Oracle® Governance, Risk and Compliance

Installation Guide

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Oracle Governance, Risk and Compliance Installation Guide

Part No. E24450-04

Contents

Preface

This Preface introduces the guides and other information sources available to help you more effectively use Oracle Fusion Applications.

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Oracle Enterprise Repository provides visibility into service-oriented architecture assets to help you manage the lifecycle of your software from planning through implementation, testing, production, and changes. In Oracle Fusion Applications, you can use the Oracle Enterprise Repository for:

- Technical information about integrating with other applications, including services, operations, composites, events, and integration tables. The classification scheme shows the scenarios in which you use the assets, and includes diagrams, schematics, and links to other technical documentation.

- Publishing other technical information such as reusable components, policies, architecture diagrams, and topology diagrams.

The Oracle Fusion Applications information is provided as a solution pack that you can upload to your own deployment of Oracle Enterprise Repository. You can document and govern integration interface assets provided by Oracle with other assets in your environment in a common repository.

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1

Introduction

Oracle Governance, Risk and Compliance (GRC) is a set of products that regulate activity in business-management applications. This document provides instructions for the installation (or upgrade) of the following GRC products:

- Oracle Enterprise Governance, Risk and Compliance Manager (EGRCM) consists of loosely coupled functional modules that collectively manage an organization's governance, risk, and compliance objectives.

- Oracle Enterprise Governance, Risk and Compliance Controls (EGRCC) comprises two components, each of which enables users to create "models" and "controls" that define risks a company may face:

  – Oracle Enterprise Transaction Controls Governor (ETCG) implements models and controls that specify circumstances under which individual transactions display evidence of error, fraud, or other risk.

  – Oracle Application Access Controls Governor (AACG) executes models and controls that define conflicts among duties that can be assigned in a company's applications, and identify users who have access to those conflicting duties.

    AACG can also implement "preventive analysis" — it can evaluate controls as duties are assigned to users of the company's applications, preventing them from gaining risky access.

- Oracle Fusion Application Access Controls Governor (FAACG) is a specialized installation of EGRCC that enables it to apply access models and controls within Oracle Fusion Applications.

As you implement GRC, keep the following in mind:

- You can install GRC on a server that you own and maintain (a "conventional" installation), or you can use Oracle VM Server to deploy an image of GRC initially configured by Oracle.

- You must select either EGRCM 8.6.3 or EGRCC 8.6.3. You cannot run both on a single server.

- You can install version 8.6.3 of EGRCM, but you cannot upgrade to it from an earlier version.

- You can either install version 8.6.3 of EGRCC directly or upgrade to it from EGRCC version 8.6.0. To use AACG preventive analysis in instances of Oracle

E-Business Suite or PeopleSoft, you must also install a Preventive Enforcement Agent (PEA) in each instance. FAACG requires the installation of a "connector" (which gathers data for analysis from Fusion), as well as integration with Oracle Identity Management and other components.

Prerequisites

If you intend to deploy a VM image of GRC, you need to install Oracle VM Manager and Oracle VM Server 2.2, and the remaining prerequisites do not apply to you.

If you intend to perform a conventional GRC installation, then EGRCM and EGRCC run on a 64-bit Linux server. Be sure the following lines exist in the /etc/security/limits.conf file:

```
*       soft    nproc       8192
*       hard    nproc       32768
*       soft    nofile      65536
*       hard    nofile      131072
```

If you are installing FAACG, you must use GRC version 8.6.3.4000. If you are installing EGRCM, or EGRCC without FAACG, you can use any patch level of GRC version 8.6.3.

The installation of Governance, Risk and Compliance requires that the following also be installed on the server:

• Oracle database 11g Release 2. (Configuration of a GRC schema is documented in Chapter 2.)

• Java: Sun Java Development Kit 1.6 or higher. JRockit JDK R28.1.3 for Java SE 6 with JRockit Mission Control 4.0.1 for Linux x86-64 is also supported.

GRC must have its own dedicated Java container. It was not designed to coexist in a container with other web applications.

• Middleware: EGRCM requires WebLogic Server (WLS) 10.3.4 and related components — some combination of Service Oriented Architecture (SOA) 11.1.1.4, Repository Creation Utility (RCU) 11.1.1.4, and Application Development Runtime (ADR) 11.1.1.4.

Install EGRCM with SOA if you intend to integrate with other applications and want them to consume SOA worklists. Otherwise, install without SOA. Your selection of other components depends on whether you install with SOA. (A third option is to use EGRCM with a SOA instance you've already installed for other purposes. In that case, install the same middleware components you would if you were installing EGRCM without SOA.)

For EGRCC without FAACG, WebLogic 10.3.4 is preferred; Tomcat Application Server version 6.0.24 is also supported. If you are installing EGRCC to run FAACG, however, you must use WebLogic 10.3.5 with SOA 11.1.1.5.0.

The following chart shows your options:

	WLS	SOA	RCU	ADR	Tomcat
EGRCM with SOA	10.3.4	11.1.1.4	11.1.1.4		
EGRCM without SOA	10.3.4			11.1.1.4	
EGRCC to run FAACG	10.3.5	11.1.1.5			
EGRCC with WebLogic (without FAACG)	10.3.4			11.1.1.4	
EGRCC with Tomcat					6.0.24

Chapter 2 covers download, installation, and configuration of middleware components.

It is strongly recommended, and required for high-volume environments, that the GRC application server, GRC schema, and ERP database be on the same network segment.

On the server or a client system, either of the following web browsers can display the EGRCM or EGRCC interface:

- FireFox 3.5.*x*

- Microsoft Internet Explorer 8, with the Adobe SVG plugin available from http://www.adobe.com/svg/viewer/install/mainframed.html.

For details about supported components, see the *Oracle Governance, Risk and Compliance Applications Support Matrix*.

2

Installing GRC

To perform a conventional GRC installation, use procedures in this chapter. If you intend to deploy a VM image of GRC, ignore this chapter and skip to Chapter 3.

For a conventional installation, decide first whether you are installing EGRCM or EGRCC. If EGRCM, decide if you are installing SOA (yes if you are integrating with other applications that will consume SOA worklists, and have no existing SOA installation; otherwise, no). If EGRCC, determine whether you will use WebLogic or Tomcat. (If you intend to run FAACG, the WebLogic installation of EGRCC is required; you must also complete procedures in Chapter 5.)

Then complete the appropriate one of the following procedures. (Summary procedures appear here, with details given in later sections of this chapter.)

If you are installing **EGRCM with SOA**:

1. Create a GRC schema in the Oracle database.

2. Download files to the GRC server and prepare them for use, and create a directory for the storage of EGRCM report data.

3. Install WebLogic Server and other components — Repository Creation Utility (RCU) and Service Oriented Architecture (SOA).

4. Create a WebLogic domain. This entails setting up an Administration Server and a "managed server" for SOA. Within the domain, install "SOA composites" and "keystores," set up security credentials, enable "embedded LDAP," and create a soaadmin user.

5. Perform configuration steps in a WebLogic Server Administration Console, and modify memory and other settings to conform to GRC requirements.

6. Perform configuration steps in a GRC Manage Application Configurations page.

7. Run WebLogic to complete the installation.

If you are installing **EGRCM** to be used **without SOA**, or to be used with an **already existing SOA instance**:

1. Create a GRC schema in the Oracle database.

2. Download files to the GRC server and prepare them for use, and create a directory for the storage of EGRCM report data.

3. Install WebLogic Server and Application Development Runtime.

4. Create a WebLogic domain. This entails setting up an Administration Server (but no managed server).

5. For EGRCM with a pre-existing SOA Server, configure "SOA composites" and "keystores," set up security credentials, enable "embedded LDAP," and create a soaadmin user for that server. (For EGRCM without SOA, skip this step.)

6. Perform configuration steps in a WebLogic Server Administration Console, and modify memory and other settings to conform to GRC requirements.

7. Perform configuration steps in a GRC Manage Application Configurations page.

8. Run WebLogic to complete the installation.

If you are installing (or upgrading) **EGRCC with WebLogic**:

1. Create a GRC schema in the Oracle database or, for an upgrade, use the schema already created for version 8.6.0.

2. Download files to the GRC server and prepare them for use. Ensure that two directories, for the storage of report and ETL data generated by EGRCC, are ready for use.

3. Install WebLogic Server. Install SOA (but not ADR) if you intend to run FAACG. Install ADR (but not SOA) if you intend to run AACG or ETCG in an Oracle EBS or PeopleSoft instance. Do not install RCU in any case.

4. Create a WebLogic domain. This entails creating an Administration Server in any case, and a GRC managed server only if you are installing EGRCC to run FAACG.

5. Perform configuration steps in a WebLogic Server Administration Console, and modify memory and other settings to conform to GRC requirements.

6. Perform configuration steps in a GRC Manage Application Configurations page.

7. Run WebLogic to complete the installation.

If you are installing **EGRCC with Tomcat**:

1. Create a GRC schema in the Oracle database.

2. Download files to the GRC server and prepare them for use. Create directories for the storage of data generated by EGRCC.

3. Install Tomcat (as instructed in its documentation). On the GRC server, modify Tomcat memory settings, and run a Tomcat setup script provided with EGRCC.

4. Perform configuration steps in a GRC Manage Application Configurations page.

5. Run Tomcat to complete the installation.

To upgrade EGRCC with Tomcat, reuse the GRC database schema, GRC data directories, and Tomcat components already installed and configured for version 8.6.0. Download version 8.6.3 of GRC, deploy its files, and run Tomcat to install it.

Creating a GRC Schema

If you are performing a fresh installation of EGRCM or EGRCC, create a GRC schema in the Oracle database. The following is a sample schema-creation script, in which it is assumed that you have created a tablespace for use by GRC. The values

you choose for tablespace name, user (schema) name, and password are represented here by *grc_tablespace*, *grc_user*, and *grc_password*, respectively.

```
create user grc_user identified by grc_password default
    tablespace grc_tablespace quota unlimited on grc_tablespace
    quota 0k on system;
```

```
grant connect, resource to grc_user;
grant create any view to grc_user;
grant create any table to grc_user;
grant drop any table to grc_user;
```

You can choose to use the system tablespace, rather than create one specifically for GRC. If so, delete the phrase "default tablespace grc_tablespace quota unlimited on grc_tablespace quota 0k on system" from the script.

Run the following commands as the system user:

```
ALTER SYSTEM SET open_cursors=1000;
ALTER SYSTEM SET processes=400 scope=spfile;
ALTER SYSTEM SET sessions=600 scope=spfile;
ALTER SYSTEM SET deferred_segment_creation=FALSE;
```

After running these commands, bounce the database.

If you are upgrading EGRCC, use the schema already created for version 8.6.0. (If you used an 11gR1 or 10g database with your 8.6.0 instance, though, upgrade the database itself to 11gR2.) Before upgrading, take a backup of the 8.6.0 schema.

GRC may display information in any of twelve languages. To use the multilingual capabilities of GRC, be sure the database that hosts the GRC schema is set up for UTF-8 encoding. To do so, execute this command:

```
SELECT value$ FROM sys.props$ WHERE name = 'NLS_CHARACTERSET' ;
```

The return value should be `AL32UTF8`.

Downloading Files

To install EGRCM or EGRCC, you need a file called grc_863.zip. It's available on Oracle E-Delivery. Create a staging directory on your GRC server. (Throughout this document, *<grc_stage>* represents the full path to this directory.) Download grc_863.zip to your staging directory, and extract its contents there.

To validate your download, generate a checksum and compare it with a checksum value published in *Release Notes* for the instance you are installing. To generate a checksum, run the command *md5sum <filename>* against one of two files: grc.ear if you will perform any installation incorporating WebLogic, or grc.war if you intend to install GRCC with Tomcat.

If you intend to use WebLogic, you need middleware components appropriate for the installation you will perform. These are available on E-Delivery.

If you are installing EGRCC to run FAACG, middleware components include:

- Oracle WebLogic Server 11gR1 (10.3.5) Generic and Coherence

- Oracle SOA Suite 11g Patch Set 4 (11.1.1.5.0)

If you plan to install EGRCM, or EGRCC with WebLogic to perform analysis in Oracle EBS or PeopleSoft, middleware components include some combination of the following (see "Prerequisites" on page 1-2):

• Oracle Weblogic Server 11gR1 (10.3.4) Generic and Coherence

• Oracle SOA Suite 11g Patch Set 3 (11.1.1.4.0)

• Oracle Fusion Middleware Repository Creation Utility 11g (11.1.1.4.0) for Linux x86

• Oracle Application Development Runtime 11g Patch Set 3 (11.1.1.4.0).

If you are installing EGRCC and intend to use Tomcat, download it from its site on the Internet.

