. The CLI does not need to be installed on the same machine as TIM. If you use the Connector with RMI support (Remote Method Invocation), the CLI can exist on a Windows based computer while TIM can run on any platform that is supported.

The RMI Connector consists of two components, the RMI Server and RMI Client. The RMI Client interfaces with TIM and sends provisioning instructions to the RMI Server via SSL (can be disabled if needed). The RMI Server invokes the TAM E-SSO: Provisioning Adapter CLI which generates and executes the commands, returning the
results to the caller.

Alternatively, if TIM is installed on the same machine, a local Connector can be used to communicate with the CLI. In this case the Connector, CLI, and Provisioning application must reside on the same machine. The diagram below shows the configuration of TAM E-SSO: Provisioning Adapter CLI with an RMI Connector:

**TAM E-SSO: Provisioning Adapter RMI Client**

This module resides on the same machine as the TIM provisioning application where it is invoked directly by TIM. The RMI client is a stub that passes the commands from TIM to the RMI Server over SSL. The information returned varies based on the command being invoked.

**TAM E-SSO: Provisioning Adapter RMI Server**

The RMI Server listens for commands from the RMI Client. SSL is used to ensure secure communication between the two. Communications ports are configurable and certificates are managed through the use of certificate stores.

**CLI (.NET Client)**

The CLI is the .NET client for the TAM E-SSO: Provisioning Adapter Web Service. The CLI is invoked by the RMI Server. It sends the provisioning instructions to the TAM E-SSO: Provisioning Adapter Web Service where the provisioning instructions are created and placed in the directory service. The CLI then returns the results to the RMI Server which sends a response back to the RMI Client.
Installation Overview

This section describes installation and configuration requirements to integrate TAM E-SSO: Provisioning Adapter with the IBM Tivoli Identity Manager.

- Install required prerequisites
- Install the TIM Connector
- Configure TAM E-SSO: Provisioning Adapter to work with TIM

Pre-Requisites

The TAM E-SSO: Provisioning Adapter Server and Console must be installed. Please see the TAM E-SSO Provisioning Adapter Installation and Setup Guide for the installation instructions. Make sure you have carefully reviewed the TAM E-SSO: Provisioning Adapter system requirements.

The TAM E-SSO: Provisioning Adapter CLI components must be installed on the system running the TIM Provisioning Workflow Interface (Connector). If using the local connector, TIM must also be installed on the same system. If using the remote connector you have the option of deploying the CLI and Connector on the same system as the TAM E-SSO: Provisioning Adapter Server and Console or on a different system for separation and security. Please see the TAM E-SSO Provisioning Adapter Installation and Setup Guide for the installation and configuration of the TAM E-SSO: Provisioning Adapter CLI.

To install the Connector the following components must be installed:

- Java 1.4.2 or higher
- TAM E-SSO: Provisioning Adapter CLI
**Installation Instructions**

This section describes how to install the TIM connector and integrate it into the TIM workflow.

**Local vs. Remote Installation**

There are two types of installations for the Connector:

**Local**

In scenarios where the TIM server is deployed on a server running Microsoft Windows 2000 or 2003 operating system, it is possible to deploy the connector completely on that machine. In such a case the connector is deployed using the **PMCLIInvoker.jar** file, and the TAM E-SSO: Provisioning Adapter CLI is installed on that same server.

**Remote**

In scenarios where the TIM server is deployed on servers running an operating system other than Windows, the connector must be deployed in a distributed fashion with the **PMRMIClient.jar** file installed on the TIM server and the **PMRMIServerInvoker.jar** file along with the TAM E-SSO: Provisioning Adapter CLI installed on a server running Microsoft Windows 2000 or 2003. To simplify deployment in some scenarios this can be the same server hosting the TAM E-SSO: Provisioning Adapter Server.

**Installing the Connectors**

1. Insert the TAM E-SSO: Provisioning Adapter CD and open the **Libraries** directory, which contains the following 3 files:
   - **PMCLIInvoker.jar** - allows invocation of the TAM E-SSO: Provisioning Adapter command locally.
   - **PMRMIClient.jar** - allows invocation of the TAM E-SSO: Provisioning Adapter command locally, and passes information to the RMI Server Invoker.
   - **PMRMIServerInvoker.jar** - the remote listener for the TAM E-SSO: Provisioning Adapter RMI Client. This is installed on the same system as the CLI.

