Governance, Risk, and Compliance Controls Suite

Installation Guide

Software Version 7.2.2.2

ORACLE®

Governance, Risk, and Compliance Controls Suite Installation Guide

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Preface

Installing GRC Controls Suite

Oracle Governance, Risk, and Compliance Controls Suite implements business controls, enabling users to demonstrate regulatory compliance and to promote operational efficiency. Three GRC Controls Suite applications — Applications Access Controls Governor, Transaction Controls Governor, and Preventive Controls Governor — run both in a common platform and in "Embedded Agents" that enable the platform to apply controls in the Oracle E-Business Suite. GRC Controls Suite may connect to multiple instances of Oracle E-Busines Suite, each running its own instance of the Embedded Agents.

The common platform also incorporates Business Objects Enterprise XI R2, a third-party software package that provides its reporting capability.

(A fourth GRC Controls Suite application — Configuration Controls Governor — is installed independently of the other three. For information on its installation, see the *Configuration Controls Governor Installation Guide*.)

The installation of Applications Access Controls Governor, Transaction Controls Governor, and Preventive Controls Governor is a two-phase process:

- First, for each instance of Oracle E-Business Suite that is to be subject to control by GRC Controls Suite, install the Embedded Agents. Book 1 of this installation guide provides detailed procedures for doing so; it begins on page 3.
- Second, place GRC Controls Suite platform and Business Objects files (as well as a Java application server) on a UNIX, Linux, or Windows server; use Business Objects tools on a Windows client to deploy reports; and complete permissions,

licensing, connectivity, and other configuration steps on the server. Book 2 of this installation guide provides detailed procedures for doing so; it begins on page 39.

Each instance of the embedded agents has its own database — typically, a distinct schema in the Oracle database used by the "companion" Oracle E-Business Suite instance. Moreover, the GRC Controls Suite platform and Business Objects each requires its own Oracle database.

This guide is intended for readers qualified to perform system-administration operations such as configuration change at the operating-system level, the creation of users, the granting of permissions to users and directories, or the installation of operating system patches on the machines that host GRC Controls Suite and the embedded agents.

Book 1

Embedded Agents Installation

Chapter 1

Embedded Agents Installation Overview

Embedded Agents are a set of applications that run within the Oracle E-Business suite environment in support of Governance, Risk, and Compliance Controls Suite. One agent serves as an engine for Applications Access Controls Governor, and would not be used directly. The others are elements of Preventive Controls Governor, and include the following:

- A Change Control application applies change control to Oracle EBS fields. It can monitor change, require a reason for a change, or require approval for a change.
- A Form Rules application modifies the security, navigation, field, and data properties of Oracle EBS forms.
- A Flow Rules application defines and implements business processes.
- An Audit Rules application tracks changes to the values of fields in database tables and displays reports that present information about changes to each field.

These applications are installed on the database and forms servers on which Oracle EBS run. The installation process implements the following architecture:

- Database Schema: Installation requires the identification of a schema for use by Embedded Agent applications (known as the "GRC Controls schema"). You are strongly advised to create a new schema named XXLAAPPS. However, you may use a schema that has already been established for third-party products.
- Tablespace: You are advised to create a tablespace for indexes used by Embedded Agent database objects. (An already established tablespace may be used.)

- Database Objects: Embedded Agents make use of database tables, packages, sequences, and workflows, which are placed in the XXLAAPPS (or user-specified) schema.
- Application Server Objects: Embedded Agents use custom forms, which are installed on the application server. Custom forms are located in the $XXLAAPPS_TOP/forms/US directory.
- Program Executables: Embedded Agents use program executables to report on, migrate, and compile business rules. The following objects are installed on the concurrent manager server (typically the database server): reports, programs, and Java files. Custom programs are located in the $XXLAAPPS_TOP/forms/US directory; some executable programs may also reside in the $XXLAAPPS_TOP/bin directory.

Two comprehensive Installer programs place Embedded Agents applications on the database and forms servers. (They also install a rules engine that provides functionality to the applications.) Each Installer may be run in any of three modes:

- GUI: The Installer programs present a series of windows that prompt for information necessary for the installation. Each window also provides access to a help window. As you progress through the windows, you can return to windows you had completed earlier in order to review or change the entries in them. (The Installers retain any entry you don't change, even if you return to a step earlier than the one in which such an entry was made.) GUI mode is the default.
- Console: The Installer programs present a series of prompts in a command console, in response to which you provide information necessary for the installation. Console mode prompts for the same information as GUI mode, but does not enable you to return to earlier prompts and does not provide help screens.
- Silent: The Installer programs read parameters from properties files, and then run without user interaction.

To run each Installer program, you would type its name — ladbinstall.bin or lafrminstall.bin — at the command prompt. The name alone launches GUI mode if no properties files are present, or silent mode if properties files are present; the name along with the argument *–i console* launches the console mode.

Preparatory Procedures

Before installing Embedded Agents, ensure the following:

- Grant the following APPS schema objects the execute privilege to the GRC Controls schema:
  - FND_FILE — Package Spec and Body
  - FND_PROFILE — Package Spec and Body
- Confirm that Java is in your path. Type the following at the command prompt:

  ```
  which java
  ```

- Verify that you use Java version 1.3 or higher. Type the following at the command prompt:

  ```
  java -version
  ```

  If more than one copy of Java exists on your system, verify the version of the copy in the opt directory (for example, /usr/opt1.3/bin/java).

- Each of your database server, forms server, and concurrent manager server may run on its own host machine. If so, complete the following tasks to confirm that the host machines communicate properly:
  - Send a file via FTP from the database server to the concurrent manager server, and from the concurrent manager server to the forms server.
  - Perform a remote execution of the shell file, by any of the following methods: Enable rsh (remote shell), enable ssh (secured shell), have a common mount point, manual.

Sizing Considerations

Ensure that your forms server has 100 megabytes (MB) of disk space for Embedded Agents files, and that the database server has 100 MB of disk space for Embedded Agents executable files.

Moreover, the GRC Controls schema requires the following amounts of disk space:

- 100 MB for most Embedded Agents database tables.
- An additional 1 gigabyte (GB) for two temp tables used in Audit Rules processing — LAAD_AUDIT_KEYS and LAAD_AUDIT_VALUES.
- An additional amount for two tables that hold Access Governor "user conflicts." The space requirement varies according to the number of conflicts a system may generate. The first table, LAA_USER_CONFLICT_ENTITIES, holds the most recent "snapshot," or set of conflicts; the other, LAA_USER_CONFLICT_ENTITIES_H, is a history table that holds archived snapshots. So one would, in effect, want to allow for double the number of conflicts that may be generated. The largest clients generate approximately 5,000,000 conflicts and so need to allow for 10,000,000, and 2 GB of disk space meets this requirement.

The GRC Controls schema (XXLAAPPS or user-specified) requires space to encompass shadow tables used by Audit Rules — one-third of the space taken by each audited table.

Software Requirements

Each instance of the Embedded Agents runs with an instance of Oracle E-Business Suite. Versions 11.5.9 and 11.5.10 of Oracle are preferred, but versions 11.5.7 (FND patch H) and 11.5.8 are also supported. For version 7.2.2 and above, Oracle version 12 is also supported.

The following operating systems are preferred for the Embedded Agents:

- Red Hat Linux AS/ES 3.0
- Red Hat Linux AS/ES 4.0
- Solaris 8/9/10

The following operating systems are also supported:

- Suse Linux Enterprise Server 9.0
- AIX
- HP-UX

Each instance of the Embedded Agents requires an Oracle 9i (or later) database.

Obtaining Installation Files

In your Oracle media pack, locate the Governance, Risk, and Compliance Controls Suite Disk 1. In its dist directory, locate the file ag_7222_oracle_ebs_agent_*os*.zip, in which the placeholder *os* is replaced by the name of the operating system on which you are installing. Copy the file to a temporary directory on your local system. From it, extract the two files — ladbinstall.bin and lafrminstall.bin — you will run for database and forms installation. If you intend to use the silent installation mode, also extract the two files from which the Installers will read parameters — ladbinstall.properties and lafrminstall.properties.

Preparing Properties Files

If you intend to run the Installer programs in silent mode, you need first to edit the two properties files you extracted from ag_7222_oracle_ebs_agent_*os*.zip, inserting information specific to your installation. (If you intend to use GUI or console mode, you don't need the properties files, and you can ignore this section.)

To insert values in the files, use a text editor such as vi. Each file consists of a series of name-value statements, each of which sets a parameter name equal to a value and each of which is preceded by an explanatory comment. (Each comment begins with a # symbol.) In each statement, edit information to the right of an equals sign; do not (with one exception, discussed below) modify text to the left of the equals sign.

You insert into the files exactly the same information as you would supply in response to prompts if you were to run the Installers in GUI mode. For detailed descriptions of that information, see Chapter 2, "Installing Embedded Agents."

The two properties files — ladbinstall.properties (database) and lafrminstall.properties (forms) — share many parameters, which correspond as follows to the GUI prompts discussed in Chapter 2:

- CUST_NAME and LICENSE_KEY: Prompts in the License Key window, step 1 on page 14 (database), or step 1 on page 18 (forms).

- #STAGE_DIR: Prompt in the Staging window, step 2 on page 14 (database), or step 2 on page 19 (forms).

  This statement is the exception, noted above, to the rule that you should leave parameter names (to the left of the equals sign) intact. In the assumption you will want the Installers to set default staging directories, this statement is commented out in the properties file. To use the statement, you must not only supply a staging directory path to the right of the equals sign, but also delete the # symbol at the beginning of the statement.

- DB_HOST_NAME, DB_SID, and DB_PORT: Prompts in the Database Host window, step 3 on page 15 (database), or step 3 on page 19 (forms).

- DB_XXLAAPPS_SCHEMA_NAME, DB_XXLAAPPS_PASS, DB_APPS_SCHEMA_NAME, and DB_APPS_PASS: Prompts in the Database Schema window, step 4 on page 15 (database), or step 4 on page 19 (forms).

  Another exception: The database-installation window does not prompt for the Oracle EBS schema name, although the forms-installation window does. The properties file requires it (typically APPS) as the value for the DB_APPS_SCHEMA_NAME parameter.

- XXLAAPPS_SHORT_NAME and APPL_TOP: Prompts in the Application TOP window, step 5 on page 16 (database), or step 5 on page 19 (forms).

- ENVFILE and ADOVARS: Prompts in the Environment window, step 6 on page 17 (database), or step 6 on page 20 (forms).

The ladbinstall.properties file contains one parameter — INDEX_TABLESPACE — that does not appear in lafrminstall.properties. This parameter corresponds to the Index Table Space prompt in step 4 on page 15.

The lafrminstall.properties file contains two parameters that do not appear in the ladbinstall.properties file. These two parameters correspond as follows to the GUI prompts discussed in Chapter 2:

- APPSORA: The final prompt in the Environment window, step 6 on page 20.

- CUSTOM_CHOICE: The prompt in the CUSTOM.pll window, step 7 on page 20. In the properties file, any value other than No (case-sensitive) is equivalent to Yes.

Finally, both files contain a parameter that does not correspond to any GUI prompt. For you to run the Installers in silent mode, an INSTALLER_UI parameter must be set to the value silent. This is the default; don't change it.