Creating GRC Repositories

If you are installing EGRCM or EGRCC, create a "Report Repository" — a directory that stores copies of GRC reports that users schedule to be run. Note the path to the Report Repository, as you will need to supply it later as a configuration value. The Repository can reside on an NFS mount or any valid directory to which the user running WebLogic or Tomcat has full permissions.

If you are installing EGRCC, also create a directory for the storage of ETL data used by Enterprise Transaction Controls Governor. Again, note the path to this directory, as you will need to supply it later as a configuration value. (This directory is not needed for EGRCM.)

If you are upgrading EGRCC, reuse the Report Repository and Transaction ETL directories created for version 8.6.0. But first, archive any 8.6.0 reports contained in the Report Repository.

Setting Up WebLogic

If you are installing EGRCM, or if you are installing EGRCC to run FAACG, you must use WebLogic. If you are installing EGRCC to run AACG or ETCG in Oracle EBS or PeopleSoft, you may use either WebLogic or Tomcat. If you intend to use Tomcat, skip ahead to "Setting Up Tomcat Application Server" on page 2-13.

If you will use WebLogic, install WebLogic Server (WLS) and related components generally as their documentation instructs you to do. You will need to make choices that support their use with GRC, and to some extent these choices depend on whether you are installing EGRCM or EGRCC. Complete procedures, documented from here to page 2-13, that are appropriate to the product you are installing. Then skip "Setting Up Tomcat Application Server" and continue at "GRC Configuration" on page 2-14.

Initial WebLogic Installation

Regardless of whether you are installing EGRCM or EGRCC, ensure that Sun JDK 1.6 is in the path to install and run WebLogic Server. Then install WLS as a Standard Default Deployment.

Next, if you are **installing EGRCM with SOA**, complete these procedures:

1. Install Repository Creation Utility (RCU). These RCU components are required:

   - Metadata Services (MDS schema)

   - SOA Infrastructure (SOAINFRA schema)

   - Business Activity Monitoring (ORABAM schema)

   - User Messaging Service (ORASDPM schema)

2. Once RCU is installed, run it to install SOA schemas:

   a. Set an XEDB environment variable to provide connection information for your EGRCM database. Enter the following:

   ```
   export XEDB=Dbhost:Dbport:SID
   ```

   Replace *Dbhost* with the fully qualified domain name (FQDN) of your EGRCM database server, *Dbport* with the port number at which the database communicates with other applications, and *SID* with the service identifier value configured for the database in the tnsnames.ora file.

   b. Use the createRepository option in RCU to create repositories. Navigate to <RCU_HOME>/bin (in which <RCU_HOME> represents the highest-level directory in which RCU components exist). Then execute this command:

   ```
   ./rcu -silent -createRepository -connectString $XEDB
   -dbUser sys -dbRole sysdba -lockSchemas false
   -schemaPrefix EGRCM -component SOAINFRA -component MDS
   -component ORASDPM -component BAM
   ```

   As you run the script, you will be prompted to create passwords for each of SOAINFRA, MDS, ORASDPM, and BAM.

3. Install Oracle SOA Suite. Enter the value "soa" as the Oracle Home Directory on the Specify Installation Location screen.

If you are installing **EGRCM without SOA,** or **EGRCM to be used with a pre-existing SOA instance**, install ADR. Do not install either RCU or SOA.

If you are **installing EGRCC**:

- Install ADR (but not RCU or SOA) if you intend to use ETCG or AACG to perform analysis in Oracle EBS or PeopleSoft instances.

- Install SOA (but not RCU or ADR) if you intend to run FAACG (use AACG to perform analysis in Fusion instances). Once again, enter the value "soa" as the Oracle Home Directory on the Specify Installation Location screen.

Creating a WebLogic Domain

For any installation, create a new WebLogic domain. To do so, execute the following command:

```
<MW_HOME>\wlserver_10.3\common\bin\config.sh
```

Note: <*MW_HOME*> represents the full path to the home directory of your middleware installation — the highest-level directory in which Fusion Middleware components exist, including WebLogic.

The config.sh script runs a Fusion Middleware Configuration Wizard, which prompts you to complete several steps:

1. Select templates.

   For all installations, one template is selected automatically: "Base WebLogic Server Domain — 10.3.*x*.0" (in which *x* is either 4 or 5, depending on your version of WebLogic). Also select "Oracle Enterprise Manager — 11.1.1.0." When you do, a third template, "Oracle JRF — 11.1.1.0," is selected with it.

   Only if you are installing EGRCM with SOA, select three more templates: "Oracle SOA Suite — 11.1.1.0," "Oracle WSM Policy Manager — 11.1.1.0," and "Oracle JRF Webservices Asynchronous Services — 11.1.1.0."

2. Create a name for your WebLogic domain. Use any name you wish. (Throughout this document, the value *<grc_domain>* represents the name you configure here.) In two other fields — Domain Location and Application Location — accept default values.

3. At a Configure Administrator Username Password prompt, create a WebLogic Server username and password. (For username, the default value is "weblogic.")

4. At a Configure Server Start Mode and JDK prompt, select "Production Mode." In the JDK Selection area, ensure that the correct JDK is selected. (This is the JDK instance you confirmed to be in the path to install and run WebLogic under "Initial WebLogic Installation" on page 2-4.) If necessary, use the "Other JDK" option to browse.

5. For EGRCM with SOA only, respond to a Configure JDBC Component Schema prompt. Enter details you've already established as you used RCU to create repositories (see step 2b of "Initial WebLogic Installation" on page 2-5). When you complete this step, you should see the value "Test Successful" at a Test Component Schema prompt.

6. For any installation, select "Administration Server" at a Select Optional Configuration prompt. Also select "Managed Servers, Clusters and Machines" if you are installing EGRCM with SOA or EGRCC to run FAACG (but not if you are installing EGRCM to run with a pre-existing SOA or without SOA, or EGRCC to perform analysis in Oracle EBS or PeopleSoft).

7. At a Configure the Administration Server prompt, enter the IP address of the machine running the WebLogic Server. Also select an unused port for it.

8. If you are installing EGRCC to run FAACG, or EGRCM with SOA, a Configure Managed Servers prompt appears:

   - For EGRCC with FAACG, click the Add button. In the row that appears, enter a name for a GRC server and the IP address of the machine running WebLogic Server. Then continue at step 9.

   - For EGRCM with SOA, confirm that the Configure Managed Servers prompt displays a row for a SOA Server. This row appears as a result of EGRCM-specific configuration you've already completed. Note the IP address and port, which you'll need to enter later in an EGRCM Worklist page. Continue at step 9.

   If you are installing EGRCM without SOA, EGRCM to run with a pre-existing SOA, or EGRCC to perform analysis in Oracle EBS or PeopleSoft instances, you

need not create a managed server. The Configure Managed Servers page and several other Configuration Wizard pages do not appear. Skip ahead to step 12.

9. Skip the Configure Clusters page.

10. In a Configure Machines page, select the Unix Machine tab. Click Add. Assign any name, and accept defaults for all other fields.

11. In the Assign Servers to Machines page, select the servers listed in the left box. Move them to machine you created in step 10, which is listed in the right box.

12. In the Summary page, select Create.

Preparing Additional Files

Regardless of whether you are installing EGRCM or EGRCC, complete these additional steps when the config.sh script finishes running:

1. Copy the following files from <MW_HOME>\oracle_common\modules\ oracle.adf.model_11.1.1, to <MW_HOME>\user_projects\domains\<grc_domain>\lib:

    • adfm.jar

    • adfdt_common.jar

    • adfmweb.jar

2. Copy the following files from <grc_stage>/lib to <MW_HOME>\user-projects\ domains\<grc_domain>\lib:

    • groovy-all-1.6.3.jar

    • xdoparser-10.1.3.4.jar

3. Copy the file ojdbc6dms.jar from <grc_stage>/lib to <MW_HOME>/oracle_ common/modules/oracle.jdbc_11.1.1. (This copy operation will overwrite an existing file.)

4. If you are installing EGRCC to run FAACG, invoke the WebLogic scripting tool — wlst.sh — from <MW_HOME>\oracle_ common\common\bin. Use it to apply the JRF template to the GRC managed server you created in step 8 of "Creating a WebLogic Domain" (*<grc_server>* in the following example):

    ```
    applyJRF('<grc_server>','<MW_HOME>/user_projects/domains/
    <grc_domain>')
    ```

    If you are installing EGRCM (with or without SOA) or EGRCC to perform analysis in Oracle EBS or PeopleSoft instances, skip this step.

5. Create a directory called grc863 (for example, <MW_HOME>/grc863). This directory should be entirely distinct from the <grc_stage> directory you created as you downloaded GRC files.

6. Navigate to <grc_stage>/dist, and locate the file grc.ear. Copy it to the grc863 directory, and extract its contents there.

7. Look in the directory grc863\WEB-INF\lib to see if the files bicmn-10.1.3.4.jar, geronimo-stax-api_1.0_spec-1.0.1.jar, and xdoparser-10.1.3.4.jar exist there. If so, delete them.

Installing SOA Composites

If you are installing EGRCM with SOA, or to run with a pre-existing SOA, create "SOA composites." (If you are installing EGRCM without SOA or EGRCC, this does not apply; skip ahead to "WebLogic Console Configuration" on page 2-11.)

1. Start the Administration Server and SOA Server. (If you are installing EGRCM with SOA, the latter is the managed server discussed in step 8 of "Creating a WebLogic Domain," page 2-6. If you are installing EGRCM to run with a pre-existing SOA instance, this is the SOA server created for that instance.)

2. Locate the file composites.zip in <grc_stage>/dist.

3. Invoke the WebLogic scripting tool — wlst.sh — from <MW_HOME>\SOA_HOME\common\bin.

4. A "wls:/offline" prompt appears. At it, enter the following command:

```
sca_deployComposite("http://host:port","<grc_stage>/dist/
composites.zip",overwrite=true,user="WebLogicAdminUser",
password="WebLogicAdminPassword")
```

In this command:

- Replace *host* with the FQDN of your GRC server, and *port* with the number for your SOA Server.

- Replace *<grc_stage>* with the full path to the staging directory you created as you downloaded GRC files.

- Replace *WebLogicAdminUser* and *WebLogicAdminPassword* with the user-name and password created in step 3 of "Creating a WebLogic Domain," page 2-6.

When the script finishes running, look for this message: "---->Deploying composite success."

Creating Keystores

If you are installing EGRCM with SOA, or to run with a pre-existing SOA, create "keystores" once SOA composites exist. (If you are installing EGRCM without SOA or EGRCC, this does not apply; skip ahead to "WebLogic Console Configuration" on page 2-11.)

1. Stop the (newly created or pre-existing) SOA Server and the Administration Server.

2. Use keytool to set up your keystore. (Keytool is located in <Java_Home>/bin, where <Java_Home> represents the highest-level directory in which Java components are installed.) Execute the following command:

```
./keytool -genkeypair -alias orakey -keyalg "RSA" -keystore
default-keystore.jks -validity 3600
```

3. When prompted, designate a keystore password and a key password. This creates a keystore called default-keystore.jks, and a key pair with the alias orakey within that keystore.

4. Move the new keystore to a directory called fmwconfig. Execute this command:

```
mv default-keystore.jks <MW_HOME>/user_projects/domains/
<grc_domain>/config/fmwconfig
```

This overwrites a pre-existing default-keystore.jks file.

5. Start the Administration Server and the SOA Server.

Setting Up Credentials

If you are installing EGRCM with SOA, or to run with a pre-existing SOA, use Enterprise Manager (EM) to set up credentials once keystores are created. (If you are installing EGRCM without SOA or EGRCC, this does not apply; skip ahead to "WebLogic Console Configuration" on page 2-11.)

1. Access EM at

```
http://host:port/em
```

In this URL, replace *host* with the FQDN of your GRC server, and *port* with the number you selected for the WebLogic Administration Server. (See step 7 of "Creating a WebLogic Domain" on page 2-6.)

2. Click on Weblogic Domain → <grc_domain>.

3. Right-click on the <grc_domain> and select Security → Credentials.

4. On the Credentials page, click on the button labeled + *Create Map*. Enter *oracle.wsm.security* as Map Name, and click OK. A new row, oracle.wsm.security, is created.

5. Add keys to the wallet. For each key, click the button labeled + *Create Key*, then supply the following values in response to prompts:

    • basic.credentials (this contains user authentication)

        – Select Map: oracle.wsm.security

        – Key: basic.credentials

        – Type: Password

        – Username: weblogic

        – Password: weblogic

        – Description: User credentials key

    • keystore-csf-key

        – Select Map: oracle.wsm.security

        – Key: keystore-csf-key

        – Type: Password

        – Username: owsm

        – Password: Enter the keystore password you created in step 3 of "Creating Keystores" (page 2-8).

        – Description: Keystore key

- enc-csf-key

  – Select Map: oracle.wsm.security

  – Key: enc-csf-key

  – Type: Password

  – Username: orakey

  – Password: Enter the key password you created in step 3 of "Creating Keystores" (page 2-8).