   Please see the configuration options to setup the components to run in your environment.

   **Note:** The **PMCLIInvoker.jar** and **PMRMIClient.jar** cannot exist in the same environment. Use only one at a time for integration purposes. Otherwise, TIM may not function properly.

2. Copy the appropriate CLIENT Jar file to the following locations:
   - `%WAS_HOME%/installedApps/%app name%/enRole.ear`
   - `<ITIM_HOME>/lib`
3. Open IBM WebSphere’s MANIFEST.MF file in the
%WAS_HOME%/installedApps/%app name%/enRole.ear/app_web.war
/META-INF directory. Include Passlogix .jar in the classpath.

**Notes:** The classpath must conform to the structure in the file.

Do not perform this step if you are using the AAT to modify the enRole.ear classpath (Step 4).

4. Open the Application Assembly Tool. Modify the enRole.ear classpath.
Please refer to the IBM WebSphere Application Server instructions.

**Note:** Do not perform this step if you are going to manually modify the enRole.ear classpath (Step 3).

5. Open the agent xforms.xml file in the %Agent Install%/data/ directory.
Include the following attributes:

   `<EnRoleAttribute Name="vgoApplicationID" RemoteName="vgoApplicationID"/>
   `<EnRoleAttribute Name="vgoApplicationDescription" RemoteName="vgoApplicationDescription"/>
   `<EnRoleAttribute Name="vgoCredAttribute1" RemoteName="vgoCredAttribute1"/>
   `<EnRoleAttribute Name="vgoCredAttribute2" RemoteName="vgoCredAttribute2"/>
   `<EnRoleAttribute Name="vgoSSOUserID" RemoteName="vgoSSOUserID"/>

6. Perform this step **only** if you are installing the remote connector. On the machine hosting the CLI, copy the PMRMIServerInvoker.jar into the %v-GO PM home%/ClientSDK/DotNet directory.

7. Follow the configuration option instructions in the next section to complete setup of the TIM Connector.
Configuration Options
This section describes how to configure TAM E-SSO: Provisioning Adapter to work with TIM. The information in this section introduces the various ways in which configuration can be done and discusses important configuration items that are typically used in production environments:

- Modify TIM Connector Configuration File
- Modify TIM File
- Add Attributes to the TIM schema
- Add Workflow Elements

Modify TIM Connector Configuration File
The connector can be configured in both local and remote deployment scenarios via a properties file. This file can be passed on the command line to the RMI Server component but must be modified directly inside the client components.

Local Connector:
A custom conf_file cannot be specified directly as a parameter to the local Connector. To configure the connector for your environment, you must modify the PMClientConfiguration.properties file, located under the com.passlogix.integration.provision.conf namespace in PMCLIIInvoker.jar.

Remote Connector:
A) Client
A custom conf_file cannot be specified directly as a parameter to the Remote Client. To configure the connector for your environment, you must modify the PMClientConfiguration.properties file, located under the com.passlogix.integration.provision.conf namespace in PMRMIClient.jar.

B) Server
Start the RMI server using:

```java
java -jar PMRMIServerInvoker.jar conf_file "<path to conf file>"
```

Replace <path to conf file> with the path.

The values specified in the conf_file override the default configuration properties specified under the com.passlogix.integration.provision.conf namespace in PMRMIClient.jar and PMRMIServerInvoker.jar class libraries.

The following table lists the properties that will need to be overridden in a typical deployment.