Chapter 2

Installing Embedded Agents

In broad terms, the Embedded Agents installation process involves four steps:

1. Create a tablespace for Embedded Agent indexes, and a custom database user/schema. The user/schema name XXLAAPPS is strongly recommended.
2. Run the Installer program to place Embedded Agent tables, packages, sequences, and workflows on the database server. All the table names begin with the prefix LA, and all tables reside in the GRC Controls (typically XXLAAPPS). The database server installation must precede the forms server installation.
3. Run the Installer program to place Embedded Agent forms on the forms server. All custom forms are located in the $XXLAAPPS_TOP/forms/US directory.
4. Configure a remote compilation feature, which makes libraries resident on the concurrent server available to the forms server.

Creating a User and Tablespace

After extracting installation files from ag_7222_oracle_ebs_agent_*os*.zip and editing the properties files if you intend to use silent mode (see "Downloading Installation Files" and "Preparing Properties Files" on page 7), create the Embedded Agent tablespace and database user/schema. The latter must be granted the connect and resource privileges in the Oracle EBS database. You are strongly advised to use the name XXLAAPPS for the new user, and to create all Embedded Agent database objects in the XXLAAPPS schema.

The following is a sample SQL script that can be used to create the user:

```
CREATE USER XXLAAPPS
IDENTIFIED BY XXLAAPPS
DEFAULT TABLESPACE &DEF_TSPACE
TEMPORARY TABLESPACE &TMP_TSPACE
QUOTA UNLIMITED ON &DEF_TSPACE
QUOTA 0K ON SYSTEM;

GRANT CONNECT TO XXLAAPPS;
GRANT RESOURCE TO XXLAAPPS;
```

If you are installing the Embedded Agents on an instance of Oracle E-Business Suite Release 12, the user-creation script should also include these commands:

```
GRANT SELECT ON GV$INSTANCE TO APPS;
GRANT SELECT ON ALL_OBJECTS TO XXLAAPPS;
GRANT SELECT ON DBA_OBJECTS TO XXLAAPPS;
GRANT SELECT ON ALL_TABLES TO XXLAAPPS;
GRANT SELECT ON ALL_VIEWS TO XXLAAPPS;
GRANT CREATE VIEW TO XXLAAPPS;
```

Allocate a minimum of 80 MB of space, 40 on the tmp directory and 40 on the file system from which the installer is to be launched.

Oracle E-Business Suite Release 12

If you are installing the Embedded Agents on an instance of Oracle E-Business Suite Release 12, complete the following steps before running the installation programs. If you are installing on an earlier Oracle version, omit these steps and skip ahead to the next section, "Installing Database Server Components."

1. Execute the environment file, if it is not included in the profile:

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

2. At the operating-system command prompt, use the make-directory command to create a custom application top (the high-level directory for the storage of Embedded Agents files). Its form must be the full path to the Oracle APPL_TOP; then, as a subdirectory, the Embedded Agent database user name; and finally, as a subdirectory at the next level, the value *12.0.0*. For example, if the Oracle APPL_TOP were /oracle/bin/ebiz12/appl and the Embedded Agent database user name were XXLAAPPS, the following command would create the custom application top:

   ```
   mkdir /oracle/bin/ebiz12/appl/xxlaapps/12.0.0
   ```

3. Export the custom application top path in the environment file (which is named for the database SID and host name, with a *.env* extension, and is located in the Oracle APPL_TOP directory). If the path in step 1 were the custom top, the environment-file entry would look like this:

   ```
   XXLAAPPS_TOP="/oracle/bin/ebiz12/appl/xxlaapps/12.0.0"
   export XXLAAPPS_TOP
   ```

4. In the directory $APPL_TOP/admin, locate topfile.txt; open it for editing. Add an entry that sets the relationship of the Embedded-Agent-database-user-name subdirectory to the APPL_TOP directory. In the current example:

   ```
   xxlaapps    /oracle/bin/ebiz12/appl/
   ```

5. In the directory $APPL_TOP/admin, create the file applcust.txt. Open it for editing, and insert the same entry as you did in step 4.
6. Navigate to the $ADMIN_SCRIPTS_HOME directory and, from it, run the following three scripts. Each will prompt either for the APPS password or the APPS username and password.
   - adstpall.sh
   - adautocfg.sh
   - adstrtal.sh

Installing Database Server Components

To install Embedded Agents database server components, run the file ladbinstall.bin:

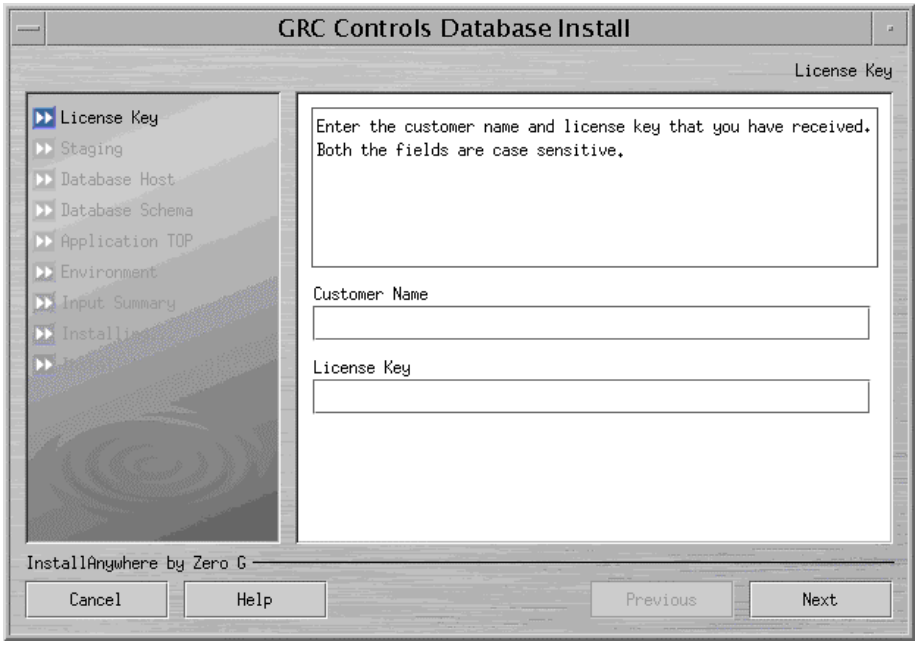
1. Transfer the ladbinstall.bin file to the database server, via FTP in binary mode. Use the applmgr account.
2. Use applmgr to log in to the database server. Ensure that the user (login ID) has write and read privileges on $APPL_TOP.
3. Execute the environment file, if it is not included in the profile:
   ```
   $. $APPL_TOP/$APPLFENV
   ```
4. Set the execute permission on ladbinstall:
   ```
   $ chmod +x ladbinstall.bin
   ```
5. Execute ladbinstall.bin:
   - To run in GUI or console mode, ensure that ladbinstall.properties is absent from the directory where ladbinstall.bin resides. To run in silent mode, be sure that both files are in the same directory.
   - Use the name *ladbinstall.bin* as the command to run in GUI or silent mode. Add the argument *–i console* to run in console mode.

All three Installer modes require the same information; GUI and console prompt for it, and silent reads it from files. If you choose GUI mode (as shown in the following procedure), you can perform these operations in each of the windows:

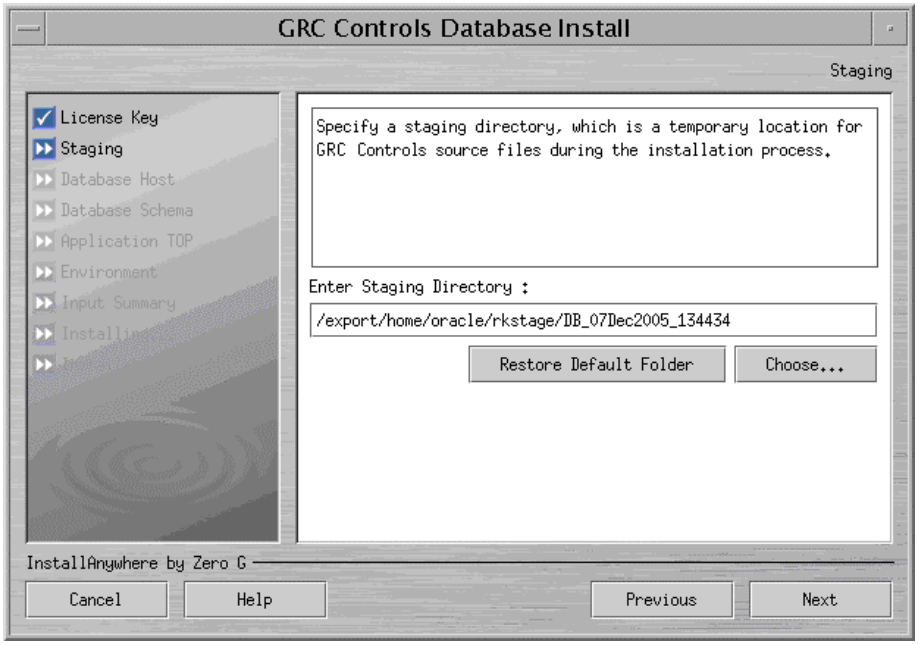
- Review a brief description of the information you need to provide.
- Click on the Help button to open a window that provides a more expansive description of the information you need to provide. (After you review this information, click on the Close button to exit the Help window.)
- Type installation information in the labeled text boxes (or accept default values).
- When you complete one window, click on the Next button to move from it to the next window.
- Click the Previous button if you wish to return to a window you completed earlier.
- Note that titles of windows you have completed appear in black along the left of each window; those yet to be completed are shown in grey.

To complete the database server installation:

1 In the License Key window, enter *Oracle* as the Customer Name and the following case-sensitive value as License Key: 6MR6457YE5RJO1C8T3JhY2xl. A message displays the applications you can install; click the OK button to clear it.



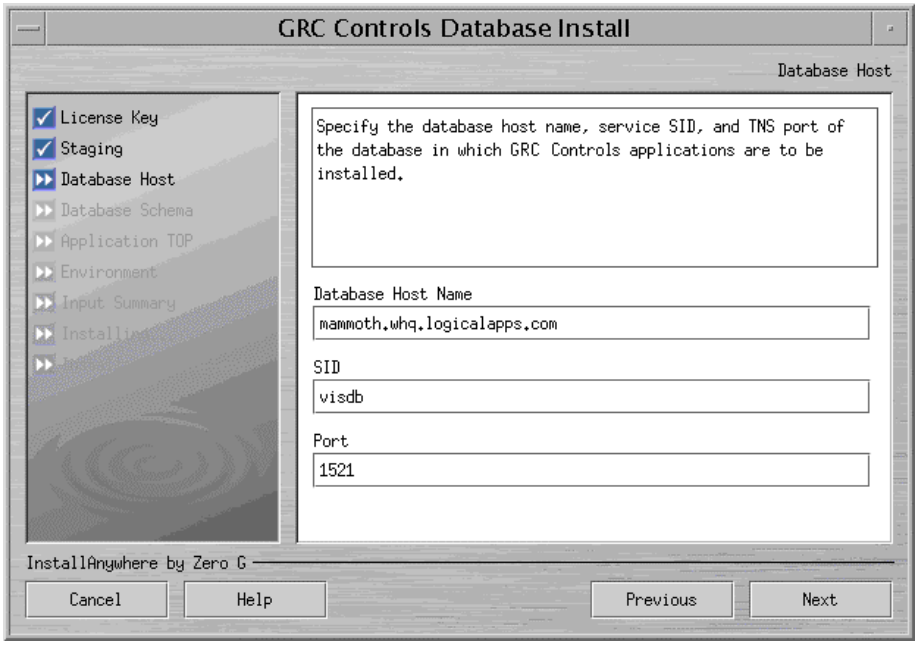
2 Specify a staging directory — a temporary location for source files:



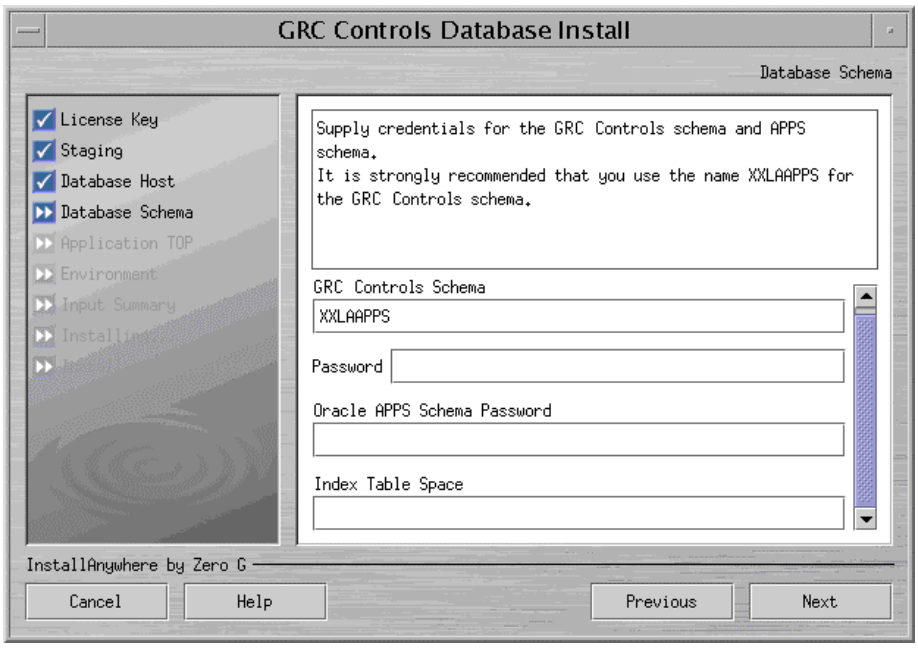
The Installer suggests a default directory; its name is a timestamp for the moment you perform the installation, with *DB* (for database). If you wish to select another directory, click the Choose button and, in a Select a Folder window, navigate to the directory you want. If you specify a nonexistent directory, the

Installer creates that directory. If you navigate away from the default directory and want to return to it, click on the Restore Default Folder button.

3 Verify the default values for the host name, SID (service identifier), and network port of the Oracle EBS database server, which the Installer takes from the shell environment. If the defaults are not correct, enter correct values.



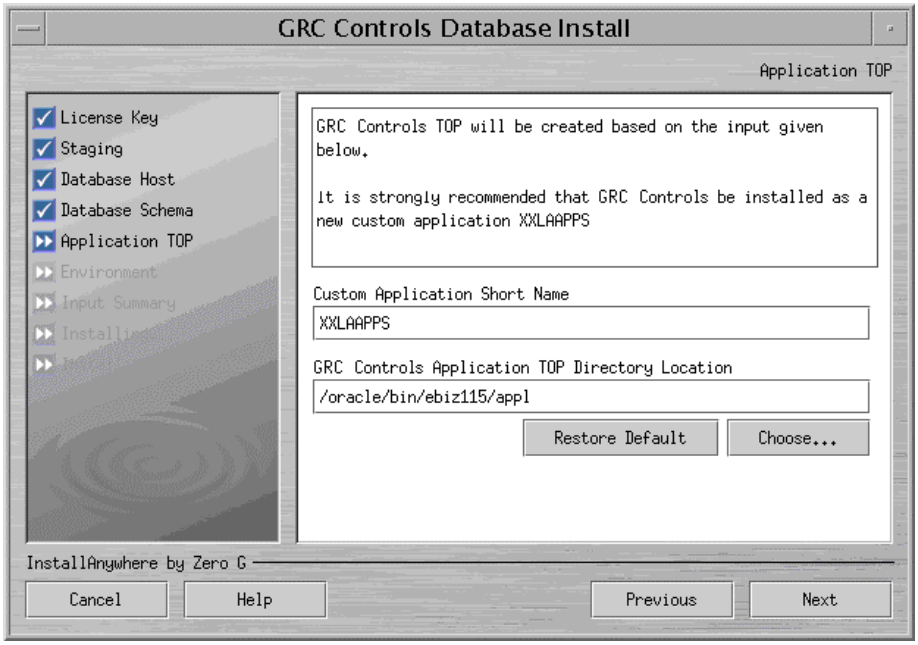
4 Supply log-on values for the GRC Controls and Oracle (APPS) schemas:



As noted earlier, the creation of a dedicated schema called XXLAAPPS is strongly recommended. The Installer provides this value by default. If you follow the recommendation, accept the default; otherwise, replace it with the name of the schema you will use for Embedded Agent database objects. Also enter the

passwords for the GRC Controls and Oracle APPS schemas, and the name of the tablespace for indexes used by Embedded Agent database objects.

5 Establish the GRC Controls TOP — the high-level directory for the storage of Embedded Agents files. Specify a directory that is the parent of the GRC Controls TOP and an application short name that is appended to the parent directory to form the GRC Controls TOP directory.



By default, the Installer selects the Oracle EBS TOP as the parent directory and XXLAAPPS as the application short name. These are the recommended values, but you can change them. If you are installing on Oracle Release 12, these values must match the APPL_TOP and immediate subdirectory you configured earlier (see page 12), but not the *12.0.0* value.

To select another parent directory, click on the Choose button and, in a Select a Folder window, navigate to the directory you want. If you enter the name of a nonexistent directory, the Installer creates that directory. To return to the default directory, click the Restore Default button.

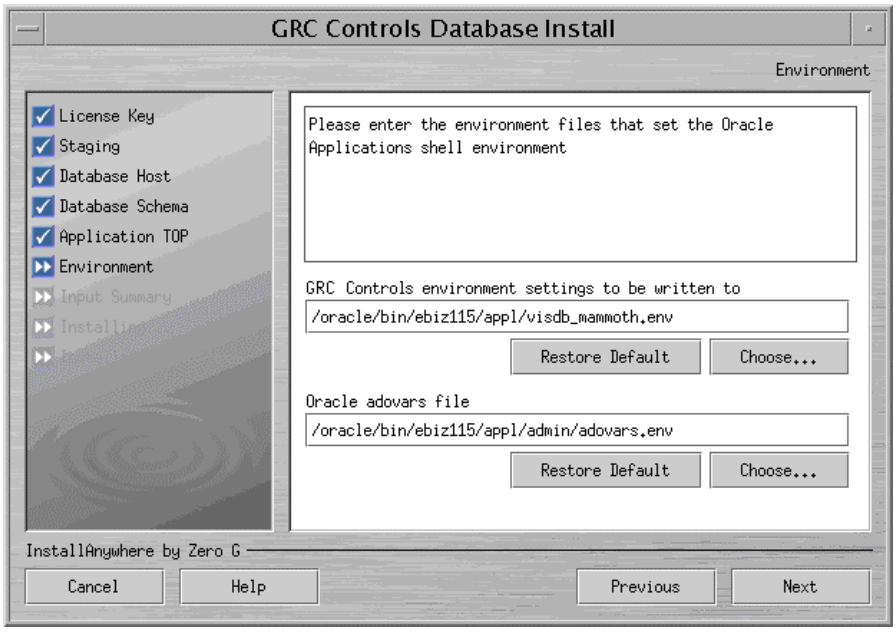
No matter what case you use to enter values, the Installer saves the short name as all uppercase (and adds the uppercase *_TOP* to create a top shell variable), and the directory location as all lowercase. (However, for a reinstallation, the Installer does not change the case of an existing application TOP.)

If you have selected an application short name that is already in use, the Installer displays a warning message when you click the Next button:

To respond to this warning:

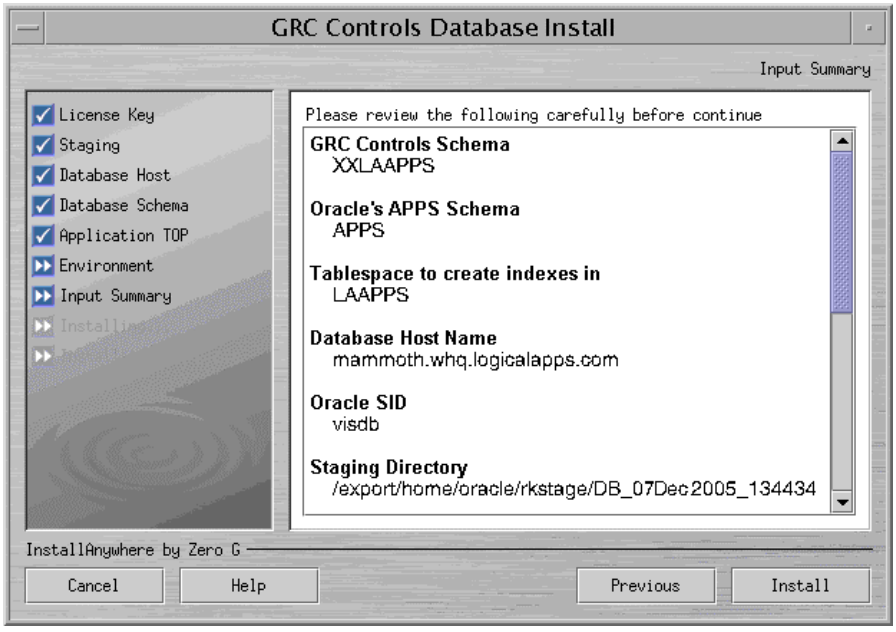
- Click Enter Again to return to the Application TOP form and set a new value.
- Click Continue to accept the duplicate application short name. Doing so, however, would cause Embedded Agents and another application to share the name, with the risk that files for one application or the other might be overwritten.
- Click Abort to abandon the Embedded Agents installation.

6 Specify paths to files that contain environment variables for the Oracle EBS shell. (The installation adds Embedded Agent-specific entries to these files.)



Accept the defaults, or click a Choose button and, in a Select a Folder window, navigate to a directory you want. If you enter the name of a nonexistent directory, the Installer creates that directory. To return to the default directory, click the Restore Default button.

7 Review your selections in the Input Summary form:



If you determine that any entry is inappropriate, you can click on the Previous button until you reach the form in which you selected the entry, and change it. (The Installer retains any entries you don't change, even if you pass by them as you return to an earlier step in the installation process.)

8 In the Input Summary form, the label for the button at the lower right has changed from *Next* to *Install*. When you are satisfied with your selections in earlier forms, click on the Install button to complete the database server installation.

The Installer displays error messages (if any are warranted) upon completing the installation of each Embedded Agents application, and displays an overall status upon completing the installation of all products. If the overall status is Success, the installation has finished with no errors.

If errors occur, they or the overall status may be classified as Warning, Nonfatal, or Fatal, depending on severity. The Installer recovers (restores the system to its state prior to the installation) for Fatal errors, but not for Warning or Nonfatal errors. For details about errors and the installation process, navigate to the directory from which the Installer ran and review two log files: LADB_LOG_*timestamp*.log and LADB_ERROR_*timestamp*.log, where timestamp is the date and time at which the Installer ran.