  – Description: Encryption key

- sign-csf-key

  – Select Map: oracle.wsm.security

  – Key: sign-csf-key

  – Type: Password

  – Username: orakey

  – Password: Enter the key password you created in step3 of "Creating Keystores" (page 2-8).

  – Description: Signing key

When you finish creating credentials, your domain should be running with at least the Administration Server and SOA Server.

Creating the SOA Admin User and Enabling Embedded LDAP

If you are installing EGRCM with SOA, or to run with a pre-existing SOA, create a user called *soaadmin* and enable Embedded LDAP. (If you are installing EGRCM without SOA or EGRCC, this does not apply; skip ahead to "WebLogic Console Configuration" on page 2-11.)

1. Shut down the SOA Server. (If you are installing EGRCM with SOA, this is the managed server discussed in step 8 of "Creating a WebLogic Domain," page 2-6. If you are installing EGRCM to run with a pre-existing SOA instance, this is the SOA server created for that instance.)

2. Log in to the WebLogic Server Administration Console at

```
http://host:port/console
```

In this URL, replace *host* with the FQDN of your GRC server, and *port* with the number you selected for the WebLogic Administration Server. (See step 7 of "Creating a WebLogic Domain" on page 2-6.)

3. Click on Security Realms, then myrealm. Click Users and Groups. Click New, and enter *soaadmin* in the Name field. Add a description. Accept "Default Authenticator." Enter a password of your choice in the Password field, and the same value in the Confirm Password field. Click Save.

4. Click on the soaadmin user. Click on the Groups tab, and move the value *Administrators* from Available to Chosen. Then save your settings.

5. Click on <grc_domain>. Click the Security tab, then Embedded LDAP. Enter any value for Credential, and then the same value for Confirm Credential.

6. Stop and start the Administration Server.

WebLogic Console Configuration

For any installation, use the WebLogic Server Administration Console to complete additional configuration steps:

1. Make sure you are logged in to the WebLogic Console (see step 2 of "Creating the SOA Admin User and Enabling Embedded LDAP," page 2-10).

2. In the Change Center pane, click Lock & Edit.

3. In the Domain Structure pane, click on Deployments.

4. In the Summary of Deployments pane, select the Control tab.

5. In the Summary of Deployments pane, click on the Install button.

6. In the Path field of the Install Application Assistant pane, enter the full path to the grc863 directory you created earlier (see step 5 of "Preparing Additional Files" on page 2-7). Select "grc863 (open directory)" under Current Location.

7. In the Install Application Assistant pane, press next.

8. In the Install Application Assistant pane, choose "Install this deployment as an application" in the "Choose targeting style" section.

9. In the Install Application Assistant pane, press Next. Then:

   • If you are installing EGRCC to run FAACG, select the GRC managed server you created in step 8 of "Creating a WebLogic Domain" (page 2-6).

   • If you are installing EGRCM with SOA, select the Administration Server.

   • If you are installing EGRCM without SOA, EGRCM to run with a pre-existing SOA, or EGRCC to perform analysis in Oracle EBS or PeopleSoft instances, you are not presented with an opportunity to select a server here. Skip to step 10.

10. In the Install Application Assistant pane, choose "I will make this deployment accessible from the following location" in the "Source accessibility" section. Accept all other defaults.

11. In the Install Application Assistant pane, press Next.

12. In the Install Application Assistant pane, choose "Yes, take me to the deployment's configuration screen" in the "Additional configuration" section.

13. In the Install Application Assistant pane, press Finish.

14. In the Install Application Assistant pane, press Save, then Activate Changes. On the Deployments screen, the state of the grc863 application will be "Prepared."

15. Select the grc863 application. Click Start, select "Servicing all requests," and wait until the application status changes to "Active."

Modifying Settings

Next, modify certain settings. The modifications you make depend on the installation you are performing. Note that files cited in the following procedures reside in the <MW_HOME>/user_projects/domains/<grc_domain>/bin directory.

If you are installing EGRCC to run FAACG:

1. Stop the GRC managed server you created in step 8 of "Creating a WebLogic Domain" (page 2-6).

2. Open the file setDomainEnv.sh in a text editor. Within it, locate JAVA_OPTIONS and edit it to include the following:

   ```
   -Djbo.ampool.maxpoolsize=600000
   ```

3. Open the file StartManagedWebLogic.sh in a text editor. Add the following line to the file, replacing <grc_dir> with the full path to the grc863 directory you created earlier (see step 5 of "Preparing Additional Files" on page 2-7).

   ```
   JAVA_OPTIONS="-Xms512m -Xmx4096m -Xss512k -XX:MaxPermSize=512m
   -Doracle.security.jps.auth.debug=true
   -Doracle.security.jps.auth.debug.verbose=true
   -Djava.security.debug=access,failure
   -Djava.security.auth.login.config="<grc_dir>/grc/WEB-INF/
   jaas.config"
   -Djava.awt.headless=true
   -Dweblogic.security.SSL.trustedCAKeystore="<MW_HOME>/wl
   server_10.3/server/lib/cacerts" ${JAVA_OPTIONS}"
   ```

   You may use a maximum memory setting (-Xmx) larger than 4096m if your server has enough memory to support the larger value.

4. Start the GRC managed server.

If you are installing EGRCC to perform analysis in Oracle EBS or PeopleSoft instances:

1. Stop the Administration Server.

2. Open the file setDomainEnv.sh in a text editor. Within it, locate JAVA_OPTIONS and edit it to include the following:

   ```
   -Djbo.ampool.maxpoolsize=600000
   ```

3. Open the file StartWebLogic.sh in a text editor. Add the following line to the file, replacing <grc_dir> with the full path to the grc863 directory you created earlier (see step 5 of "Preparing Additional Files" on page 2-7).

   ```
   SAVE_JAVA_OPTIONS="-Xms512m -Xmx4096m -Xss512k -XX:MaxPermSize=512m
   -Doracle.security.jps.auth.debug=true
   -Doracle.security.jps.auth.debug.verbose=true
   -Djava.security.debug=access,failure
   -Djava.security.auth.login.config="<grc_dir>/grc/WEB-INF/
   jaas.config"
   -Djava.awt.headless=true
   -Dweblogic.security.SSL.trustedCAKeystore="<MW_HOME>/wl
   server_10.3/server/lib/cacerts" ${JAVA_OPTIONS}"
   ```

   You may use a maximum memory setting (-Xmx) larger than 4096m if your server has enough memory to support the larger value.

4. Start the Administration Server.

If you are installing EGRCM without SOA:

1. Ensure the Administration Server is stopped.

2. Open the file setDomainEnv.sh in a text editor. Within it, locate JAVA_OPTIONS and edit it to include the following:

   ```
   -Djbo.ampool.maxpoolsize=600000
   ```

3. In setDomainEnv.sh, also locate the following lines:

   ```
   # IF USER_MEM_ARGS the environment variable is set, use it
   to override ALL MEM_ARGS values

   if [ "${USER_MEM_ARGS}" != "" ] ; then
   ```

   Insert the following line between those two lines:

   ```
   USER_MEM_ARGS="-Xms512m -Xmx4096m -XX:PermSize=256m
   -XX:MaxPermSize=512m -Djava.awt.headless=true"
   ```

   You may use a maximum memory setting (-Xmx) larger than 4096m if your server has enough memory to support the larger value.

4. Start the Administration Server.

If you are installing EGRCM with SOA, or to run with a pre-existing SOA:

1. Ensure the SOA Server and Administration Server stopped. (If you are installing EGRCM with SOA, the SOA Server is the managed server discussed in step 8 of "Creating a WebLogic Domain," page 2-6. If you are installing EGRCM to run with a pre-existing SOA instance, this is the SOA server created for that instance.)

2. Open the file setDomainEnv.sh in a text editor. Within it, locate JAVA_OPTIONS and edit it to include the following:

   ```
   -Djbo.ampool.maxpoolsize=600000
   ```

3. Open the file setSOADomainEnv.sh in a text editor. Update the following lines in the file:

   ```
   DEFAULT_MEM_ARGS="-Xms512m -Xmx4096m -Djava.awt.headless=true"
   PORT_MEM_ARGS="-Xms512m -Xmx4096m -Djava.awt.headless=true"
   ```

   You may use a maximum memory setting (-Xmx) larger than 4096m if your server has enough memory to support the larger value.

4. Start the SOA Server and Administration Server.

Setting Up Tomcat Application Server

If you are installing EGRCC and prefer to use Tomcat Application Server rather than WebLogic, disregard all the WebLogic information on pages 2-4 through 2-13, and complete this section instead. (Then continue with "GRC Configuration," page 2-14.)

Remember that you cannot use Tomcat if you are installing EGRCM, or if you are installing EGRCC to run FAACG. You can use Tomcat if you are installing EGRCC to run AACG or ETCG in Oracle EBS or PeopleSoft.

To install or upgrade EGRCC with Tomcat:

1. For a fresh installation, download and install Tomcat generally as its documentation instructs you to do. For an upgrade, use the Tomcat components already installed for EGRCC 8.6.0.

2. Shut down the Tomcat application server.

3. If you are upgrading from version 8.6.0, remove the directory <TomcatHome>/ webapps/grcc, and all its contents. If you are performing a new installation, this subdirectory does not exist; skip this step.

Note: Throughout this document, replace the value *<TomcatHome>* with the full path to the highest-level directory in which Tomcat components are installed.

If you are upgrading, also remove the grcc directory from the Tomcat work area (<TomcatHome>/work/Catalina/localhost/grcc). Also delete Tomcat logs, located at <TomcatHome>/logs (you may want to save them to another location first).

4. If you are upgrading from version 8.6.0, navigate to <TomcatHome>/webapps and, from it, delete the file grcc.war. If you are performing a new installation of EGRCC 8.6.3, ignore this step.

5. Modify Tomcat settings. In <TomcatHome>/bin, create the file setenv.sh, and include the following lines in it:

```
CATALINA_OPTS="-Djava.security.auth.login.config=
<TomcatHome>/webapps/grc/WEB-INF/jaas.config
-Doracle.security.jps.config=<TomcatHome>/bin/config/jps-
config.xml -Xss512k -Xms256M -Xmx4096M -XX:MaxPermSize=256m
-XX:+UseParallelGC -Djava.awt.headless=true
-XX:-UseGCOverheadLimit"

export CATALINA_OPTS
```

You may use a maximum memory setting (-Xmx) larger than 4096M if your server has enough memory to support the larger value.

6. Navigate to <grc_stage>/dist. From there, run the file grc_tomcat_setup.sh Supply the paths to <grc_stage>/dist subdirectory, <TomcatHome>, and the full path to your Java home as parameters:

```
cmd> ./grc_tomcat_setup.sh <grc_stage>/dist <TomcatHome>
JavaHomePath
```

7. Start the Tomcat application server.

GRC Configuration

Regardless of whether you use WebLogic or Tomcat, open a Manage Application Configurations page to perform GRC-specific configuration:

1. Access GRC at

```
http://host:port/grc
```

In this URL, replace *host* with the FQDN of your GRC server. Select one of the following values for *port*:

- If you use WebLogic and are installing GRCC to run FAACG, enter the port number you chose for the GRC managed server as you created a WebLogic domain. (See step 8 of "Creating a WebLogic Domain" on page 2-6.)

- If you use WebLogic and are performing any other installation, enter the port number you chose for the Administration Server as you created a WebLogic domain. (See step 7 of "Creating a WebLogic Domain" on page 2-6.)

- If you use Tomcat, replace *port* with 8080 (if you accepted the default value when you installed Tomcat) or your configured value (if you changed the default during Tomcat installation).

2. The Manage Application Configurations page appears with a Properties tab selected. In the Installation Configuration section, type or select appropriate property values. The following apply to both EGRCM and EGRCC:

- Select Application to Install: Choose Enterprise Governance, Risk and Compliance Manager or Enterprise Governance, Risk and Compliance Controls. (Once you complete the installation, this field no longer appears and its setting cannot be modified.)

- User Name: Supply the user name for the GRC database.

- Password: Supply the password for the GRC database.

- Confirm Password: Re-enter the password for the GRC database.

- Port Number: Supply the port number at which the GRC database server communicates with other applications.

- Service Identifier: Supply the service identifier (SID) for the GRC database server, as configured in the tnsnames.ora file.

- Server Name: Supply the FQDN of the database server.

- Report Repository Path: Supply the full path to the Report Repository directory discussed in "Creating GRC Repositories" on page 2-4.

- Log Threshold: Select a value that sets the level of detail in log-file entries. From least to greatest detail, valid entries are *error*, *warn*, *info*, and *debug*.

The following apply only to EGRCC:

- Transaction ETL Path: Enter the full path to the directory you created to hold ETL data used by Enterprise Transaction Controls Governor (see "Creating GRC Repositories" on page 2-4).