**Note:** The RMI.* configuration properties are only required in Remote deployments.
<table>
<thead>
<tr>
<th><strong>Configuration Properties</strong></th>
<th><strong>Description</strong></th>
</tr>
</thead>
</table>
| `logger.level`              | Used to set the level of messages that the system generates. All messages are generated on standard output by default.  
**Note:** Used in ALL deployments |
| `rmi.registry.host`         | Used to specify the hostname of the server on which the RMI registry is running. This is typically the name of the server on which RMI Server is running.  
**Note:** This property needs to change in remote deployments.  
This is used by the RMI Client. |
| `rmi.ssl.server.keystore.location` | The RMI over SSL requires the availability of public/private keys that are used to setup a secure channel. The Jar files are shipped with a default key store (server.jks), but this property can be used to specify the full path of the key file, in JKS format, that is used by the client/server to establish secure SSL.  
**Note:** This property needs to change in remote deployments.  
This is used by the RMI Client and Server. |
| `rmi.ssl.server.keystore.password` | The password that is used to read the key information from the store.  
**Notes:**  
This property needs to change in remote deployments. This is used by the RMI Client and Server.  
Specifying the value in clear text is a potential security issue. This can be addressed by passing the value at runtime through the Workflow interface. |
| `rmi.ssl.trust.keystore.location` | The RMI over SSL requires the availability of trusted certificates that are used to setup a secure channel. The Jar files are shipped with a default trusted certificate store (trust.jks), but this property can be used to specify the full path of the certificate store, in JKS format, that is used by the client/server to establish secure SSL.  
**Note:** This property needs to change in remote deployments.  
This is used by the RMI Client and Server. |
| `rmi.registry.enabled`      | True on the RMI Server. False on the RMI client  
**Note:** This is used by the RMI Client and Server. |
| `rmi.ssl.trust.keystore.password` | The password that is used to read the information from the store.  
**Notes:**  
This property needs to change in remote deployments. This is used by the RMI Client and Server.  
Specifying the value in clear text is a potential security issue. This can be addressed by passing the value at runtime through the Workflow interface. |
<table>
<thead>
<tr>
<th>Configuration Properties</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>commandLine.serviceurl</td>
<td>The URL of the TAM E-SSO: Provisioning Adapter .NET Service which is invoked by the .NET Client. This URL can be found in the server configuration file. <strong>Note:</strong> This property needs to change. This is used by the RMI Server or Local Client.</td>
</tr>
<tr>
<td>commandLine.serviceuser</td>
<td>The user ID needed to authenticate to the TAM E-SSO: Provisioning Adapter .NET Service for provisioning the TAM E-SSO user. <strong>Note:</strong> This property needs to change. This is used by the RMI Server or Local Client.</td>
</tr>
<tr>
<td>commandLine.serviceuser password</td>
<td>The password that is used to authenticate to the TAM E-SSO: Provisioning Adapter .NET Service for provisioning the TAM E-SSO user. <strong>Note:</strong> This property needs to change. This is used by the RMI Server and Local Client. <strong>Note:</strong> This property needs to change. Specifying the value in clear text is a potential security issue. This can be addressed by passing the value at runtime through the Workflow interface.</td>
</tr>
<tr>
<td>commandLine.serviceclient</td>
<td>The name of the service client used by the .NET client to authenticate to the TAM E-SSO: Provisioning Adapter service. <strong>Note:</strong> This is used by the RMI Server or Local Client.</td>
</tr>
<tr>
<td>commandLine.serviceclient executable</td>
<td>The location of the .NET Command Line Executable that is invoked by the Server for the purpose of provisioning to the TAM E-SSO: Provisioning Adapter. <strong>Note:</strong> This property only needs to change if TAM E-SSO: Provisioning Adapter CLI is not installed to the default installer location. This is used by the RMI Server or Local Client.</td>
</tr>
</tbody>
</table>
Modify TIM Files