Installing Forms Server Components

To install Embedded Agents forms server components, run the file lafrminstall.bin:

1 If the database and forms servers run on the same host, re-source the environment by opening a new shell.

2 Transfer the lafrminstall.bin file to the forms server, via FTP in binary mode. Use the applmgr account.

3 Use applmgr to log in to the forms server. Ensure that the user (login ID) has write and read privileges on $APPL_TOP.

4 Execute the environment file, if it is not included in the profile:

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

5 Set the execute permission on lafrminstall:

```
$ chmod +x lafrminstall.bin
```

6 Execute lafrminstall.bin:

- To run in GUI or console mode, ensure that lafrminstall.properties is absent from the directory where lafrminstall.bin resides. To run in silent mode, be sure both files are in the same directory.
- Use the name *lafrminstall.bin* as the command to run in GUI or silent mode. Add the argument *–i console* to run in console mode.

Most windows (or console prompts) for the forms installation are identical to those for the database installation. If you select GUI mode, each window enables you to perform the same operations as you could in the database-server Installer (see page 12).

To complete the forms server installation:

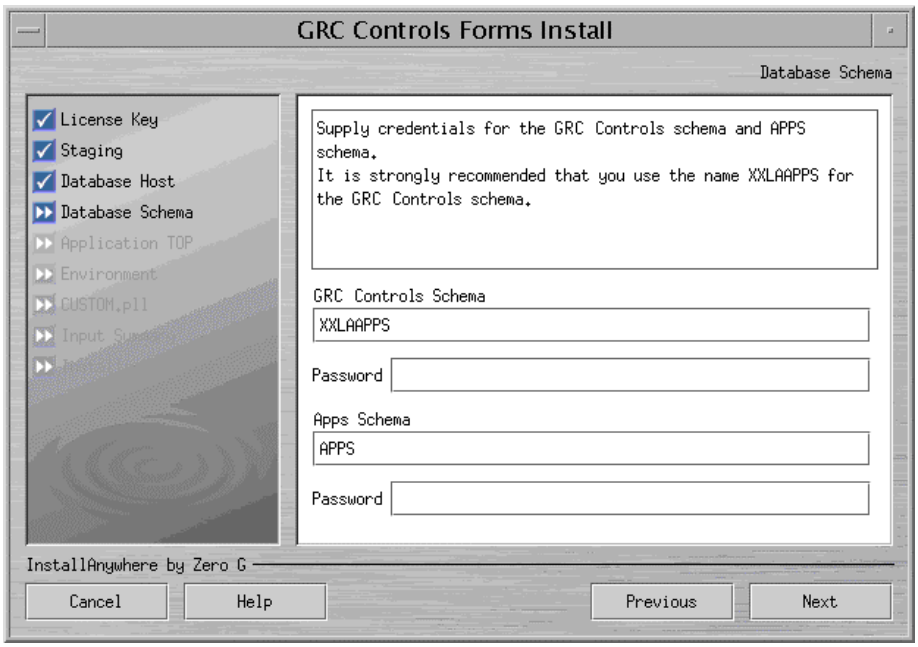
1 In the License Key window, enter *Oracle* as the Customer Name and the following case-sensitive value as License Key: 6MR6457YE5RJO1C8T3JhY2xl. (These are the same as the values for database-server installation.) A message displays the applications you can install; click the OK button to clear it.

2 In the Staging form, once again select a directory for the temporary placement of source files. The Installer once again suggests a default — its name a timestamp for the moment you perform the installation, along with *FRM* (for forms).

If you wish to select another directory, click on the Choose button. In a Select a Folder window, navigate to the directory you want. If you specify a nonexistent directory, the Installer creates that directory. If you navigate away from the default directory and want to return to it, click on the Restore Default Folder button.

3 In the Database Host form, select the database host name used where the database installation has been run, and the appropriate SID and port values.

4 In the Database Schema window, there is no longer an Index Table Space field (as it would be inapplicable to forms installation), but where the database-server Installer requested only a password for the Oracle EBS schema, the forms-server Installer asks for a name as well:



For the Apps Schema field, accept the default value, APPS. (This needs to match the database-server value, which is hard-coded.) For each of the remaining fields, enter the same value as you entered for the database installation.

Once again, the creation of a dedicated schema called XXLAAPPS is recommended. To follow this recommendation, accept the default value; otherwise replace it with the name of the schema you will use for Embedded Agents database objects. Also enter the passwords for the GRC Controls and Oracle APPS schemas.

5 In the Application TOP form, establish the GRC Controls TOP for the forms server — the highest-level directory for the storage of Embedded Agents files. Specify a parent directory of the GRC Controls TOP, and an application short name that is appended to the parent directory to form the GRC Controsl TOP directory.

The Installer defaults to the forms-server-specific Oracle EBS TOP as the parent directory and XXLAAPPS as the application short name. These values are recommended.

Ensure that the application short name for the forms server is the same as the database server's. If you wish to select another parent directory, click on the Choose button and, in a Select a Folder window, navigate to the directory you want. If you enter the name of a nonexistent directory, the Installer creates that directory. To return to the default directory, click the Restore Default button.

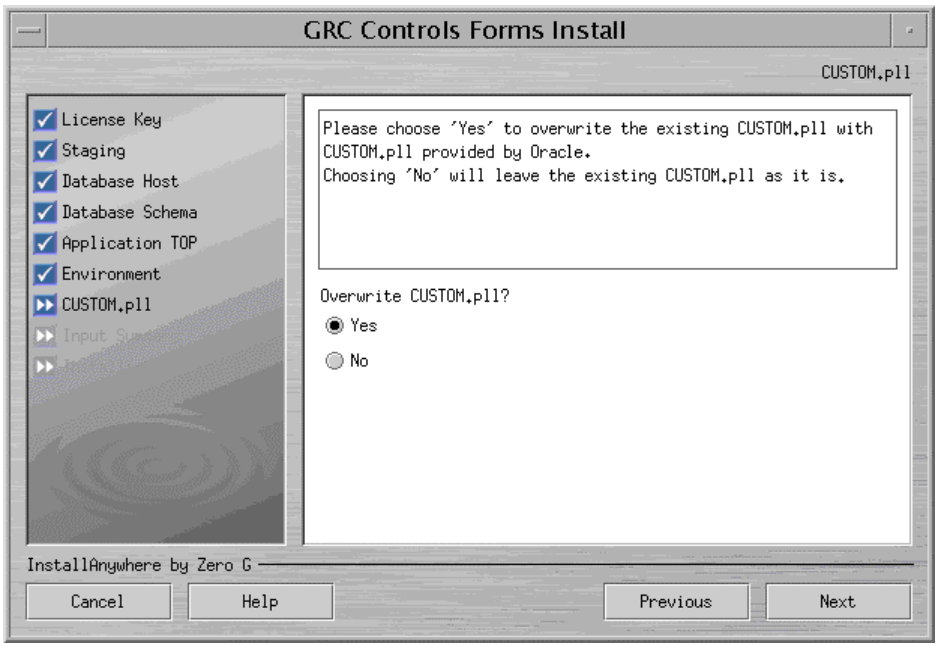
No matter what case you use to enter values, the Installer saves the short name as all uppercase (and adds the uppercase *_TOP* to create a top shell variable), and the directory location as all lowercase. (However, for a reinstallation, the Installer does not change the case of an existing application TOP.)

The forms-server Installer, like its database-server counterpart, presents a warning if you select an application short name that is already in use and it presents the same response options:

- Click Enter Again to return to the Application TOP form and set a new value.
- Click Continue to accept the duplicate application short name. Doing so, however, would cause Embedded Agents and another application to share the name, with the risk that files for one application or the other might be overwritten.
- Click Abort to abandon the Embedded Agents installation.

6 In the Environment form, specify paths to files that contain environment variables for the Oracle EBS shell (the first two prompts) and for forms paths (the APPSORA prompt). Accept the defaults, or click a Choose button and, in a Select a Folder window, navigate to a directory you want. If you enter the name of a nonexistent directory, the Installer creates that directory. To return to the default directory, click the Restore Default button. In any case select values that are appropriate for the forms server.

7 When you complete the Environment form, the forms server Installer presents a CUSTOM.pll form:



Forms server installation requires that an existing CUSTOM.pll file be modified so that it can link to an LACUSTOM.pll file. If you select Yes, the Installer backs up your existing CUSTOM.pll, and then overwrites the original with a modified copy that contains the necessary links to LACUSTOM.pll. (The backup copy has a time-stamp appended to the .pll file extension.) If your existing CUSTOM.pll contained any customization, a Yes selection in this form would require you to copy your customizations manually from the backup file to the new version of CUSTOM.pll.

If you select No, the Installer retains your existing CUSTOM.pll. In this case, you need to edit the file to insert links to LACUSTOM.pll (see below).

8. In the Input Summary form, review the selections you have made. If you determine that any entry is inappropriate, you can click on the Previous button until you reach the form in which you selected the entry, and change it. (The Installer retains any entries you don't change, even if you pass by them as you return to an earlier step in the installation process.)

9. When you are satisfied with the selections you have made in preceding forms, click on the Install button in the Input Summary form to complete the forms server installation.

The Installer displays error messages (if any are warranted) upon completing the installation of each Embedded Agents application, and displays an overall status upon completing the installation of all products. If the overall status is Success, the installation has finished with no errors.

If errors occur, they or the overall status may be classified as Warning, Nonfatal, or Fatal, depending on severity. The Installer recovers (restores the system to its state prior to the installation) for Fatal errors, but not for Warning or Nonfatal errors. For details about errors and the installation process, navigate to the directory from which the Installer ran and review two log files: LAFRM_LOG_*timestamp*.log and LAFRM_ERROR_*timestamp*.log, where timestamp is the date and time at which the Installer ran.

CUSTOM.pll Modifications

If you chose (in step 7) not to overwrite your CUSTOM.pll file, edit the CUSTOM.pll file. (If you selected Yes in step 7, ignore this section and skip ahead to "Configuring the Remote Compilation.")

1. In place of the existing code for *Procedure Event(event_name varchar2)*, substitute the following:

```
PROCEDURE event(event_name varchar2) is

  form_name      varchar2(30) := name_in('system.current_form');
  block_name     varchar2(30) := name_in('system.cursor_block');
  field_name     varchar2(30) := name_in('system.current_item');
  function_name  varchar2(30);
  parameters     varchar2(2000);
```

```
begin
  if (event_name = 'ZOOM') then
    la_enhncmtmgr_pkg.la_zooms(form_name,block_name,
        function_name,parameters);
      if function_name is not NULL
      then
        if parameters is null then
          fnd_function.execute(function_name,'Y','N');
        elsif 'ZOOMSPECIAL' = substr(parameters,1,11) then
          lacustom.event('ZOOMSPECIAL'); -----new code 081903
      else
        parameters := lazoom.zoom_event(parameters);
        fnd_function.execute(function_name,'Y','N',parameters);
      end if;
  end if;
----------------------------------WNF
  elsif (event_name='WHEN-NEW-FORM-INSTANCE') then
   lacustom.event('WNF');
--------------------------WNB
  elsif (event_name = 'WHEN-NEW-BLOCK-INSTANCE') then
   lacustom.event('WNB');
-----------------------------WNI
  elsif (event_name = 'WHEN-NEW-ITEM-INSTANCE') then
   lacustom.event('WNI');
----------------------WNR
  elsif (event_name = 'WHEN-NEW-RECORD-INSTANCE') then
   lacustom.event('WNR');
----------------------WNV
  elsif (event_name = 'WHEN-VALIDATE-RECORD') then
   lacustom.event('WVR');
-----------------------
  elsif (substr(event_name,1,7) = 'SPECIAL') then
   execute_menu(event_name);
-----------------------------------------
   else lacustom.event(event_name);   --put other events here
   end if;
end event;
```

2 In place of the code for *Function zoom_available*, substitute the following:

```
FUNCTION zoom_available return boolean is
    v_enabled  varchar2(20);
  begin   --x
    v_enabled := lazoom.zoom_enabled;
    IF v_enabled = 'TRUE' THEN
      return TRUE;
    else
      return FALSE;
    end if;
  RETURN NULL;
  end zoom_available;
```

3 Attach the following libraries. (Remove the path when attaching the libraries.)

- LACUSTOM.pll
- LABRSQL.pll

4 Compile the file and ensure there are no compilation errors.

Servlet Mode

If the forms server runs in servlet mode, you must edit a file to enable Oracle to recognize the GRC Controls TOP you selected during installation (see step 5 on page 19).