- App Server Library Path: Enter the full path to the library subdirectory of your web application server (for use in the upload of custom connectors for AACG).

3. In the Language Preferences section on the Properties tab of the Manage Application Configurations page, select the check boxes for up to twelve languages in which you want GRC to be able to display information to its users.

4. In the Performance Configuration section on the Properties tab of the Manage Application Configurations panel, select or clear check boxes. The following apply both to EGRCM and EGRCC:

- Externalize Report Engine: Select the check box to enable the reporting engine to run in its own java process, so that the generation of large reports does not affect the performance of other functionality. However, select the check box only if you have installed on hardware identified as "certified" in

the *Oracle Governance, Risk and Compliance Applications Support Matrix*; clear the check box if you use hardware identified as "supported."

- Optimize Appliance-Based Operation: Select the check box to optimize performance if the GRC application and GRC schema reside on the same machine. Do not select this check box if the GRC application and schema do not reside on the same machine. When you select this check box, an ORACLE_HOME Path field appears. In it, enter the full, absolute path to your Oracle Home — the directory in which you have installed the Oracle database that houses the GRC schema.

The following apply only to EGRCC:

- Optimize Distributed Operation: Select the check box to increase the speed at which EGRCC performs distributed operations such as data synchronization. However, for this selection to have any effect, you must configure at least one datasource for EGRCC that has an entry in its Database Agent field (see page 4-5). This entry, in turn, is a DB Link name configured externally to EGRCC. The Optimize Distributed Operation setting enhances performance only in EGRCC exchanges with datasources for which values are entered in the Database Agent field.

- Enable Era-Based ETL Optimization: Select this check box to cause ETCG data synchronization to operate only on data entered in business-management applications after a specified date. When you select this check box, an Analysis Start Date field appears. In it, enter a date from which you want synchronization runs to recognize data changes. When you click in the field, a pop-up calendar appears. Click left- or right-pointing arrows to select earlier or later months (and years), and then click on a date in a selected month.

- Enable Parallel Processing: Select this check box to enable EGRCC to process multiple controls simultaneously. However, use of this feature requires, at a minimum, 16 GB of RAM; 24 GB is preferred.

  When you select the Enable Parallel Processing check box, two fields appear. In a Number of Cores Available for Processing field, enter the number of processor cores you wish to devote to parallel processing; EGRCC devotes one core to each control selected for analysis, until as many cores as you select are in use. In a Maximum Megabytes of Physical RAM Available field, specify an amount of memory for use in parallel processing. As a rule of thumb, enter total RAM minus 8 GB; you may need to adjust this value if other processes run slowly.

5. In the Manage Application Configurations page, click on Actions → Save. GRC tests the values you've entered and, if they are valid, saves them. (If any are invalid, an error message instructs you to re-enter them.)

6. Exit the Manage Application Configurations page.

Completing the Installation

With components in place and properly configured, complete the installation, in effect by running your web application server.

1. Shut down your server — the Administration Server if you're using WebLogic, or the Tomcat application server if you're using Tomcat. Then restart the server.

2. In a web browser, enter the GRC URL (see step 1 of "GRC Configuration" on page 2-14).

3. Wait for a pop-up message to report, "Database upgrade and initialization process complete." Click on its OK button.

4. You are redirected to a GRC logon page. Log on to the application, using the default logon values *admin* for user ID and *admin* for password. GRC requires you to change the password the first time you log on.

If you installed EGRCM without SOA, or EGRCC (with or without FAACG) you're done.

If you installed EGRCM with SOA, or to run with a pre-existing SOA, complete some additional steps:

1. Ensure that the SOA Server is up and running. (If you have installed EGRCM with SOA, the SOA Server is the managed server discussed in step 8 of "Creating a WebLogic Domain," page 2-6. If you have installed EGRCM to run with a pre-existing SOA instance, this is the SOA server created for that instance.)

2. In EGRCM, select Navigator → Tools → Setup and Administration → Manage Application Configurations.

3. Select the Worklist tab and enter these values:

   • Worklist Server User Name: Keep the default value, *soaadmin*.

   • Worklist Server Password. Enter the password you created for the soaadmin user (see step 3 of "Creating the SOA Admin User and Enabling Embedded LDAP" on page 2-10).

   • Worklist Server Confirm Password: Re-enter the Worklist Server Password.

   • Worklist Server URL: http://*host*:*port*, in which *host* is the IP address of your SOA server, and *port* is its port number.

   • Worklist Server Protocol: Select the communications protocol — either SOAP or RMI — used by the GRC application to send and receive SOA requests.

4. In the Manage Application Configurations page, click on Actions → Save. Then log off of EGRCM.

5. Stop the GRC Deployment in the WebLogic Console:

   a Log in to the WebLogic Console at

   ```
   http://host:port/console
   ```

   Replace *host* with the FQDN of your GRC server, and *port* with the number you selected for the WebLogic Administration Server. (See step 7 of "Creating a WebLogic Domain" on page 2-6.)

   b From the Domain Structure menu, select Deployments.

   c From the Deployment page, locate the GRC deployment and verify the state is Active.

      d   Click the checkbox next to the GRC deployment.

      e   From the toolbar, click Stop → Force Stop Now.

6. Start the GRC Deployment in the WebLogic Console:

      a   From the Domain Structure menu, select Deployments.

      b   From the Deployment page, locate the GRC deployment and verify the state is Prepared.

      c   Click the checkbox next to the GRC deployment.

      d   From the toolbar, click Start → Servicing All Requests.

3

Deploying a VM Image of GRC

Rather than perform a conventional GRC installation, you can deploy a GRC image configured in advance by Oracle. You would use Oracle VM Server to deploy the image.

The image is an instance of either EGRCM or EGRCC running with WebLogic. For EGRCM, the image is initially configured to run without SOA; however, a SOA instance is included, and once deployment is complete you can configure the image to use SOA worklists. (SOA does not apply to EGRCC.) All other required elements, such as operating system and database, are included in the image. The database includes both a GRC schema (which serves the application itself) and a data analytics schema (for use in enhanced reporting).

Deploying a GRC Distribution

To deploy an Oracle GRC distribution for Oracle VM Server:

1. Obtain and install Oracle VM Manager and Oracle VM Server 2.2.

2. Add the hostname of the machine hosting Oracle VM Server to the "server pool" in Oracle VM Manager.

3. Extract an Oracle GRC Distribution into the "running_pool" directory on the Oracle VM Server. Use grcm.tar.gz if you want to run Enterprise Governance, Risk and Compliance Manager, or grcc.tar.gz if you want to run Enterprise Governance, Risk and Compliance Controls. Within an instance of Oracle VM Server, you must choose one or the other; you can't choose both.

4. Open the file vm.cfg in a text editor. (It's located in the directory extracted from the Oracle GRC Distribution.) In it, locate the "disk" line. Edit this line to contain the path to system.img (which resides in the same directory as vm.cfg, extracted from the Oracle GRC Distribution).

5. Log in to Oracle VM Manager. On the Resources tab, select Virtual Machine Images.

6. Click on the Import button.

7. Select the second option, "Select from Server Pool (Discover and register)." Then click Next.

8. Ensure your VM is selected in a Virtual Machine Image Name drop-down field. (Your VM is stored in a subdirectory of the "running_pool" directory, and its name is the same as the name of this subdirectory.) Then select and fill in other fields. (Note: For operating system, select Oracle Enterprise Linux 5 64-bit.) Click the Next button.

9. A confirmation page appears. Review it and (assuming values are correct) click on the Confirm button. The Virtual Machine Images entry page reappears.

10. Click on the Approve button. Another confirmation page appears. Review it and (assuming values are correct) click on the Confirm button.

11. You should now see the VM in a powered off state. Click the Power On button and enter "OS in Single User Mode."

12. Once in Single User Mode, change the "root" user password and edit the network configurations to make the VM accessible on your network.

   Change the hostname and IP of the VM in the following files:
   /etc/hosts/
   /etc/resolv.conf
   /etc/sysconfig/network
   /etc/sysconfig/network-scripts/ifcfg-eth0

   Change the hostname and IP of the DB in the following files:
   /u01/app/oracle/product/11.2.0/db/network/admin/listener.ora
   /u01/app/oracle/product/11.2.0/db/network/admin/tnsnames.ora

   When all updates are completed, restart the instance.

13. Once the startup is completed, you should be able to log into the instance as the "root" user or the "oracle" user. All applications are owned by the oracle user.

Users and Passwords

Default usernames and passwords within a GRC image include the following:

- Oracle Database: sys/manager
- Oracle Database: system/manager
- OS (root user): root/welcome
- OS (oracle user): oracle/welcome
- WebLogic Administration Server: weblogic/welcome1
- SOA (soa_server1) Managed Server: weblogic/welcome1
- Oracle WebLogic Server Console: weblogic/welcome1
- Oracle WebLogic Server Enterprise Manager: weblogic/welcome1
- GRC Schema: grc_user/grc_password
- GRC Data Analytics Schema: grc_user_da/grc_password

Log File Locations

Default locations of log files within a GRC image include the following:

- Oracle Weblogic Server - AdminServer (nohup):
  /u01/app/Oracle/Middleware/user_projects/domains/grc_domain/bin/wls.log

- Oracle Weblogic Server - SOA (soa_server1) Managed Server (nohup):
  /u01/app/Oracle/Middleware/user_projects/domains/grc_domain/bin/soa.log

- Oracle Weblogic Server - AdminServer:
  /u01/app/Oracle/Middleware/user_projects/domains/grc_domain/servers/Admin
  Server/logs

- Oracle Weblogic Server - SOA (soa_server1) Managed Server:
  /u01/app/Oracle/Middleware/user_projects/domains/grc_domain/servers/soa_
  server1/logs

- GRC Log:
  /u01/app/Oracle/Middleware/user_projects/domains/grc_domain/servers/Admin
  Server/stage/grc863/grc863/grc/log/grc.log

Starting a GRC Distribution

To start an Oracle GRC distribution for Oracle VM Server:

1. Log into the instance as the oracle user.

2. Set the ORACLE_HOME environment variable:

   ```
   export ORACLE_HOME=/u01/app/oracle/product/11.2.0/db
   ```

3. Set the ORACLE_SID environment variable:

   ```
   export ORACLE_SID=orcl
   ```

4. Add ORACLE_HOME/bin to the PATH:

   ```
   export PATH=$ORACLE_HOME/bin:$PATH
   ```

5. Use SqlPlus to start the Oracle database. For example:

   ```
   sqlplus /nolog
   SQL> connect / as sysdba
   SQL> startup
   SQL> exit
   ```

6. Start the Oracle Database Listener:

   ```
   lsnrctl start
   ```

7. Set your path to the following:

   ```
   /u01/app/Oracle/Middleware/user_projects/domains/grc_domain/
   bin
   ```

8. Start the WebLogic Administration Server:

   ```
   nohup ./startWeblogic.sh > wls.log &
   ```

9. Optionally, start the WebLogic SOA Managed Server (soa_server1). This step applies to EGRCM only; skip this step if you use EGRCC.

```
nohup ./startManagedWeblogic.sh soa_server1 > soa.log &
```

10. Verify that WebLogic and (if applicable) SOA are available by connecting to the Oracle WebLogic Server Enterprise Manager. (Replace <hostname> with the value you created in step 12 of "Deploying a GRC Distribution," page 3-2.)

```
http://<hostname>:7001/em
```

11. Verify that the GRC application (grc863) is available by connecting to the Oracle WebLogic Server Console. (Replace <hostname> with the value you created in step 12 of "Deploying a GRC Distribution," page 3-2.)

```
http://<hostname>:7001/console
```

12. Logon to the GRC application. (Replace <hostname> with the value you created in step 12 of "Deploying a GRC Distribution," page 3-2.)

```
http://<hostname>:7001/grc
```

Stopping a GRC Distribution

To stop an Oracle GRC distribution for Oracle VM Server:

1. Log into the instance as the oracle user.

2. Set the ORACLE_HOME environment variable:

```
export ORACLE_HOME=/u01/app/oracle/product/11.2.0/db
```

3. Set the ORACLE_SID environment variable:

```
export ORACLE_SID=orcl
```

4. Add ORACLE_HOME/bin to the PATH:

```
export PATH=$ORACLE_HOME/bin:$PATH
```

5. Set your path to the following:

```
/u01/app/Oracle/Middleware/user_projects/domains/grc_domain/
bin
```

6. If the WebLogic SOA Managed Server (soa_server1) is running, stop it. This step applies to EGRCM only; skip this step if you use EGRCC.

```
./stopManagedWeblogic.sh soa_server1
```

7. Stop the WebLogic Administration Server:

```
./stopWeblogic.sh
```

8. Stop the Oracle Database Listener

```
lsnrctl stop
```

9. Use SqlPlus to start the Oracle database. For example:

```
sqlplus /nolog
SQL> connect / as sysdba
SQL> shutdown immediate
SQL> exit
```

4

Additional EGRCC Configuration

If you've installed Enterprise Governance, Risk and Compliance Controls, complete additional configuration procedures as needed:

- Define the information AACG uses to create "global users." Within business applications subject to AACG models and controls, individual users may have user-account information that varies from one application to the next. For each such person, EGRCC creates a "global user" and maps that person's business-application IDs to it. You must change the default global-user value if you are implementing FAACG (installing EGRCC to apply AACG models and controls within Oracle Fusion Applications). Otherwise, global-user configuration is optional.