Open the `workflowextensions.xml` file in the `%ITIM_HOME%/data` directory and add the following workflow scenarios:

```xml
<ACTIVITY ACTIVITYID="ChangePasslogixPassword" LIMIT="600000">
  <IMPLEMENTATION_TYPE>
    <APPLICATION CLASS_NAME="com.passlogix.integration.provision.ITIMInterface"
                 METHOD_NAME="changePasslogixPassword"/>
  </IMPLEMENTATION_TYPE>
  <PARAMETERS>
    <IN_PARAMETERS PARAM_ID="account" TYPE="Account"/>
    <OUT_PARAMETERS PARAM_ID="passlogix_guid" TYPE="String"/>
  </PARAMETERS>
  <TRANSITION_RESTRICTION JOIN="XOR"/>
</ACTIVITY>

<ACTIVITY ACTIVITYID="AddPasslogixCredential" LIMIT="600000">
  <IMPLEMENTATION_TYPE>
    <APPLICATION CLASS_NAME="com.passlogix.integration.provision.ITIMInterface"
                 METHOD_NAME="addPasslogixCredential"/>
  </IMPLEMENTATION_TYPE>
  <PARAMETERS>
    <IN_PARAMETERS PARAM_ID="account" TYPE="Account"/>
    <OUT_PARAMETERS PARAM_ID="passlogix_guid" TYPE="String"/>
  </PARAMETERS>
  <TRANSITION_RESTRICTION JOIN="XOR"/>
</ACTIVITY>

<ACTIVITY ACTIVITYID="DeletePasslogixCredential" LIMIT="600000">
  <IMPLEMENTATION_TYPE>
    <APPLICATION CLASS_NAME="com.passlogix.integration.provision.ITIMInterface"
                 METHOD_NAME="deletePasslogixCredential"/>
  </IMPLEMENTATION_TYPE>
  <PARAMETERS>
    <IN_PARAMETERS PARAM_ID="account" TYPE="Account"/>
    <OUT_PARAMETERS PARAM_ID="passlogix_guid" TYPE="String"/>
  </PARAMETERS>
  <TRANSITION_RESTRICTION JOIN="XOR"/>
</ACTIVITY>

<ACTIVITY ACTIVITYID="ModifyPasslogixCredential" LIMIT="600000">
  <IMPLEMENTATION_TYPE>
    <APPLICATION CLASS_NAME="com.passlogix.integration.provision.ITIMInterface"
                 METHOD_NAME="modifyPasslogixCredential"/>
  </IMPLEMENTATION_TYPE>
  <PARAMETERS>
    <IN_PARAMETERS PARAM_ID="account" TYPE="Account"/>
    <OUT_PARAMETERS PARAM_ID="passlogix_guid" TYPE="String"/>
  </PARAMETERS>
  <TRANSITION_RESTRICTION JOIN="XOR"/>
</ACTIVITY>

<ACTIVITY ACTIVITYID="GetPasslogixStatus" LIMIT="600000">
  <IMPLEMENTATION_TYPE>
    <APPLICATION CLASS_NAME="com.passlogix.integration.provision.ITIMInterface"
                 METHOD_NAME="getPasslogixStatus"/>
  </IMPLEMENTATION_TYPE>
  <PARAMETERS>
    <IN_PARAMETERS PARAM_ID="account" TYPE="Account"/>
    <IN_PARAMETERS PARAM_ID="commandLookupID" TYPE="String"/>
    <OUT_PARAMETERS PARAM_ID="passlogix_guid" TYPE="String"/>
  </PARAMETERS>
  <TRANSITION_RESTRICTION JOIN="XOR"/>
</ACTIVITY>
```
Add TAM E-SSO Attributes to the TIM Schema