To determine whether the forms server runs in servlet mode, identify the file set by the Oracle environment variable $FORMS60_WEB_CONFIG_FILE. Open that file and search for its serverURL entry. If that entry is set to the value */forms/formservlet*, the forms server runs in servlet mode. If the entry is blank, the forms server runs in socket mode, in which case you need not complete the following procedure.

If the forms server runs in servlet mode:

1. Using a text editor, open a file called formservlet.ini. The file is located either in $APACHE_TOP/Jserv/etc or in $IAS_ORACLE_HOME/Apache/Jserv/etc.
2. In the formservlet.ini file, look for a block of entries bounded by the lines *#Begin Customization* and *#End Customization*.
3. Add the following entry anywhere between the Begin and End Customization lines:

   ```
   XXLAAPPS_TOP=$APPL_TOP/xxlaapps/11.5.0
   ```

   Note, however, that the value *XXLAAPPS* is correct in this entry only if you have accepted the default application short name during installation. If not, then in each of the two places that the value *XXLAAPPS* appears in this entry (whether in upper or lower case), substitute the short name you created in step 5 on page 19.
4. Save and close the file.

Configuring the Remote Compilation

To finish the installation, you must configure a remote compilation feature, which makes libraries resident on the concurrent server available to the forms server.

1. Log on to the database server.
2. Source out the Oracle EBS shell environment.
3. Navigate to the $XXLAAPPS_TOP/bin directory (a subdirectory, called bin, of the GRC Controls TOP directory, which you established in step 5 of the database installation process).
4. Grant the execute permission on a file called laconfig.sh:

   ```
   $ chmod +x laconfig.sh
   ```
5. Run the laconfig.sh file:

   ```
   $ laconfig.sh
   ```

Running the laconfig.sh file produces a series of command-line prompts. Respond to them as follows:

1. You are prompted to enter the GRC Controls application short name. If that name is other than XXLAAPPS, type it and press the Enter key. (Case is not significant.) If the short name is XXLAAPPS, simply press the enter key in response to the prompt.

2. A prompt displays a path to a Java executable; you must confirm that this is the path to the Java executable used by Oracle EBS. It is, if you sourced out the Oracle EBSshell environment before running the laconfig.sh file (no matter how many Java executables reside on your system). It may not be, if you did not source out the Oracle EBS shell environment and have more than one Java executable on your system.

   If the prompt displays the path to the Oracle EBS Java executable, type *Y* (for yes) and press the Enter key. If not, type *N* (for no) and press the Enter key, then type the full path to the Java executable used by Oracle EBS and press the Enter key again.

3. A prompt displays a path for a file that sets the Oracle EBS environment; you must confirm that it is correct. The default value is taken from the shell as $APPL_TOP/$APPLFENV, and this selection is always safe; to accept it, press *Y* (for yes) and press the Enter key. But what's really at issue is the file that sets the GRC Controls TOP, which is a subsidiary file of $APPLFENV. You may wish to specify it instead; if so, type *N* (for no), then type the full path to the appropriate file and press the Enter key.

4. The following prompt appears:

   ```
   Choose your node configuration from below:
   1.  All servers (CM/Forms) share the same application top
       directory
   2.  Forms server has different application top file system
       than concurrent managers
   3.  Exit Program
   ```

   Enter 1 if all database, forms, and concurrent servers exist under a single application TOP, or 2 if each exists under its own application TOP (regardless of whether they reside on a single machine or more than one).

5. You are prompted to enter the number of distinct application TOPs used by forms servers. Type the number and press the Enter key.

6. For each of the application TOPs you include in the count in step 5, you are prompted to select a method for transferring files to the application TOP directory. Enter one of the following and press the Enter key:

   - 1 for secured shell (ssh)
   - 2 for remote execution (rexec)
   - 3 for telnet
   - 4 for local file system (copy)
   - 5 for manual

7 For each application TOP, you are prompted for supporting information if you have selected any of the first four access methods. (Method 5, manual, requires no supporting information.)

- Server host name if you selected option 1, 2, 3, or 4
- Full path to Embedded Agents binary files if you selected option 1, 2, 3, or 4
- User ID if you selected option 1, 2, or 3
- Password if you selected option 3

Entries are validated, so that if you enter incorrect supporting information you are prompted to try again.

When you finish executing the laconfig.sh file, verify that the following files exist:

- Database server (under $XXLAAPPS_TOP/bin): LAGENLIB.prog, LAMIGRATE.prog, LAIMPORT.prog
- Forms server: LAFORMSGEN.prog

Finally, if you want to enable migration (the ability to port Embedded Agents configurations from one instance to another) with password security:

1 Navigate to \\System Administrator Responsibility\Profile\System.

2 Query for the LAAPPS: Enable Migration Security profile option.

3 Set the value to Yes at site level. (This can be controlled further at the responsibility and user levels.)

Bouncing the Servers

When you finish configuring the remote compilation feature, bounce both the form server and the concurrent manager server.

Note:
Do not delete the staging directory for the database server after completing the Embedded Agents installation. It contains a script you'll need to run after you install the GRC Controls Suite platform.

Postinstallation Tasks

Once the installation is complete, you must perform additional tasks. Some are required in any case, and others only if you run particular versions of Oracle E-Business Suite or if other special circumstances apply.

SQL Rule Compilation

From within Embedded Agents, you must run an option to compile SQL rules:

1 Log on to the GRC Controls responsibility in Oracle E-Business Suite. In that responsibility, select Form Rules.

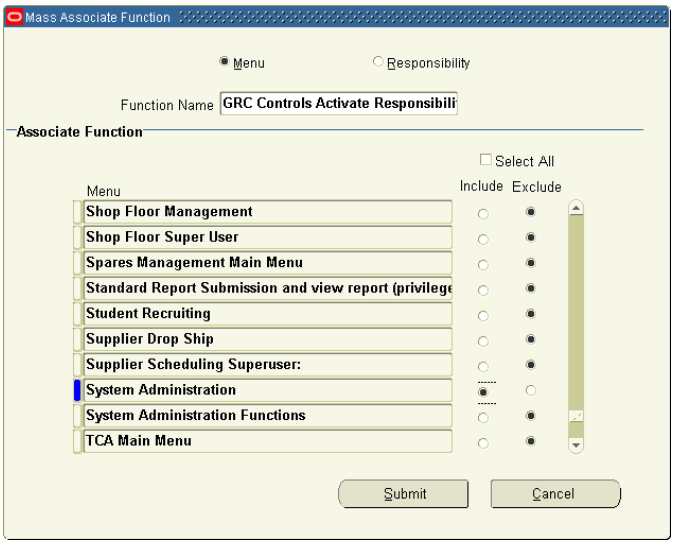
2. A GRC Controls—Oracle Rules form opens. Select its Form Rules tab.
3. Click on Tools in the menu bar, and then Oracle Form Rules Compile All Active SQL Rules in the Tools menu.
4. A pop-up message informs you of an ID number for the concurrent request that executes the SQL rule compilation. Make a note of the number, and then click on the OK button to close the message.
5. 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 the Refresh Data button), and the entry in the Status field is *Normal*.
   d. Close the Requests form: click on the × symbol in its upper right corner.

Associate a GRC Controls Function

Application Access Controls Governor inserts an Activate Responsibilities option in the Actions menu of the Oracle Users form. (This option permits SOD rules to be evaluated when a user's responsibilities are modified in the Users form.)

To activate this menu option, associate a function called GRC Controls Activate Responsibilities with either responsibilities or menus from which administrators open the Users form:

1. In the GRC Controls—Oracle Rules form, ensure that either the Form Rules or Flow Rules tab is selected.
2. Click on GRC Controls Utilities in the menu bar, and then on Mass Associate Function in the Utilities menu. A Mass Associate Function form appears.



3. Click on the Menu or Responsibility radio button (to determine which type of item you will associate with the function).
4. In the Function Name field, select GRC Controls Activate Responsibilities.
5. Select the Include radio button for each menu or responsibility you want to associate with the function you've selected. By default, the Include radio button is selected for all items in the Associate Function list. You can:
   - Deselect or select all menus or responsibilities. Click on the Select All check box so that it changes to read "Deselect All." Then click on it again; this selects all the Exclude radio buttons and clears all the Include radio buttons, and it changes the check box label back to "Select All." Click on it once again; this selects all the Include radio buttons and clears all the Exclude radio buttons, and it changes the check box label back to "Deselect All."
   - Deselect individual included menus or responsibilities by clicking on the Exclude radio button for each.
   - Select individual excluded menus or responsibilities by clicking on the Include radio button for each.
6. Click the Submit button. Users with access to the newly associated menus or assigned the newly associated responsibilities then have access to the function.

Preventive Controls Governor

In Preventive Controls Governor, a Change Control Wizard enables users to write rules that impose change control on Oracle E-Business Suite fields. In order for the Wizard to be used, you must run a Create Audit Rules Objects option:

1. In the GRC Controls—Oracle Rules form, ensure that the Audit Rules tab is selected.
2. Click on GRC Controls Utilities in the menu bar, and then Create Audit Rules Objects in the GRC Controls Utilities menu.
3. A pop-up message indicates that a concurrent request has been run. Make a note of its number, and then click on the OK button to close the message.
4. Optionally, verify that the request has been completed successfully. (See step 5 on page 26.)

Oracle E-Business Suite Version 11.5.8

If you run Oracle E-Business Suite version 11.5.8, you may regularly run a concurrent program called "Synchronize WF LOCAL Tables" to coordinate aspects of the Oracle workflow. If this is the case, you are advised to run this concurrent program immediately after installing Embedded Agents so that the Flow Rules application is properly synchronized with Oracle workflow.

This applies only to version 11.5.8 of Oracle E-Business Suite at certain patch levels; other versions are able to perform this synchronization automatically. If your Oracle

configuration does not require you to run the Synchronize WF LOCAL Tables program regularly, then omit this step as you install the Embedded Agents.

Oracle E-Business Suite Version 11.5.10.2 or Later

If you run Oracle E-Business Suite version 11.5.10.2 or later, edit an .xml file known as a "context file" in order for Oracle EBS to source the Embedded Agents environment correctly. (This sourcing is done through the use of a .env file, and the context file serves as a template for the generation of the .env file. In earlier versions, a shell script served as the template; the Embedded Agents installer was able to work with the shell script to set values automatically. Thus, complete the following procedure if you run Oracle EBS 11.5.10.2 or later; omit it if you run an earlier version.)