- Set up datasources — connections to applications in which EGRCC is to perform analysis. In addition, synchronize data for each datasource — collect information required for AACG or ETCG analysis, and provide that information a format that EGRCC recognizes. (For an AACG instance or an ETCG instance that performs analysis in Oracle EBS of PeopleSoft, both datasource configuration and data synchronization are somewhat different than for FAACG instances.)

Configuring Global Users

Implement one of the following options to determine the information EGRCC uses to create global users. Important: Select an option that identifies each person uniquely.

- EMAIL_ONLY: Match the global user to email addresses from distinct datasources (or within one datasource). This is the default.

- EMAIL_AND_USER_NAME: Match the global user to email address plus username from distinct datasources (or within one datasource). You *must* select this option if you are implementing FAACG.

- EMAIL_AND_ALL_NAMES: Match the global user to email address, username, given name, and surname from distinct datasources (or within one datasource).

As a regular procedure, EGRCC users will "synchronize data" — collect information required for AACG or ETCG analysis, and provide that information to EGRCC. Ideally, you should change global-user configuration (if you wish to) before anyone synchronizes data with any business-management application.

To use the default EMAIL_ONLY option, omit the rest of this section if either of the following is true:

- You are upgrading from version 8.6.0, and that version uses the default EMAIL_ONLY configuration.

- You are performing a fresh installation.

However, if you wish to change the default EMAIL_ONLY configuration, use the following procedure to do so. Complete steps 1–3 if you are performing a fresh installation and data synchronization has not yet been run; in this case, omit step 4.

If you are upgrading, or if data synchronization has been performed even once, complete steps 1–4. **Warning:** If you complete step 4 in this procedure, you may lose all existing data. Back up your EGRCC data before initiating this procedure.

1. Use SQL*Plus, or any other tool with the ability to execute SQL commands on a database, to connect to the GRC schema.

2. Run the following SQL statement:

```
DELETE FROM GRC_PROPERTIES
WHERE NAME like 'GLOBAL_USER_CONFIG';
COMMIT;
```

3. Run *one* of the following SQL statements, depending on the global-user format you want to implement:

   For email and username, run the following statement:

```
Insert into GRC_PROPERTIES (NAME, VALUE, DESCRIPTION, DEFAULT_VALUE,
VISIBLE, CONFIGURABLE, DATA_TYPE_ID)Values ('GLOBAL_USER_CONFIG',
'EMAIL_AND_USERNAME', 'Global User configuration. Possible values:
EMAIL_ONLY, EMAIL_AND_USERNAME, EMAIL_AND_ALL_NAMES', 'EMAIL_ONLY', 0, 0,
0);
COMMIT;
```

   For email, username, given name, and surname, run the following statement:

```
Insert into GRC_PROPERTIES (NAME, VALUE, DESCRIPTION, DEFAULT_VALUE,
VISIBLE, CONFIGURABLE, DATA_TYPE_ID) Values ('GLOBAL_USER_CONFIG',
'EMAIL_AND_ALL_NAMES', 'Global User configuration. Possible values:
EMAIL_ONLY, EMAIL_AND_USERNAME, EMAIL_AND_ALL_NAMES', 'EMAIL_ONLY', 0, 0,
0);
COMMIT;
```

   For email only, run the following statement. (As already noted, email-only is the default configuration. Run this statement only if you have changed your global-user configuration to one of the other formats, and want to change back.)

```
Insert into GRC_PROPERTIES (NAME, VALUE, DESCRIPTION, DEFAULT_VALUE,
VISIBLE, CONFIGURABLE, DATA_TYPE_ID) Values ('GLOBAL_USER_CONFIG',
'EMAIL_ONLY', 'Global User configuration. Possible values: EMAIL_ONLY,
EMAIL_AND_USERNAME, EMAIL_AND_ALL_NAMES', 'EMAIL_ONLY', 0, 0, 0);
COMMIT;
```

4. Complete this step if you are upgrading from EGRCC 8.6.0, or if you have completed a fresh installation, run data synchronization, and wish to reconfigure the global user after doing so. Run the following SQL statements:

```
TRUNCATE TABLE SUM_ENTITLEMENT_ENTITLEMENT;
TRUNCATE TABLE SUM_ENTITLEMENT_PRIORITY;
TRUNCATE TABLE SUM_ENTITLEMENT_RISK;
TRUNCATE TABLE SUM_ENTITLEMENT_STATUS;
```

```
TRUNCATE TABLE SUM_ENTITLEMENT_TAG;
TRUNCATE TABLE SUM_PRIORITY_TAG;
TRUNCATE TABLE SUM_ROLE_DIMENSION;
TRUNCATE TABLE SUM_ROLE_ENTITLEMENT;
TRUNCATE TABLE SUM_ROLE_PRIORITY;
TRUNCATE TABLE SUM_ROLE_ROLE;
TRUNCATE TABLE SUM_ROLE_STATUS;
TRUNCATE TABLE SUM_ROLE_USER;
TRUNCATE TABLE SUM_STATUS;
TRUNCATE TABLE SUM_STATUS_PRIORITY;
TRUNCATE TABLE SUM_STATUS_TAG;
TRUNCATE TABLE SUM_TAG_TAG;
TRUNCATE TABLE SUM_USER_ENTITLEMENT;
TRUNCATE TABLE SUM_USER_TAG;
TRUNCATE TABLE SUM_USER_STATUS;
TRUNCATE TABLE SUM_USER_PRIORITY;
TRUNCATE TABLE LAA_RUN_SIMULATION;
DELETE FROM LAA_RUN;
COMMIT;
```

Configuring Datasources and Synchronizing Data

Connect EGRCC to datasources (instances of business-management applications that are to be subject to its analysis). Also synchronize data for each datasource — collect information required for AACG or ETCG analysis.

EGRCC creates one global user for each user in the first datasource for which you synchronize access data. It adopts the ID configured for each user in that datasource as that user's global ID. When you synchronize data for a second datasource, EGRCC matches users who also exist in the first datasource to their already-existing global user IDs. For each "new" user — each of those who do not exist in the first datasource — EGRCC adopts the user ID from the second datasource as the user's global ID. And so on for each datasource for which you synchronize data.

AACG pages display the global user ID for each business-application user. A given user's ID may differ from one datasource to the next, and you may prefer to set IDs from a particular datasource as the global user IDs.

It's recommended, therefore, that you configure all datasources in which you expect to apply AACG models and controls before you synchronize data for any of them. Next, choose the datasource from which you want EGRCC to adopt IDs as global user IDs, and synchronize that datasource first. Establish an order for the remaining datasources, each of which sets global IDs for users who do not exist in the datasources for which synchronization has already been completed. Then synchronize the remaining datasources in that order.

To configure datasources or to synchronize their data, log on to EGRCC. In a web browser, enter the following,

```
http://host:port/grc
```

In this URL, *host* represents the FQDN of your GRC server, and *port* is the port number at which it communicates with other applications:

*   If you use WebLogic, this is the number you chose for the Administration Server as you created a WebLogic domain. (See step 7 of "Creating a WebLogic Domain" on page 2-6.)

- If you use Tomcat, this is 8080 (if you accepted the default value when you installed Tomcat) or your configured value (if you changed the default during Tomcat installation).

When EGRCC is running, click on the Navigator (a link to the left of the application, in the dark blue band that runs along its top). A pop-up window opens; in it, select Administration Management. A Tasks panel (beneath the Navigator link) then displays a list of Administrative tasks; in it, select Manage Application Data.

To configure an Oracle EBS or PeopleSoft datasource, complete these steps. (The procedure is somewhat different for a Fusion datasource; see page 5-5.)

1. Ensure that the Datasources tab is selected.

2. Click on Actions → Create New. A new row appears. Double-click in each field (or press Tab to move from an active field to the next field). Enter the following:

- Datasource Name: Create a name for the datasource.

- Description: Type a brief description of the datasource (optional).

- Host Name: Supply the FQDN for the machine that hosts the database used by the business-management application.

- Port: Enter the port number that the database uses to communicate with other applications.

- User Name: Supply the user name for the database used by the business-management application. (For an Oracle EBS instance, this is typically APPS.)

- Password: Enter the password for the database.

- Confirm Password: Re-enter the password for the database.

- Service Identifier: Supply the SID value configured for the database in the tnsnames.ora file.

- Application Type: From a list box, select the type of business-management application to which you are connecting — by default, EBS or PeopleSoft.

- Version: From a list box, select the version number of the business-management application to which you are connecting.

- Default: Select the radio button to designate a default datasource — one whose data is subject automatically to models as they are saved. There can be only one default datasource.

- Connector: Select a custom connector (if any have been uploaded to EGRCC) to apply it to this datasource. Or, to use the default connector provided with EGRCC, make no selection at all. (If so, the Connector field displays *Default* after you save the datasource.)

  A connector uses ETL technology to collect data from a business application and provide it in a format that EGRCC recognizes. The default connector does this for instances of Oracle EBS and PeopleSoft; it applies to any datasource for which no custom connector is selected.

- DB Type: From a list box, select the type of database — Oracle, MS SQL Server, or DB2 — used by the business-management application being configured as a datasource.

- Database Agent: Tells the Oracle Data Integrator (ODI) agent to use DB Link on Oracle databases. If you've specified a DB Link name externally for the datasource, enter that name here. (See step 4 on page 2-15.)

3. When you finish entering values, click on Actions → Save.

To perform data synchronization:

1. Ensure that the Datasources tab remains selected in the Manage Application Data page.

2. Select the row for the datasource with which you want to synchronize data.

3. Do either of the following:

    - Click on Actions → Synchronize Access. Alternatively, click on the Synchronize button in the tool bar, then on a Run Now option, and then on an Access option. This causes data used by AACG to be synchronized once, immediately.

      If you are upgrading from version 8.6.0, you must run access synchronization for each datasource. (You must first have deleted the content of a directory that stores ETL data used by ETCG. This should have occurred when you completed "Creating GRC Repositories" on page 2-4.)

    - Click on Actions → Synchronize Transaction. Alternatively, click on the Synchronize button in the tool bar, then on a Run Now option, and then on an Transaction option. This causes data used by ETCG to be synchronized once, immediately.

(You may also select another option, Actions → Schedule Synchronize, to establish a schedule on which data synchronization occurs regularly. For more on this, see the *Enterprise Governance, Risk and Compliance Controls User Guide*.)

Each time a datasource is synchronized, EGRCC updates fields in the row for that datasource: Last Access Synchronization Date and Last Access Synchronization Status show the date of the most recent access synchronization, and its completion status. Last Transaction Synchronization Date and Last Transaction Synchronization Status do the same for the most recent transaction synchronization.

Determining Datasource IDs

When you configure a datasource, EGRCC assigns an ID number to it. If you intend to implement preventive analysis for an Oracle EBS or PeopleSoft datasource, you need to know its datasource ID. To determine the number, configure the datasource, then complete the following steps:

1. Ensure that the Datasources tab remains selected in the Manage Application Data page.

2. Right-click on the header row in the grid that displays configured datasources.

3. A list of available columns appears. In it, select the check box for the Datasource ID column (click on it so that a check mark appears).

4. Left-click anywhere outside of the list of columns to close it.

5. The Manage Application Data page now displays a Datasource ID column. In it, note the ID number assigned to the datasource you've configured.

If, having determined the datasource IDs for your datasources, you wish to remove the Datasource ID column from view, repeat this procedure but clear the Datasource ID check box (click on it so that the check mark disappears).

5

Setting Up FAACG

If you have installed Enterprise Governance, Risk and Compliance Controls so that you can use Application Access Controls Governor to perform segregation-of-duties analysis in an instance of Oracle Fusion, complete the procedures in this chapter. (If not, then this chapter does not apply to you.)

As prerequisites, Fusion Human Capital Management (HCM) and Oracle Identity Management (OIM) must be installed, through the Fusion Applications provisioning process. In conjunction with this, Oracle Internet Directory (OID) must be set up as the LDAP repository whose identity store is managed by OIM. In addition, you must have installed version 6.3.0.4000 of EGRCC to run with WebLogic (see "Prerequisites" on page 1-2, as well as chapter 2 of this document).