Add the following required TAM E-SSO attributes to the schema in the TIM LDAP:

```plaintext
dn: cn=schema
changetype: modify
add: attributetypes
attributetypes: (  
  1.3.6.1.4.1.10552.100.1  
  NAME 'vgoApplicationID'  
  DESC 'Unique Identifier for V-GO Applications as defined during V-GO configuration'  
  SYNTAX 1.3.6.1.4.1.1466.115.121.1.26  
  EQUALITY caseIgnoreIA5Match  
  SINGLE-VALUE
)
ibmattributetypes: (  
  1.3.6.1.4.1.10552.100.1  
  DBNAME ('vgoApplicationID' 'vgoApplciationID')  
  ACCESS-CLASS normal
)

dn: cn=schema
changetype: modify
add: attributetypes
attributetypes: (  
  1.3.6.1.4.1.10552.100.2  
  NAME 'vgoApplicationDescription'  
  DESC 'Description for V-GO Applications as defined during V-GO configuration'  
  SYNTAX 1.3.6.1.4.1.1466.115.121.1.26  
  EQUALITY caseIgnoreIA5Match  
  SINGLE-VALUE
)
ibmattributetypes: (  
  1.3.6.1.4.1.10552.100.2  
  DBNAME ('vgoApplicationDescription' 'vgoApplciationDescription')  
  ACCESS-CLASS normal
)

dn: cn=schema
changetype: modify
add: attributetypes
attributetypes: (  
  1.3.6.1.4.1.10552.100.3  
  NAME 'vgoSSOUserID'  
  DESC 'SSO User Id for users'  
  SYNTAX 1.3.6.1.4.1.1466.115.121.1.26  
  EQUALITY caseIgnoreIA5Match  
  SINGLE-VALUE
)
ibmattributetypes: (  
  1.3.6.1.4.1.10552.100.3  
  DBNAME ('vgoSSOUserID' 'vgoSSOUseID')  
  ACCESS-CLASS normal
)

dn: cn=schema
changetype: modify
add: attributetypes
attributetypes: (  
  1.3.6.1.4.1.10552.100.4  
  NAME 'vgoCredAttribute1'  
  DESC 'Additional V-GO Credential Information Field 1'  
  SYNTAX 1.3.6.1.4.1.1466.115.121.1.26  
  EQUALITY caseIgnoreIA5Match  
  SINGLE-VALUE
)
ibmattributetypes: (  
```
1.3.6.1.4.1.10552.100.4
DBNAME ( 'vgoCredAttribute1' 'vgoCredAttribute1' )
ACCESS-CLASS normal
)
dn: cn=schema
changetype: modify
add: attributetypes
attributetypes: ( 1.3.6.1.4.1.10552.100.5
NAME 'vgoCredAttribute2'
DESC 'Additional V-GO Credential Information Field 2'
SYNTAX 1.3.6.1.4.1.1466.115.121.1.26
EQUALITY caseIgnoreIA5Match
SINGLE-VALUE
)
ibmattributetypes: ( 1.3.6.1.4.1.10552.100.5
DBNAME ( 'vgoCredAttribute2' 'vgoCredAttribute2' )
ACCESS-CLASS normal
)
dn: cn=schema
changetype: modify
replace: objectclasses
objectclasses: ( 1.3.6.1.4.1.6054.1.2.2
NAME 'eraccountitem'
SUP top
AUXILIARY
MAY ( erAccountCompliance $ erAccountStatus $ erHistoricalPassword $ erLastAccessDate $ erPassword $ erPswdLastChanged $ erService $ erUid $ owner $ vgoApplicationID $ vgoSSOUserID $ vgoApplicationDescription $ vgoCredAttribute1 $ vgoCredAttribute2 )
)
Add Workflow Elements

The information in this section provides sample scripts to test out the different workflow operations supported by the Connector.

**Important Note:**

The username passed to the TIM Connector interface must match the username the administrator created in the directory service for provisioning to work correctly.

1. Create Relevant Data Object: Account: vgoAccount

2. Script: RemoveElements

```javascript
var userAccount = account.get();
vgoAccount.set(account.get());
if (userAccount.getProperty("vgoApplicationID") > 0) {
  userAccount.removeProperty("vgoApplicationID");
}
if (userAccount.getProperty("vgoApplicationDescription") > 0) {
  userAccount.removeProperty("vgoApplicationDescription");
}
if (userAccount.getProperty("vgoSSOUserID") > 0) {
  userAccount.removeProperty("vgoSSOUserID");
}
if (userAccount.getProperty("vgoCredAttribute1") > 0) {
  userAccount.removeProperty("vgoCredAttribute1");
}
if (userAccount.getProperty("vgoCredAttribute2") > 0) {
  userAccount.removeProperty("vgoCredAttribute2");
}
account.set(userAccount);
```