1. Using an xml editor, open the file $APPL_TOP/admin/*sid_host*.xml. In this file name, replace *sid* with the system identifier for the APPS database and *host* with the host name of the machine on which the APPS database resides.
2. In the file, search for the value *ZX_TOP*.
3. Add the following line immediately beneath the ZX_TOP row.

   ```
   <XXLAAPPS_TOP oa_var="s_xxlaappstop" oa_type="PROD_TOP"
   oa_enabled="FALSE">$APPL_TOP/xxlaapps/11.5.0</XXLAAPPS_TOP>
   ```

   Note the following:

   - The value *XXLAAPPS* is correct in this line only if you accepted the default GRC Controls application short name during installation. If not, then in each of the four places that the value *XXLAAPPS* appears in this line (whether in upper or lower case), substitute the short name you created in step 5 on page 16.
   - In place of the value *$APPL_TOP*, supply the actual full path to the Oracle EBS TOP directory.
4. Save the file.

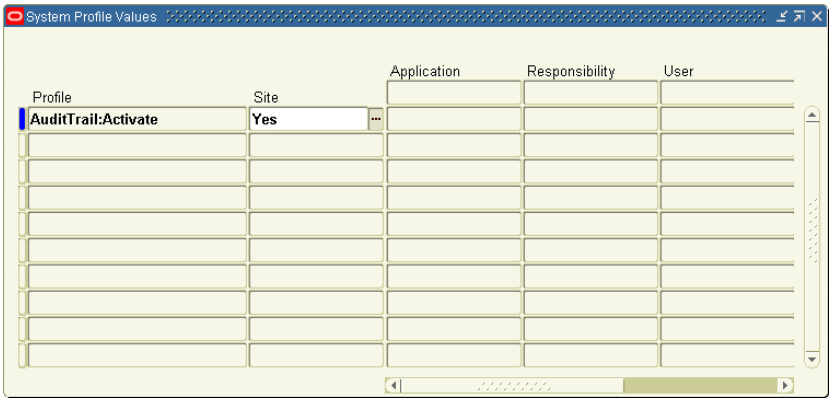
Audit Rules

Audit Rules provides database-auditing capability not only directly to users, but also to other applications that depend upon it. These include Preventive Controls Governor, which provides Oracle field-level change control, and Access Monitoring, which audits the activities of users granted temporary access to duties they do not ordinarily fulfill. To prepare the auditing functionality for use, complete the following tasks.

First, set an AuditTrail:Activate profile option to Yes:

1. Log on to the System Administrator responsibility in Oracle E-Business Suite.
2. In the Navigator, select Profile, then System.
3. In the Find System Profile Values form, select AuditTrail:Activate in the Profile list of values. Then click on the Find button.

4 Ensure that the AuditTrail:Activate option is set to Yes at the Site level:



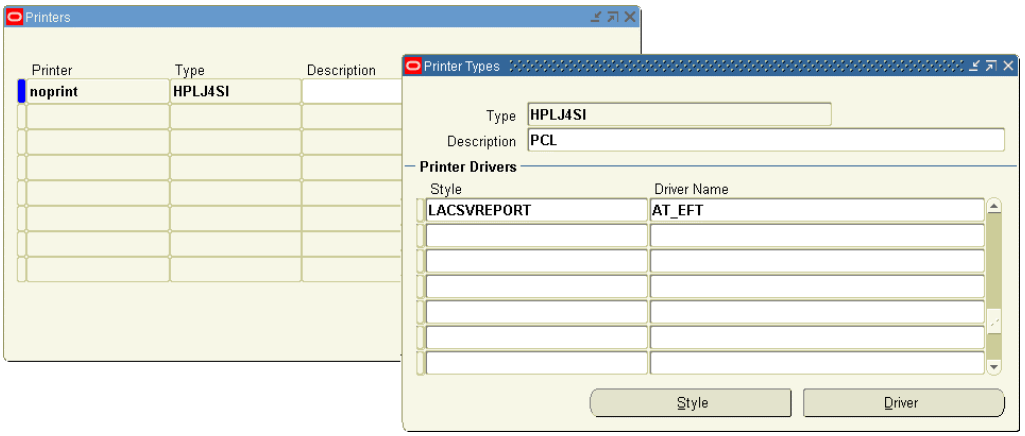
Second, add the LACSVREPORT style to the printer you will use for Audit Rules:

1 In the System Administrator responsibility, select Install, then Printer, then Register.

2 A Printers form appears. In its Printer field, select the printer you wish to use with Audit Rules. Note the value that appears in the Type field when you select the printer, and then click on the Printer Types button.

3 A Printer Types form appears. In its Type field, query for the Type you noted in step 2. (Press the F11 key; enter the Type value in the Type field; press Ctrl+F11.)

4 In the Style list of values, select LACSVREPORT; the software automatically supplies an associated value under Driver Name.



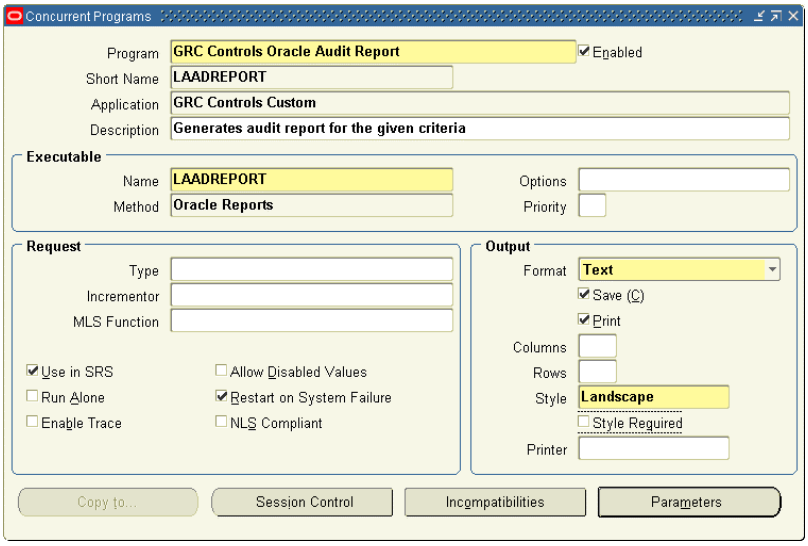
5 Click on File in the menu bar, then on Save in the File menu.

Third, modify the report style:

1 As System Administrator, select Concurrent, then Program, then Define.

2 A Concurrent Programs form appears. In its Program field, query for GRC Controls Oracle Audit Report. (Press the F11 key; select *GRC Controls Oracle Audit Report* in the Program field; press Ctrl+F11.)

3 The Style field displays the value *Landwide*. Change this to *Landscape*.



4 Click on File in the menu bar, then on Save in the File menu.

Last, schedule a concurrent-request program called Audit: Dequeue Process to be run periodically. This enables reports for the Audit Rules, Preventive Controls Governor (change control), and Access Monitoring applications to display current data, so the period at which you schedule the running of this concurrent program depends upon the frequency with which you expect to run these reports. To schedule the program:

1 Switch to the GRC Controls responsibility. (Use the Switch Responsibility icon, sixth from the left on the tool bar.)

2 In the Navigator, select Requests: Run under the Administration heading.

3 In the Submit a New Request form, select Single Request and click the OK button.

4 In the Submit Request form, select Audit: Dequeue Process in the Name field (the program takes no parameters). Then click on the Schedule button.

5 In the Schedule form, select the Periodically radio button. In related fields, select values appropriate for the schedule you want to set. Click on the OK button.

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

Different Hosts

If the database server and concurrent manager server are on different hosts, make the following changes to the Tkprof script (LATKPROF.prog), which is located in the Embedded Agents binary directory on the concurrent manager server. (The changed lines are shown in boldface.) The value <db_ login> is the user name to log on to the database server, and the value <db_ hostname> is the database server name.

```
#!/bin/sh
oracle_login=$1
tempfile=$$latkprof.txt
temptrc=$$latkprof.trc
```

```
echo Temp file $tempfile
echo tkprof directory "$5"
pwd
tkfiles='ssh <db_login>@<db_hostname> ls $5'
for i in $tkfiles
do
echo processing $i
scp <db_login>@<db_hostname>:$i /tmp/$temptrc
tkprof /tmp/$temptrc /tmp/$tempfile explain=$1
cat /tmp/$tempfile
rm /tmp/$tempfile
rm /tmp/$temptrc
done
```

If you have multiple APPS schemas, the LA_ENHNCMTMGR_PKG must be created as a synonym under each schema. To perform this operation, run the following command:

```
create synonym LA_ENHNCMTMGR_PKG for apps.LA_ENHNCMTMGR_PKG
```

If this is not set, the following error message appears when a user attempts to log on to a read-only or MRC (multiple reporting currency) responsibility:

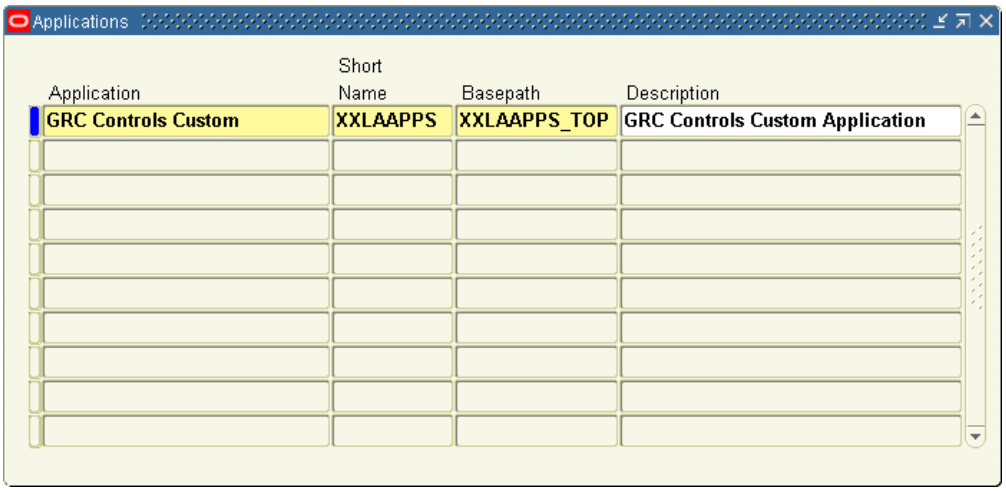
```
la_enhncmtmgr_pkg not declared
```

Chapter 3

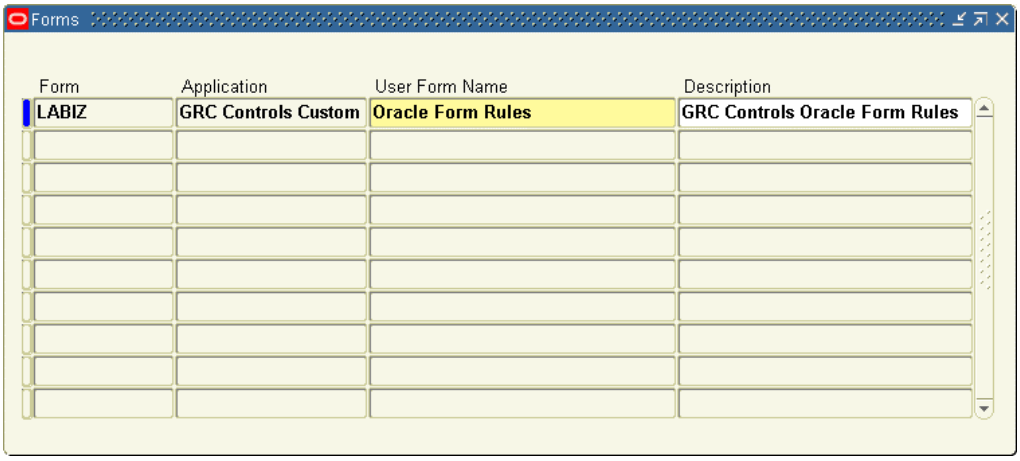
Validation

As a part of the installation process, the Installer programs complete several "behind-the-scenes" tasks. Open Oracle E-Business Suite forms to confirm that these tasks have been completed. (As you perform these validation steps, you may be instructed to "query for" a value. If so, press the F11 key, type the specified value in a specified field, and then press Ctrl+F11.)