Then, to set up Fusion Application Access Controls Governor (FAACG), change the EGRCC "global user" configuration to EMAIL_AND_USERNAME (see page 4-1). Then install a "connector" within your EGRCC instance. (The connector collects data from a Fusion instance and provides it in a format that EGRCC recognizes.) Finally , use Fusion Setup Manager to perform GRC setup.

Installing the Connector

To install a connector, you use a Manage Application Data page available within EGRCC. Before doing so, however, you must complete several preliminary configuration steps.

Associate the GRC Domain with OID

To begin, associate your GRC domain (set up in "Creating a WebLogic Domain" on page 2-5) with a "security store" maintained by OID.

1. Invoke the WebLogic scripting tool — wlst.sh — from <MW_HOME>\oracle_common\common\bin.

2. Enter the following command:

```
reassociateSecurityStore(domain="fusion_domain",
  servertype="OID", ldapurl="host:port", jpsroot="cn=nodename",
  admin="cn=adminuser", password="adminpassword", join="true")
```

In this command:

- *fusion_domain* is the name of the Fusion policy store (which is, in turn, the branch of the security store that identifies privileges that can be granted within applications). This value is identified beneath the "cn=JPSContext" entry in the OID LDAP tree.

- *host* is the FQDN of the LDAP provider (your OID instance), and *port* is the port number at which it communicates with other applications.

- *nodename* is the root node for your policy store within the OID LDAP tree.

- *adminuser* is the username for the OID administrative user.

- *adminpassword* is the password configured for the OID administrative user.

3. Bounce the WebLogic Administration Server and managed servers.

Create an OIDAuthenticator

Next, create an OIDAuthenticator:

1. Log in to the WebLogic Server Administration Console:

   ```
   http://host:port/console
   ```

   In this URL, replace *host* with the FQDN of your GRC server, and *port* with the number you selected for the WebLogic Administration Server. (See step 7 of "Creating a WebLogic Domain" on page 2-6.)

2. Click on the "Security Realms" link in your application's Security Settings.

3. Click on the "myrealm" link in the table.

4. Click on the "Providers" tab.

5. Click on the New button and enter the following values:

   - Name: OIDAuthenticator

   - Type: OracleInternetDirectoryAuthenticator

6. Click on the "OIDAuthenticator" link and then click on the "Provider Specific" tab.

7. Supply values for properties in the "Provider Specific" screen. (Italicized entries are literal values, to be entered as they are shown.)

   - Host: The FQDN of the LDAP provider (your OID instance).

   - Port: The port number at which the host communicates with other applications.

   - Principal: The username for the OID administrative user, preceded by *cn=*.

   - Credentials: The password configured for the OID administrative user.

   - SSLEnabled: Leave this box unchecked.

   - User Base DN: The LDAP path to the store for user information. For example: cn=FusionUsers,cn=users,dc=us,dc=oracle,dc=com

   - All User Filter: *(&(cn=*)(objectclass=person))*

- User From Name Filter: *(&(cn=%u)(objectclass=person))*

- User Search Scope: *subtree*

- User Name Attribute: *cn*

- User Object Class: *person*

- Use Retrieved User Name as Principal: Select this checkbox.

- Group Base DN: The LDAP path to the store for group (enterprise role) information. For example: cn=FusionGroups,cn=groups,dc=us,dc=oracle, dc=com

- All Groups Filter: *(&(cn=*)(|(objectclass=groupofUniqueNames) (objectclass=orcldynamicgroup)))*

- Group From Name Filter: *(|(&(cn=%g)(objectclass=groupofUniqueNames)) (&(cn=%g)(objectclass=orcldynamicgroup)))*

- Group Search Scope: *subtree*

- Group Membership Searching: *unlimited*

- Static Group Name Attribute: *cn*

- Static Group Object Class: *groupofuniquenames*

- Static Member DN Attribute: *uniquemember*

- Static Group DN from Member DN filter: *(&(uniquemember=%M)(objectclass= groupofuniquenames))*

- Dynamic Group Name Attribute: *cn*

- Dynamic Group Object Class: *orcldynamicgroup*

- Dynamic Member URL Attribute: *labeleduri*

- User Dynamic Group DN Attribute: Leave this field blank.

- Connection Pool Size: *6*

- Connect Timeout: *0*

- Connection Retry Limit: *1*

- Parallel Connect Delay: *0*

- Results Time Limit: *0*

- Keep Alive Enabled: Leave this box unchecked.

- Follow Referrals: Select this checkbox.

- Bind Anonymously On Referrals: Leave this box unchecked.

- Propagate Cause For Login Exception: Leave this box unchecked.

- Cache Enabled: Select this checkbox.

- Cache Size: *32*

- Cache TTL: *60*

- GUID Attribute: *orclguid*

8. Save your settings, then click on "Activate Changes" on the left, topmost panel.

9. Click the "OIDAuthenticator" link from the authenticator list, and set the Control Flag to SUFFICIENT.

10. Click the "DefaultAuthenticator" link from the authenticator list, and set the Control Flag to SUFFICIENT.

11. Click the Reorder button. Select "OIDAuthenticator" from the available providers, and move it to the top. To do so, click on the arrow on the right side, then click OK.

12. Click on "Activate Changes" from the Change Center, then log out.

13. Bounce the WebLogic Administration Server and managed servers.

Grant Permission to the EGRCC Code Base

Use the WebLogic scripting tool to grant necessary permissions.

1. Invoke the WebLogic scripting tool — wlst.sh — from <MW_HOME>\oracle_ common\common\bin.

2. Execute the grantPermission command twice, as shown below. In the commands, replace *<grc863>* with the full path to the grc863 directory created in step 5 of "Preparing Additional Files," on page 2-7. All other arguments to the commands are literal values, to be entered as shown.

```
grantPermission(codeBaseURL= "file:/<grc863>/WEB-INF/-",
permClass="oracle.security.jps.service.policystore.PolicySt
oreAccessPermission", permTarget="context=SYSTEM",
permActions="getConfiguredApplications")
```

```
grantPermission(codeBaseURL= "file:/<grc863>/WEB-INF/-,
permClass="oracle.security.jps.service.policystore.PolicySt
oreAccessPermission", permTarget="context=APPLICATION,
name=*", permActions="getApplicationPolicy")
```

3. Bounce the WebLogic Administration Server and managed servers.

Upload the Connector

The Fusion connector is provided in a file called fusion-11.1.1.5.1-grc-8.6.3.4000-adaptersetup.zip. To upload it to EGRCC:

1. Log on to EGRCC. In a web browser, enter the following URL, in which *host* is the FQDN of your GRC server, and *port* is the number you chose for the GRC managed server as you created a WebLogic domain. (See step 8 of "Creating a WebLogic Domain" on page 2-6.)

```
http://host:port/grc
```

2. Click on the Navigator (a link to the left of the application, in the dark blue band that runs along its top). A pop-up window opens; in it, select Administration Management. A Tasks panel (beneath the Navigator link) then displays a list of Administrative tasks; in it, select Manage Application Data.

3. In the Manage Application Data page, select the Custom Connector tab.

4. Click on Actions → Upload File.

5. A Custom Connectors pop-up window opens. Click on its Browse button.

6. A Choose File dialog opens. In it, navigate to, and select, fusion-11.1.1.5.1-grc-8.6.3.4000-adaptersetup.zip, which is among the files in <grc_ stage> directory (see "Downloading Files" on page 2-3). The path and name of the file then populate the field next to the Browse button in the Custom Connectors window.

7. Click on the Upload File button. A pop-up message reports the status of the upload operation. Click on its OK button to clear it, and then click on the Close button in the Custom Connector window.

8. Log off of EGRCC and restart both the Administration Server and the GRC managed server. (Before doing so, be sure that the file dom4j-1.6.jar does not exist in the library subdirectory of your web application server).

Create and Synchronize a Datasource

Having uploaded the connector, you will need to configure a datasource that associates your Fusion instance with the connector:

1. Log on to EGRCC once again.

2. Once again, select Manage Application Data in the EGRCC Tasks list; this time, ensure that the Datasources tab is selected.

3. Click on Actions → Create New. A new row appears. To enter values in this row, double-click in each field (or press the Tab key to move from an active field to the next field). Enter the following values:

   • Datasource Name: Create a name for the datasource.

   • Description: Type a brief description of the datasource (optional).

   • Host Name: Supply the FQDN of the LDAP provider (your OID instance).

   • Port: Enter the port number at which the host communicates with other applications.

   • User Name: Supply the username for the OID administrative user, preceded by *cn=*.

   • Password: Enter the password for the OID administrative user.

   • Confirm Password: Re-enter the password for the OID administrative user.

   • Service Identifier: Fusion

   • Application Type: Fusion 1.0

   • Version: Fusion 1.0

   • Default: Leave unselected.

   • Connector: Fusion

   • DB Type: Leave blank.

   • Database Agent: Leave blank.

4. When you finish entering values, click on Actions → Save.

Finally, perform a data synchronization. With the Datasources tab still selected in the Manage Application Data page, select the row you've just created for the Fusion datasource. Then either click on Actions → Synchronize Access, or click on the

Synchronize button in the tool bar, then on a Run Now option, and then on an Access option.

Performing GRC Setup in Fusion Setup Manager

Once the Fusion connector is installed, create an implementation project for GRC in Fusion Setup Manager (FSM).

It's assumed you are familiar with use of the Fusion Setup Manager, and with terms such as *offerings*, *activities*, *tasks*, and *tasklists*. If not, see the *Oracle Fusion Application Installation Guide* and the *Fusion Setup Manager Administrator's Guide*.

Portlet Registration

Begin by ensuring that GRC is registered successfully in FSM. With FSM open, select Manage Portlet Registration under Implementations in the Tasks list (along the left of the interface). If the Manage Portlet Registration page does not show that GRC is registered, search for the "GRC Setup" Enterprise-Application and perform the portlet registration. Refer to the *FSM Administrator's Guide* for instruction on how to perform portlet registration.

Configure Offerings

Because preseeded offerings are not GRC-enabled by default, use a Configure Offerings page to enable GRC for the desired offering.

1. Open the page: Select Configure Offerings under Implementations in the Tasks list.

2. Click on the Select Feature Choices icon for the selected offering. For example, selecting the icon for the Customer Data Management offering displays a screen in which Governance, Risk and Compliance is listed.

3. Select the Governance, Risk and Compliance entry — click on it so that a check mark appears in its check box.

4. Click Save and Close.

Implementation Project

To display a GRC-Setup screen within FSM, create one or more implementation projects. You can base a project on the offerings enabled for GRC, or you can directly add GRC-Setup tasks (and tasklists). In either case, expanding a node will display a "Go to Task" icon for the selected task within the node, and clicking on it will render the GRC-Setup screen.

Create a GRC Setup Master Record

When you select a Go-to-Task icon, a Manage Setup Configurations screen enables you to create new GRC setup records or to search for, update, or delete existing records. Click the Create New icon to open a Configuration screen, in which you can create or register a new GRC Setup configuration master record.

In this page, supply the following values:

- Code: A code that uniquely identifies the master record being created, for example GRC_HCM.

- Name: Short name to describe the code, for example "GRC Setup Data for Human Capital Management."

- Description: Full description, for example, "This is the master record to define GRC Setup data to enforce separation of duties mandate for HCM."

Click the Save and Continue button to save the date prior to creating detail records. (Clicking on Save and Close returns you to the Manage Setup Configurations screen.)

Create a GRC Setup Detail Record

In the Configuration (master-record) screen, locate the Configuration Details panel and click on its Create New icon. A Configuration Details screen opens, in which you can create detail records for the master record.

In this page, enter the following values:

- Detail Name: Code that uniquely identifies the detail record being created.

- Name: Short name to describe the code.

- Description: Full description.

- Status: Nonmandatory field to specify the status of the detail record. It typically contains Active or Inactive.

- Services URL: http://*host*:*port*/grc/Services/GrccService, in which *host* is the FQDN of your GRC server, and *port* is the number you chose for the Administration Server as you created a WebLogic domain. (See step 7 of "Creating a WebLogic Domain" on page 2-6.)

- User Name: The user name for a user granted the Admin role defined in the GRC UI.

- Password: The password for the user granted the Admin role.

- Confirm Password: The same password, entered for verification.

- GRC Data Source: The name of the datasource configured under "Create and Synchronize a Datasource" on page 5-5.

Click on Save and Close to return to the Configuration screen.

Publish Configuration

When detail records are complete, they must be published to Oracle Identity Management. From the Configuration (master-record) screen, select (click on) a detail record in the Configuration Details panel. Then select the Publish to OIM icon (it looks like an arrow pointing upwards).

A Publish Configuration to OIM pop-up window opens. In it, enter these values:

- Protocol: The protocol used for communication with the OIM managed server. Either https or t3s is recommended, but you may use any protocol the OIM managed server accepts.

- OIM Hostname: The name of the host of the OIM managed server.