3. Extension: CreateAccount (postscript)

```javascript
WorkflowRuntimeContext.setProcessResult(WorkflowRuntimeContext.getActivityResult());
WorkflowRuntimeContext.setProcessResultDetail(WorkflowRuntimeContext.getActivityResultDetail());
var userData = account.get();
var vgoData = vgoAccount.get();
var change = false;
activity.auditEvent("After Provision uid: " + vgoAccount.get().getProperty("eruid")[0]);
if (vgoData.getProperty("vgoApplicationID").length > 0) {
  userData.setProperty("vgoApplicationID", vgoData.getProperty("vgoApplicationID")[0]);
  change = true;
}
if (vgoData.getProperty("vgoApplicationDescription").length > 0) {
  userData.setProperty("vgoApplicationDescription", vgoData.getProperty("vgoApplicationDescription")[0]);
  change = true;
}
if (vgoData.getProperty("vgoSSOUserID").length > 0) {
  userData.setProperty("vgoSSOUserID", vgoData.getProperty("vgoSSOUserID")[0]);
  change = true;
}
if (vgoData.getProperty("vgoCredAttribute1").length > 0) {
  userData.setProperty("vgoCredAttribute1", vgoData.getProperty("vgoCredAttribute1")[0]);
  change = true;
}
if (vgoData.getProperty("vgoCredAttribute2").length > 0) {
```
TAM E-SSO: Provisioning Adapter TIM Integration and Installation Guide

```javascript
userData.setProperty("vgoCredAttribute2",
    vgoData.getProperty("vgoCredAttribute2")[0]);
change = true;
}
if (change) {
    account.set(userData);
}

4. Transition: ReplaceElements

if (activity.resultSummary!="SF") {
    var userData = account.get();
    var ssoID = userData.getProperty("vgoApplicationID");
    if (ssoID.length > 0) {
        if (ssoID[0] != null) & (ssoID[0] != ") { return true;
    } else return false;
} else return false;
else return false;

5. Operation: ReplaceElements

6. Extension: AddPasslogixCredential

From the TAM E-SSO Environment

Delete and Change Password require no Operation element.

***Script
Activity ID: RemoveElements
Join Type: OR
{
    var userAccount = account.get();
    vgoAccount.set(account.get());
    if (userAccount.getProperty("vgoApplicationID") > 0) {
        userAccount.removeProperty("vgoApplicationID");
    } if (userAccount.getProperty("vgoApplicationDescription") > 0) {
        userAccount.removeProperty("vgoApplicationDescription");
    } if (userAccount.getProperty("vgoSSOUserID") > 0) {
        userAccount.removeProperty("vgoSSOUserID");
    } if (userAccount.getProperty("vgoCredAttribute1") > 0) {
        userAccount.removeProperty("vgoCredAttribute1");
    } if (userAccount.getProperty("vgoCredAttribute2") > 0) {
        userAccount.removeProperty("vgoCredAttribute2");
    }
    account.set(userAccount);
}

***Change Password: Postscript
WorkflowRuntimeContext.setProcessResult(WorkflowRuntimeContext.getActivityResult());
WorkflowRuntimeContext.setProcessResultDetail(WorkflowRuntimeContext.getActivityResultDetail());
var userData = account.get();
var vgoData = vgoAccount.get();
var change = false;
activity.auditEvent("After Provision uid: " + vgoAccount.get().getProperty("eruid")[0]);
if (vgoData.getProperty("vgoApplicationID").length > 0 ) {
```
userData.setProperty("vgoApplicationID",
    vgoData.getProperty("vgoApplicationID")[0]);
    change = true;
}
    if (vgoData.getProperty("vgoApplicationDescription").length > 0 ) {
        userData.setProperty("vgoApplicationDescription ",
    vgoData.getProperty("vgoApplicationDescription ")[0]);
    change = true;
}
    if (vgoData.getProperty("vgoSSOUserID").length > 0 ) {
        userData.setProperty("vgoSSOUserID", vgoData.getProperty("vgoSSOUserID")[0]);
        change = true;
    }
    if (vgoData.getProperty("vgoCredAttribute1").length > 0 ) {
        userData.setProperty("vgoCredAttribute1",
    vgoData.getProperty("vgoCredAttribute1")[0]);
    change = true;
}
    if (vgoData.getProperty("vgoCredAttribute2").length > 0 ) {
        userData.setProperty("vgoCredAttribute2",
    vgoData.getProperty("vgoCredAttribute2")[0]);
    change = true;
}
    if (change) {
        account.set(userData);
    }

***Transition
if (activity.resultSummary!="SF") {
    var userData = account.get();
    var ssoID = userData.getProperty("vgoApplicationID");
    if (ssoID.length > 0) {
        if ((ssoID[0] != null) & (ssoID[0] != "")) {
            return true;
        }
    }
    else
        return false;
}
else
    return false;
}
else
    return false;

***Operation
Activity ID: RestoreElements
Join Type: OR
Operation Activity Type: Static
Entity Type: Account
Entity: <service> Account
Operation: Modify
Appendix. Notices

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