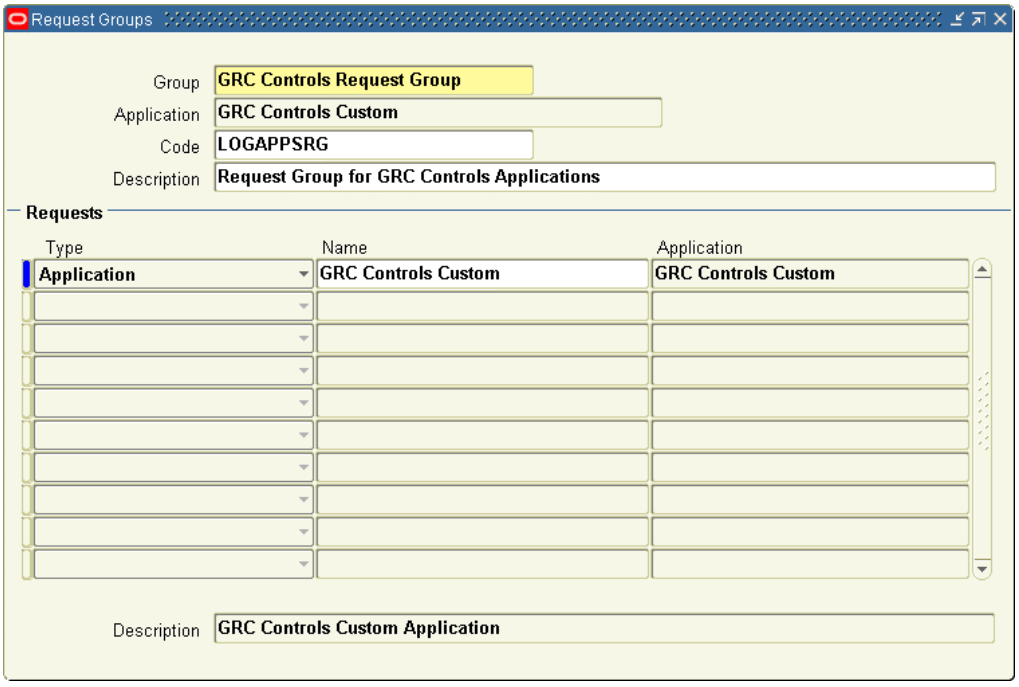
1. Log on to the System Administrator responsibility in Oracle E-Business Suite.
2. Select Application, then Register.
3. In the Application field, query for GRC Controls Custom. The form should contain the following values:



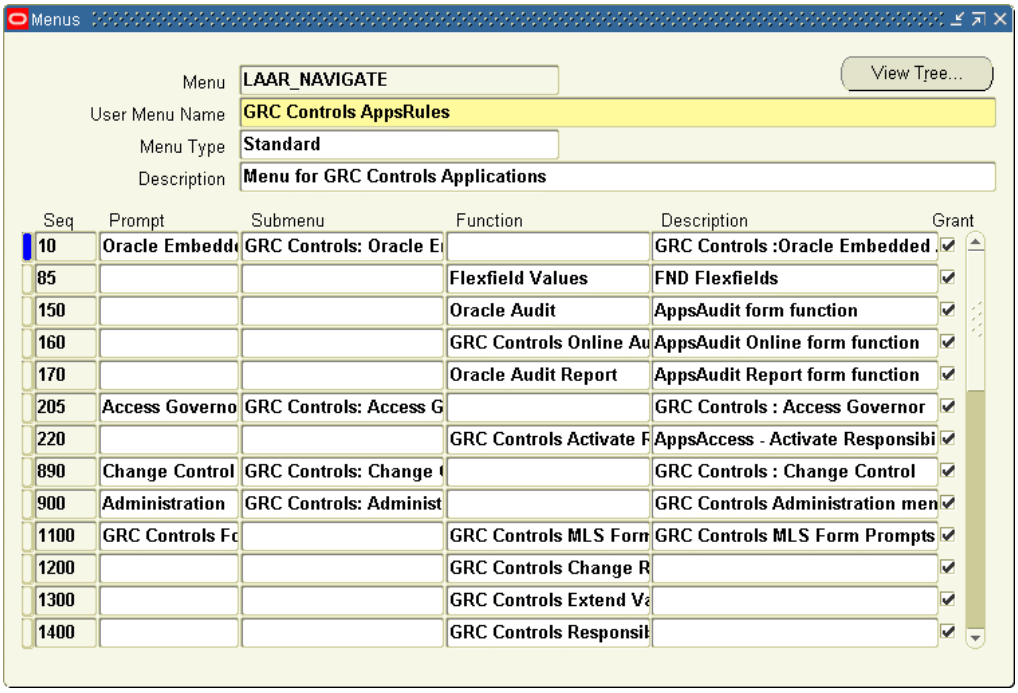
4 Switch to the Application Developer responsibility. (Select File in the menu bar, then Switch Responsibility in the File menu. A Responsibilities list appears; in it, select Application Developer.) In the Application Developer Navigator, double-click on Application, then Form. In the Form field, query on LABIZ. The form should contain the following values:



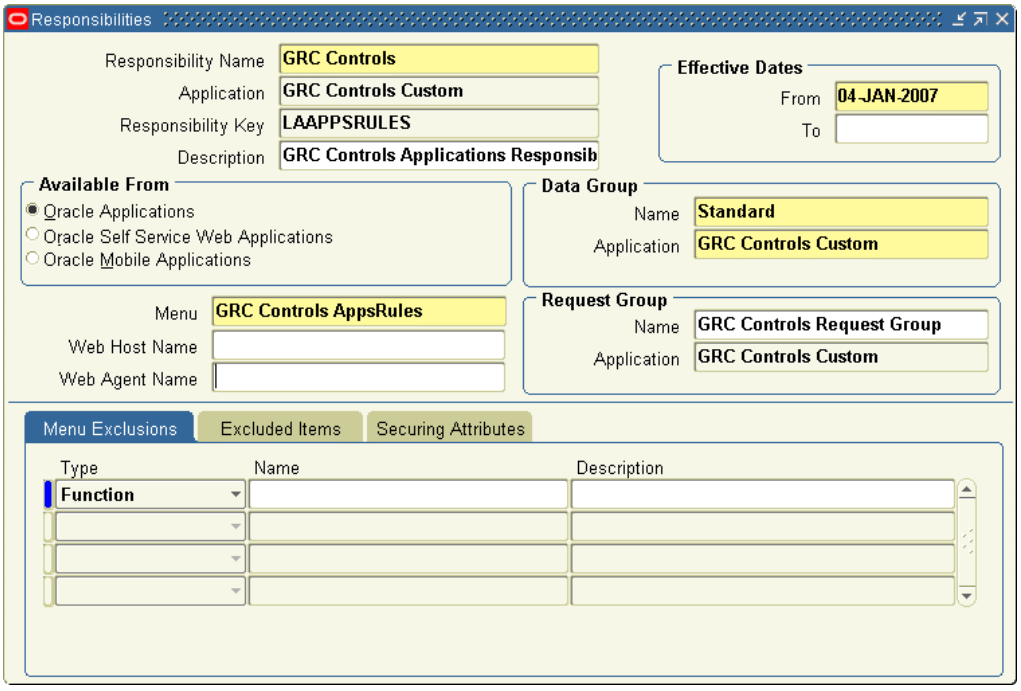
5 Switch back to the System Administrator responsibility. In its Navigator, select Security, then Responsibility, then Request. In the Request Groups form, query for GRC Controls Request Group. The form should contain the following values:



6 Still in the System Administrator responsibility, select Application, then Menu in the Navigator. In the Menus form, query for LAAR_NAVIGATE and confirm the values shown in the following illustration. (The illustration is a composite, showing all the entries in the Menus form. Use the scroll bar to view the last few.)

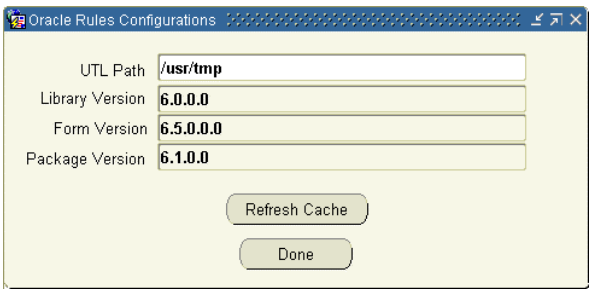


7 In the System Administrator Navigator, select Security, then Responsibility, then Define. In the Responsibilities form, query for GRC Controls. (This is the responsibility you would assign to Oracle E-Business Suite users so that they can use Embedded Agents applications.)



Switch to the GRC Controls responsibility and, in its Navigator, select Oracle Embedded Agent, and then Form Rules. Then do the following:

1. Select Tools in the menu bar, then Oracle Rules Configurations in the Tools menu.
2. An Oracle Rules Configuration form appears. Confirm that a value is displayed in the UTL Path field:

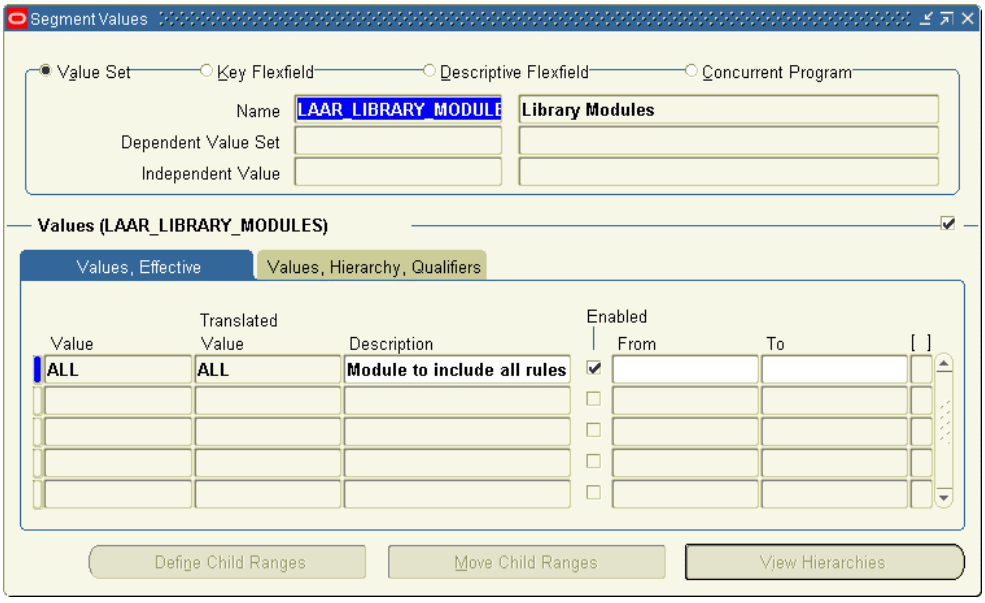


3. The UTL Path field value should match the name of one of the directories set for UTL_PATH in your environment. To confirm that it does, run the following SQL Query to generate a list of those directories:

```
select value from gv$parameter where name='utl_file_dir'
```