- Port Number: The port of the OIM managed server.

- OIM User Name: The name of the user with admin role on the OIM managed server. (This user must be able to invoke MBean operations.)

- OIM Password: The password of the OIM user.

6

Installing PEAs

In support of the AACG preventive analysis feature, install a Preventive Enforcement Agent (PEA) on each instance of Oracle E-Business Suite or PeopleSoft that is to be subject to AACG analysis.

There are distinct PEAs (and installation procedures) for EBS and PeopleSoft. See the *Oracle Governance, Risk and Compliance Applications Support Matrix* for supported versions of Oracle EBS and PeopleSoft. Even if you have installed a PEA for an earlier version of EGRCC, you must reinstall it for version 8.6.3.

Installing the Oracle PEA

On each EBS instance for which you want to enable preventive analysis, you must install version 7.3.3 of Preventive Controls Governor (PCG) before installing version 8.6.3 of the PEA. Keep the following in mind:

*   You can install EGRCC 8.6.3 on its server without first having installed PCG on any EBS instance. If so, however, AACG would not be able to apply preventive analysis to Oracle EBS instances. You can implement preventive analysis subsequently; to do so, you would first install PCG, then the PEA, on each EBS instance for which you want to enable preventive analysis.

*   Even after preventive analysis is enabled, you may choose to reinstall PCG on an EBS instance. If so, you must also reinstall the PEA on that instance.

There are both an automated PEA installer and a manual PEA installation process. If the Oracle EBS concurrent manager server and forms server reside on the same instance, attempt automated installation first, as it's simpler. If not, or if the automated installer fails, use the manual process. In either case, first complete some preliminary steps that apply to both automated and manual installations.

Preliminary Steps

If you run your Oracle EBS instance in the Linux operating system, you must set a display option. To do so, execute the following command:

```
export DISPLAY=localhost:1.0
```

As you install the PEA, you must supply the username and password of an EGRCC user. It's recommended that you create a user called *wsclient*, and specify that user

during PEA installation. For information on creating users, see the *Enterprise Governance, Risk, and Compliance Controls User Guide* for version 8.6.3.

When you configure an Oracle EBS instance as a datasource, EGRCC generates a datasource ID number. You must supply that number as you install the PEA. Thus sequence matters: Install EGRCC on its server and configure each EBS instance as a datasource (see page 4-3) before you install the PEA on any EBS instance.

In the Oracle EBS instance on which you are installing the PEA, navigate to the custom application TOP (conventionally called XXLAAPPS_TOP) created on the Preventive Controls Governor forms server. Execute a directory listing to determine if it has a subdirectory named *mesg*. If not, create the subdirectory:

```
mkdir mesg
```

Downloading and Preparing Files

Create a staging directory on the server that supports Oracle E-Business Suite. When this directory is created, complete the following steps:

1. Locate the Governance, Risk, and Compliance Controls Suite Disk in your Oracle media pack. On it locate grcc-peainstallation-8.6.0-SNAPSHOT-ebs-package.zip. Copy it to the staging directory, and extract its contents into that directory.

The extraction should produce subdirectories of the staging directory called db, fndload, Forms, and lib, each of which contains files. Also, files called grcc-peainstallation-8.6.0-SNAPSHOT.jar, install.properties, and pea.properties reside in the staging directory.

2. To perform the automated installation, use a text editor to open and edit the install.properties file in the staging directory. (For a manual installation, this step is unnecessary.) Provide values for the following properties:

- APPS_USER_NAME = *APPS*

  Supply the username for the database schema that supports your Oracle EBS instance. Typically, this value is *APPS*.

- APPS_PASSWORD = *apps_schema_password*

  Supply the password for the Oracle EBS database schema identified in the previous property.

- XXLAAPPS_USER_NAME = *XXLAAPPS*

  Supply the username for the database schema that supports PCG, installed on your Oracle EBS instance. Typically, this value is *XXLAAPPS*.

- XXLAAPPS_PASSWORD = *XXLAAPPS_passsword*

  Supply the password for the PCG database schema identified in the previous property.

- HOST = *hostname*

  Supply the host name for the Oracle EBS database server.

- PORT = *number*

  Supply the port number at which the Oracle EBS database server communicates with other applications.

- SID = *service_identifier*

  Supply the service identifier (SID) for the Oracle EBS database server.

- FREQUENCY = 30

  Supply a number that sets the interval, in minutes, at which two PEA concurrent programs are to run. GRCC User Provisioning Poll handles the approval or rejection of preventive analysis requests in the Oracle EBS instance. GRCC User Provisioning Request Recovery transmits stored requests to EGRCC when communications with the EBS instance have been interrupted, then restored. The recommended value for both programs is 30.

3. Execute the environment file, if it is not included in the profile. Run this command:

   ```
   . $APPL_TOP/$APPLFENV
   ```

Automated Installation

Once you have downloaded files and prepared them, execute the following steps to complete an automated installation:

1. Navigate to your staging directory.

2. Run the installation file. Execute the following command:

   ```
   java -jar grcc-peainstallation-8.6.0-SNAPSHOT.jar -ebs
   ```

   The installation program prompts for property values required by the PEA:

   - Enter GRCC user name

     If you created a wsclient user on your GRCC instance, supply the value *wsclient* here. If not, supply the user name configured for any GRCC user.

   - Enter GRCC password

     Enter the password for the user identified in the previous property.

   - Enter GRCC server name

     Supply the fully qualified server name of the server on which GRCC is installed. To verify, ping the GRCC server from the server where the PEA is being installed.

   - Enter GRCC port number

     Supply the port number at which the GRCC server communicates with other applications.

   - Enter GRCC web services URL

     This property specifies the URL of the webservice where the GRCC instance is installed. This URL should be */grc/services/GrcService/*.

   - Enter GRCC web services timeout

     Enter a timeout, in seconds, for communication with the Oracle EBS server. The default value is 60.

- Enter datasource ID

    Supply the datasource ID assigned by EGRCC to the Oracle EBS instance in which you are installing the PEA. (This value is available in the EGRCC Manage Application Data page; see "Determining Datasource IDs," page 4-5).

    The installation program updates the pea.properties file and then executes the installation.

3. When the file finishes running, review its log file: In the staging directory, use a text editor to open the file *debugInstall.log*. It notes status for several installation stages (Status of Packages, Status of Concurrent Programs, Status of Load Java, and Status of Forms), as well as for overall installation.

- If the status for each is *Success*, PEA is installed. Ignore the manual installation procedure.

- Otherwise, the debugInstall.log file lists errors that have occurred at each stage. Either resolve the errors and retry the automated installation process, or complete the manual installation process (see the next section).

Manual Installation

If your Oracle EBS concurrent manager server and forms server reside on separate instances, or if the automated PEA installation has failed, execute a manual installation instead. Once you have downloaded files and prepared them, complete the following sections.

Forms Installation

First, install forms. The PEA uses forms in twelve languages, for which you will need to know language codes as you perform the installation. These codes include:

D	German	**KO**	Korean
DK	Danish	**NL**	Dutch
E	Spanish	**PTB**	Brazilian Portuguese
F	French	**US**	American English
I	Italian	**ZHS**	Simplified Chinese
JA	Japanese	**ZHT**	Traditional Chinese

Complete the following steps:

1. Navigate to your staging directory.

2. Execute the following command to execute the package (PKS).

(Here and in subsequent steps, *appsSchemaName* and *appsSchemaPassword* are the user name and password for the database schema used by Oracle E-Business Suite.)

```
sqlplus appsSchemaName/appsSchemaPassword
@db/grcc_provdb_pkg.pks
```

3. Execute the following command to execute the package body (PKB).

```
sqlplus appsSchemaName/appsSchemaPassword
@db/grcc_provdb_pkg.pkb
```

4. To set the environment variable, execute one of the following commands, once for each language. As you do, replace the placeholder *CODE* with the appropriate language code (see above).

If you use Oracle E-Business Suite Release 12:

```
export FORMS_PATH=$FORMS_PATH:$AU_TOP/forms/CODE
```

If you use an earlier version of Oracle EBS:

```
export FORMS60_PATH=$FORMS60_PATH:$AU_TOP/forms/CODE
```

5. Execute one of the following commands to compile the library:

For Oracle E-Business Suite Release 12:

```
frmcmp_batch module=Forms/GRCC_PROV.pll module_type=library
userid=appsSchemaName/appsSchemaPassWord
```

For earlier versions of Oracle EBS:

```
f60gen module=Forms/GRCC_PROV.pll module_type=library
userid=appsSchemaName/appsSchemaPassWord
```

6. Execute the following command to copy the compiled library.

```
cp Forms/GRCC_PROV.* $AU_TOP/resource
```

7. To compile the forms, execute one of the following commands, once for each language. Again, as you do, replace the placeholder *CODE* with the appropriate language code (see page 6-4):

For Oracle EBS Release 12:

```
frmcmp_batch module=Forms/CODE/LAASCAUS.fmb
userid=appsSchemaName/appsSchemaPassWord
```

For earlier versions of Oracle EBS:

```
f60gen module=Forms/CODE/LAASCAUS.fmb
userid=appsSchemaName/appsSchemaPassWord
```

8. To back up the compiled forms, execute the following command, once for each language. Again, as you do, replace the placeholder *CODE* with the appropriate language code (see page 6-4):

```
cp $XXLAAPPS_TOP/forms/CODE/LAASCAUS.fmx
$XXLAAPPS_TOP/forms/CODE/LAASCAUS.fmx.orig
```

(If you followed recommendations as you installed Preventive Controls Governor, you selected XXLAAPPS as the application short name, and the environment variable shown in this command — $XXLAAPPS_TOP — is correct. If you chose another application short name as you installed Preventive Controls Governor, make sure the environment variable in this command and the next reflects the application short name you created.)

9. To copy the compiled form, execute the following command once for each language. Again, as you do, replace the placeholder *CODE* with the appropriate language code (see page 6-4):

```
cp Forms/LAASCAUS.fmx $XXLAAPPS_TOP/forms/CODE/LAASCAUS.fmx
```

Concurrent Programs Installation

Change to your staging directory and, from it, run the following commands to set up concurrent programs that support preventive analysis. In these commands:

- *appsSchemaName* and *appsSchemaPassword* are the user name and password for the database schema used by Oracle E-Business Suite.

- *XXLAAPPSUserName* is the user name for the database schema that supports Preventive Controls Governor. This value is case-sensitive.

- *frequency* is a number setting the interval, in minutes, between scheduled runs of concurrent programs (see the description of the FREQUENCY option on page 6-3).

Execute the following command to run the User Provisioning Poll concurrent program:

```
sqlplus appsSchemaName/appsSchemaPassword
@db/grccexecutable.sql XXLAAPPSUserName frequency
```

Execute the following command to run the User Provisioning Request Recovery concurrent program:

```
sqlplus appsSchemaName/appsSchemaPassword
@db/grccexecrecover.sql XXLAAPPSUserName frequency
```

Once this initial setup is complete, execute the following command once for each of the eleven supported languages, so that concurrent-program messages, parameter names, and descriptions are available in each language. As before:

- Replace the placeholder *CODE* with the appropriate language code (see page 6-4).

- *appsSchemaName* and *appsSchemaPassword* are the user name and password for the database schema used by Oracle E-Business Suite.

- *stagedir* is the path to the staging directory in which you copied and extracted PEA files.

```
FNDLOAD appsSchemaName/appsSchemaPassword 0 Y UPLOAD
$FND_TOP/patch/115/import/afcpprog.lct stagedir/fndload/CODE/
AACG_CONCURRENT_PROGRAMS.ldt
```

Load Java

Complete the following steps:

1. Set the DB environment of APPS (the Oracle EBS database) and execute the installation program, specifying a "manual" argument:

```
Java -jar grcc-peainstallation-8.6.0-SNAPSHOT.jar -ebs
-manual
```

This prepares the pea.properties file to be loaded into the database (as specified in step 5).

2. Execute the following commands. These commands should not error out:

```
dropjava
loadjava
```

3. Execute the following commands. In steps 3–5, *appsUserName* and *appsPassword* are the user name and password for the Oracle E-Business Suite database.

```
dropjava -user appsUserName/appsPassword -verbose -resolve
-genmissing lib/ag-pea-common-8.1.0-SNAPSHOT.jar
```

```
dropjava -user appsUserName/appsPassword -verbose -resolve
-genmissing lib/ag-pea-oebs-8.1.0-SNAPSHOT.jar
dropjava -user appsUserName/appsPassword -verbose -resolve
-genmissing lib/ag-pea-common-8.1.1-SNAPSHOT.jar
dropjava -user appsUserName/appsPassword -verbose -resolve
-genmissing lib/ag-pea-oebs-8.1.1-SNAPSHOT.jar
dropjava -user appsUserName/appsPassword -verbose -resolve
-genmissing lib/ag-pea-common-8.1.2-SNAPSHOT.jar
dropjava -user appsUserName/appsPassword -verbose -resolve
-genmissing lib/ag-pea-oebs-8.1.2-SNAPSHOT.jar
dropjava -user appsUserName/appsPassword -verbose -resolve
-genmissing lib/ag-pea-common-8.2.0-SNAPSHOT.jar
dropjava -user appsUserName/appsPassword -verbose -resolve
-genmissing lib/ag-pea-oebs-8.2.0-SNAPSHOT.jar
dropjava -user appsUserName/appsPassword -verbose -resolve
-genmissing lib/ag-pea-common-8.2.1-SNAPSHOT.jar
dropjava -user appsUserName/appsPassword -verbose -resolve
-genmissing lib/ag-pea-oebs-8.2.1-SNAPSHOT.jar
dropjava -user appsUserName/appsPassword -verbose -resolve
-genmissing lib/grcc-encryption-8.5.0-SNAPSHOT.jar
dropjava -user appsUserName/appsPassword -verbose -resolve
-genmissing lib/grcc-peacommon-8.5.0-SNAPSHOT.jar
dropjava -user appsUserName/appsPassword -verbose -resolve
-genmissing lib/grcc-peaebs-8.5.0-SNAPSHOT.jar
dropjava -user appsUserName/appsPassword -verbose -resolve
-genmissing lib/grcc-encryption-8.5.1-SNAPSHOT.jar
dropjava -user appsUserName/appsPassword -verbose -resolve
-genmissing lib/grcc-peacommon-8.5.1-SNAPSHOT.jar
dropjava -user appsUserName/appsPassword -verbose -resolve
-genmissing lib/grcc-peaebs-8.5.1-SNAPSHOT.jar
dropjava -user appsUserName/appsPassword -verbose -resolve
-genmissing lib/grcc-encryption-8.5.5-SNAPSHOT.jar
dropjava -user appsUserName/appsPassword -verbose -resolve
-genmissing lib/grcc-peacommon-8.5.5-SNAPSHOT.jar
dropjava -user appsUserName/appsPassword -verbose -resolve
-genmissing lib/grcc-peaebs-8.5.5-SNAPSHOT.jar
dropjava -user appsUserName/appsPassword -verbose -resolve
-genmissing lib/grcc-encryption-8.6.0-SNAPSHOT.jar
dropjava -user appsUserName/appsPassword -verbose -resolve
-genmissing lib/grcc-peacommon-8.6.0-SNAPSHOT.jar
dropjava -user appsUserName/appsPassword -verbose -resolve
-genmissing lib/grcc-peaebs-8.6.0-SNAPSHOT.jar
dropjava -user appsUserName/appsPassword -verbose -resolve
-genmissing aacg.properties
dropjava -user appsUserName/appsPassword -verbose -resolve
-genmissing pea.properties
```

4. Execute the following commands to load the pea jar into the database.

```
loadjava -user appsUserName/appsPassword -verbose -resolve
lib/grcc-encryption-8.6.0-SNAPSHOT.jar
loadjava -user appsUserName/appsPassword -verbose -resolve
lib/grcc-peacommon-8.6.0-SNAPSHOT.jar
```

```
loadjava –user appsUserName/appsPassword –verbose –resolve
lib/grcc-peaebs-8.6.0-SNAPSHOT.jar
```

5. Execute the following commands to load the modified pea.properties file into the database:

```
loadjava –user appsUserName/appsPassword –verbose –resolve
grcc.properties
loadjava –user appsUserName/appsPassword –verbose –resolve
pea.properties
```

Postinstallation Steps

Regardless of whether you used the automated or manual installation process, run the Generate Messages concurrent program once for each language.

1. Log in to Oracle E-Business Suite as any user with the Application Developer responsibility.

2. Select the Application Developer responsibility, and select the Requests: Run option in the Application Developer Navigator.

3. The Submit a New Request window appears. In it, select Single Request and click on the OK button.

4. The Submit Request window appears. In its Name field, query for Generate Messages. (Press the F11 key; type the value *Generate Messages* in the Name field; press Ctrl+F11.)

5. A Parameter window appears. In it, enter the following:

   • Language: With each run of the concurrent program, enter one of the language codes shown on page 6-4.

   • Application: GRC Controls Custom

   • Mode: DB_TO_RUNTIME

   Click on the OK button.

6. In the Submit Request window, click on the Submit button.

7. A pop-up window informs you of an ID number for the concurrent request. Make a note of the number, and then click on the OK button to close the message.

8. Optionally, verify that the request has been completed successfully:

   a. Click on View in the menu bar, then on Requests in the View menu.

   b. A Find Requests form opens. In it, click on the Specific Request radio button. Type the ID number of your concurrent request in the Request ID field, and click on the Find button.

   c. A Requests form opens. In the row displaying information about your request, ensure that the entry in the Phase field is *Completed* (you may need to click on the Refresh Data button), and the entry in the Status field is *Normal*.

   d. Close the Request form: Click on the × symbol in its upper right corner.

Installing the PeopleSoft PEA

You can install EGRCC 8.6.3 on its server without installing the PEA on PeopleSoft instances. If so, however, AACG would not be able to apply preventive analysis to PeopleSoft instances. To implement preventive analysis subsequently, install the PEA on each PeopleSoft instance for which you want to enable preventive analysis. (For PeopleSoft instances, there is no requirement to install an application comparable to Preventive Controls Governor, which is necessary in Oracle EBS instances.)

As you install the PEA, you must supply the username and password of an EGRCC user. It's recommended that you create a user called *wsclient*, and specify that user during PEA installation. For information on creating EGRCC users, see the *Enterprise Governance, Risk and Compliance User Guide* for version 8.6.3.

When you configure a PeopleSoft instance as a datasource, EGRCC generates a datasource ID. You must supply that number as you install the PEA. Thus sequence matters: Install EGRCC on its server and configure each PeopleSoft instance as a datasource (see page 4-3) before you install the PEA on any PeopleSoft instance.

Downloading and Preparing Files

Create a staging directory on the server that supports a PeopleSoft Financials or HR instance. When this directory is created, complete the following steps:

1. Locate the Governance, Risk, and Compliance Controls disk in your Oracle media pack. On it locate grcc-peainstallation-8.6.0-SNAPSHOT-ps-package.zip. Copy it to the staging directory, and extract its contents into that directory.

   The extraction should produce subdirectories of the staging directory called lib, GRCC_AGENT_86_PS_FIN90, and GRCC_AGENT_86_PS_HR90, each of which contains files. Also, files called grcc-peainstallation-8.6.0-SNAPSHOT.jar, pea.properties, and log4j.properties reside in the staging directory.

2. Execute the installation program to update the pea.properties file:

   ```
   java -jar grcc-peainstallation-8.6.0-SNAPSHOT.jar -psft
   ```

   The installation program prompts for property values required by the PEA:

   • Enter GRCC user name

     If you created a wsclient user on your EGRCC instance, supply the value *wsclient* here. If not, supply the user name configured for any EGRCC user.

   • Enter GRCC password

     Enter the password for the user identified in the previous property.

   • Enter GRCC server name

     Supply the fully qualified server name of the server on which EGRCC is installed. To verify, ping the EGRCC server from the server where the PEA is being installed.

   • Enter GRCC port number

     Supply the port number at which the EGRCC server communicates with other applications.

- Enter GRCC web services URL

  This property specifies the URL of the webservice where the EGRCC instance is installed. This URL should be */grc/services/GrcService/.*

- Enter GRCC web services timeout

  Enter a timeout, in seconds, for communication with the Oracle EBS server. The default value is 60.

- Enter datasource ID

  Supply the datasource ID assigned by EGRCC to the PeopleSoft instance in which you are installing the PEA. (This value is available in the EGRCC Manage Application Data page; see "Determining Datasource IDs," page 4-5).

- Enter PeopleSoft SID

  Supply the service identifier (SID) for the PeopleSoft database server.

- Enter PeopleSoft port:

  Supply the number for the port at which the PeopleSoft database server communicates with other applications.

- Enter PeopleSoft FQDN

  Supply the fully qualified domain name of the PeopleSoft database server.

- Enter PeopleSoft user name

  Supply the user name for the PeopleSoft database schema.

- Enter PeopleSoft user password

  Supply the password configured for the username identified in the previous property.

- Enable PeopleSoft PEA? (y/n)

  Enter the value *y* to enable the PEA, or the value *n* to disable the PEA.

- Enter log4j properties location

  Specify the path to a directory in which the log4j.properties file will reside — *PS_HOME*\appserv\classes\log4j.properties, in which *PS_HOME* represents the full path to the highest level directory in which PeopleSoft components are installed.

  (In step 3, you'll edit a copy of this file that's located in your staging directory. During installation, the file will be copied from the staging directory to a place where it can be used, and this property tells where it should be copied.)

- Enter PEA log location

  Set the path an name of a log file that records information about communications between PeopleSoft and EGRCC. The path is *PS_HOME*\appserv*APP*\LOGS\grcc-peapsclient.log, in which *PS_HOME* represents the full path to the highest level directory in which PeopleSoft components are installed, and *APP* is replaced by FIN or HR, depending on whether the PEA is being install on an instance of PeopleSoft Financials or Human Resources.

- Enter interval for PEA poller

  Set a time interval, in minutes, at which an "GRCC poller" may be scheduled to run. The poller updates role assignments for PeopleSoft when the assignments have been resolved in the EGRCC Manage Access Approvals page. In the Roles panel of the PeopleSoft User Profiles page, a user may select a link labeled "Schedule GRCC Poller"; if so, the poller runs at intervals defined by this parameter.

The installation program generates a temporary folder in the staging directory; it contains grcc-peaps-8.6.0-SNAPSHOT.jar for installation of PEA on PeopleSoft.

3. In the staging directory, use a text editor to open and edit the log4j.properties file. Set the following property:

```
log4j.appender.file.File = PS_HOME\appserv\APP\LOGS\grcc-
peapsagent.log
```

In this value, replace *PS_HOME* with the full path to the highest level directory in which PeopleSoft components are installed, and *APP* with FIN or HR, depending on whether the PEA is being install on an instance of PeopleSoft Financials or Human Resources.

Do not modify the values of other properties in the log4j.properties file.

Installing the PEA

Once you have downloaded files and prepared them, execute the following steps:

1. Stop the PeopleSoft application server.

   To do so, use the psadmin utility: To start it, execute the command *PS_HOME\appserv\psadmin*. In either case, replace *PS_HOME* with the full path to the highest-level directory in which PeopleSoft components are installed. If necessary, see PeopleSoft documentation for information on using the psadmin utility.

2. From the PS_HOME\appserv\classes directory, remove any jar files that start with "grcc," "ag," or "aacg."

3. Copy the following files from the lib subdirectory of your staging directory to the *PS_HOME*\appserv\classes directory:

```
grcc-peacommon-8.6.0-SNAPSHOT.jar
grcc-encryption-8.6.0-SNAPSHOT.jar
commons-logging-1.1.jar
log4j-1.2.14.jar
ojdbc14-10.2.0.3.jar
```

4. Copy the following file from the your staging directory to the *PS_HOME*\appserv\classes directory:

```
grcc-peaps-8.6.0-SNAPSHOT.jar
```

(The temporary folder was generated by the running of the installation program.)

5. Copy the log4j.properties file from your staging directory to the directory you specified for it in the "Enter log4j properties location" property when you ran the grcc-peainstallation-8.6.0-SNAPSHOT.jar file.

6. Use the psadmin utility to restart the PeopleSoft application server. (See step 1 for information on running the psadmin utility.)

Importing a Project

To complete the PEA installation, import a PeopleTools project:

1. Open the PeopleTools Application Designer. Log in as a user who has the PeopleSoft administrator role.

2. Navigate to Tools > Copy Project > From File…

3. A Copy From File dialog opens. In a field labeled "Look in:" navigate to your staging directory. This causes subdirectories of the staging directory to appear in the large, unlabeled field below the "Look in:" field, and the names GRCC_AGENT_ 86_PS_FIN90 and GRCC_AGENT_86_PS_HR90 to appear in the a field labeled "Select Project from the List Below." A Select button also becomes active.

4. For PeopleSoft 9.0 or 9.1 Financials, select GRCC_AGENT_86_PS_FIN90 in the "Select Project" field, and click on the Select button. For PeopleSoft 9.0 or 9.1 HR, select GRCC_ AGENT_86_PS_HR90 in the "Select Project" field, and click on the Select button.

5. When the Copy from File dialog appears, click on the Copy button. After the Progress dialog disappears, confirm that application objects appear in the Application Designer project window and click on the Save All icon or File > Save All.

It's important to follow instructions in the PeopleSoft *Application Import/Update Installation Guide* when you apply an application import/update project to your database. Failure to do so could corrupt your database and cause you to lose customizations that you have made to your database.