Finally, confirm that appropriate values have been set for GRC Controls libraries:

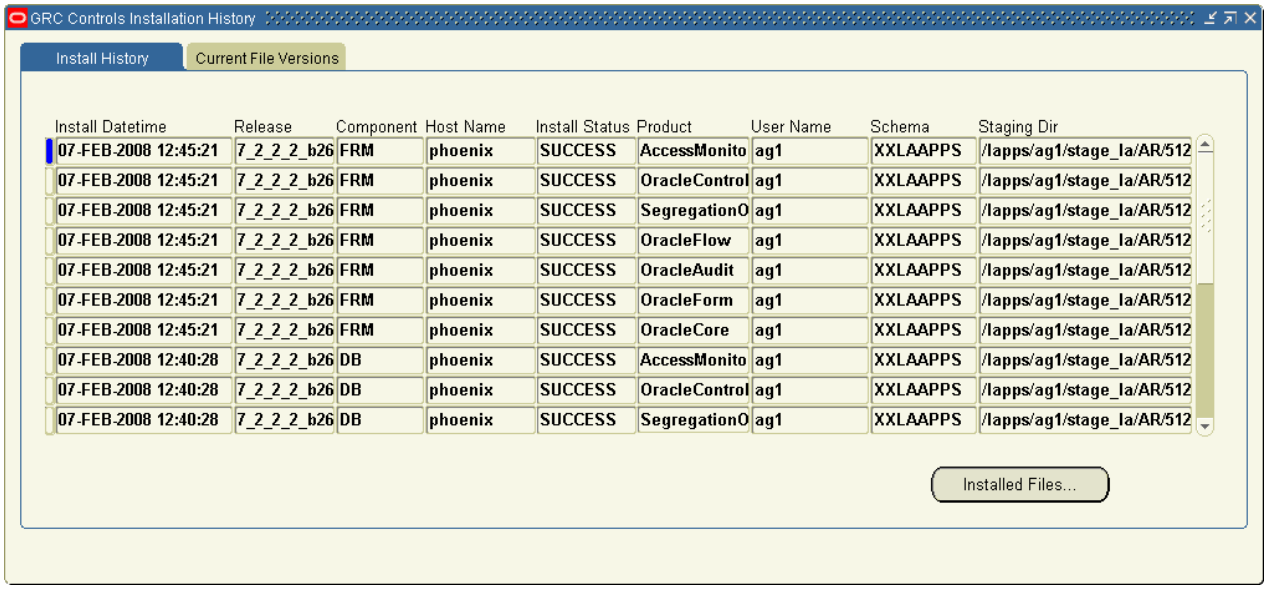
1. With Form Rules open, click on GRC Controls Utilities in the menu bar, then on Oracle Rules Library in the GRC Controls Utilities menu.
2. With a GRC Controls Libraries form open, click on Tools in the menu bar, then on Value Sets in the Tools menu.
3. In the Name field of the Find Value Set form, enter the value *LA%* and click on the Find button.
4. Select (one at a time) the LAAC_CATEGORY, LAAR_LIBRARY_MODULES, and LAAR_LIBRARY_ THEME entries. For each, confirm that a Segment Values form displays *ALL* in the Values field for the Values, Effective tab. For example:



Installation History

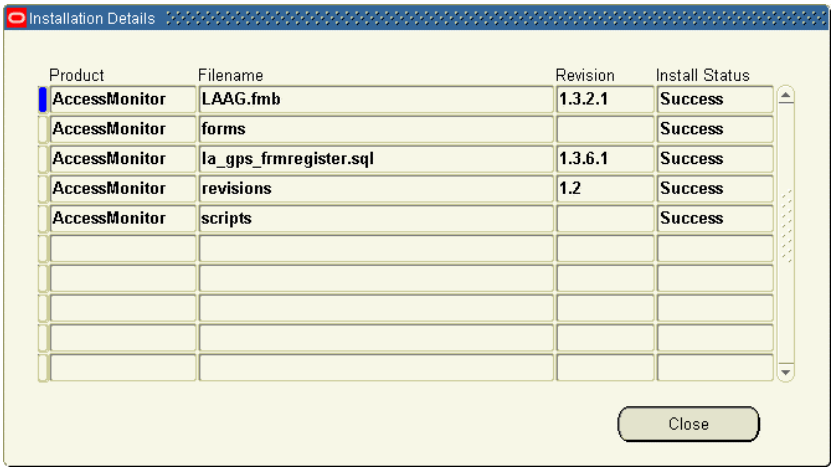
You can review information about the installation of files for your Embedded Agents implementation. To do so:

1. Log on to the GRC Controls responsibility in Oracle E-Business Suite.
2. In the Navigator, select Administration, and then Install History. The Installation History form appears:



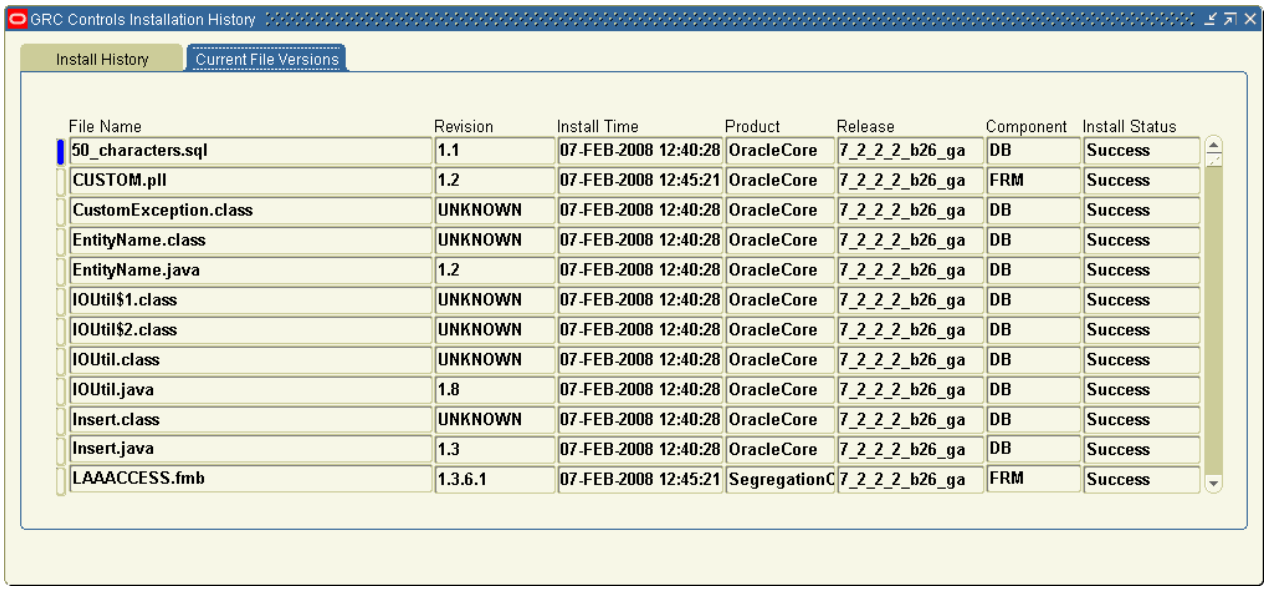
Each row provides information about the installation of a program element — for example, the top row in this illustration shows that the Access Monitoring element for version 7.2.2.2 of the forms server was successfully installed. Because there are several elements for each of the forms and database servers, a single installation fills multiple rows in the grid— for example, the top seven rows in this figure pertain to an installation performed on February 5.

3. To view a list of the files installed for a given element, click on the row for that element and then on the Installed Files button. The following form appears:



Click on the Close button to clear this form.

4 Finally, to review information about all currently installed files (regardless of whether they were added in the most recent installation), click on the Current File Versions tab:



File Name	Revision	Install Time	Product	Release	Component	Install Status
50_characters.sql	1.1	07-FEB-2008 12:40:28	OracleCore	7_2_2_2_b26_ga	DB	Success
CUSTOM.pll	1.2	07-FEB-2008 12:45:21	OracleCore	7_2_2_2_b26_ga	FRM	Success
CustomException.class	UNKNOWN	07-FEB-2008 12:40:28	OracleCore	7_2_2_2_b26_ga	DB	Success
EntityName.class	UNKNOWN	07-FEB-2008 12:40:28	OracleCore	7_2_2_2_b26_ga	DB	Success
EntityName.java	1.2	07-FEB-2008 12:40:28	OracleCore	7_2_2_2_b26_ga	DB	Success
IOUtil$1.class	UNKNOWN	07-FEB-2008 12:40:28	OracleCore	7_2_2_2_b26_ga	DB	Success
IOUtil$2.class	UNKNOWN	07-FEB-2008 12:40:28	OracleCore	7_2_2_2_b26_ga	DB	Success
IOUtil.class	UNKNOWN	07-FEB-2008 12:40:28	OracleCore	7_2_2_2_b26_ga	DB	Success
IOUtil.java	1.8	07-FEB-2008 12:40:28	OracleCore	7_2_2_2_b26_ga	DB	Success
Insert.class	UNKNOWN	07-FEB-2008 12:40:28	OracleCore	7_2_2_2_b26_ga	DB	Success
Insert.java	1.3	07-FEB-2008 12:40:28	OracleCore	7_2_2_2_b26_ga	DB	Success
LAAACCESS.fmb	1.3.6.1	07-FEB-2008 12:45:21	SegregationC	7_2_2_2_b26_ga	FRM	Success

5 To close the Installation History form, click on its × symbol.

Book 2

GRC Controls Suite Platform Installation

Chapter 4

Platform Installation Overview

You may install the common platform for the Governance, Risk, and Compliance Controls Suite on a Linux, UNIX, or Windows server (see "Supported Operating Systems," below). The installation procedure varies somewhat depending upon the operating system you choose.

You begin by preparing your system for the installation, loading installation files to a staging directory, and installing Business Objects, Tomcat application server, and GRC Controls Suite platform components on your server: If you are installing on Linux or UNIX, follow directions in Chapter 5 to complete these tasks, and skip Chapter 6. If you are installing on Windows, follow directions in Chapter 6 and skip Chapter 5.

No matter what operating system you use, you continue the installation by "publishing" reports and complete it by configuring the platform. Chapter 7 provides detailed procedures for reports publication, and Chapter 8 for GRC Controls Suite platform configuration.

Supported Operating Systems

The GRC Controls Suite platform can run under any of the following operating systems:

Windows 2000 Server with Service Pack 4.

Windows 2003 Server with Service Pack 1.

Red Hat Enterprise Linux 4.0. Minimum operating system installation.

Red Hat Advanced Server 4.0. Minimum operating system installation.

SUSE Linux Enterprise Server 9.0. Minimum operating system installation plus XFree86-4.3.99.902-43.22.i586.rpm, XFree86-libs-4.3.99.902-43.22.i586.rpm. Higher patches are supported.

Solaris 8. Minimum operating system installation plus the following packages:

- SUNWgzip
- SUNWzlib
- SUNWscpu
- SUNWbash
- SUNWbcp
- SUNWxcu4 (XCU4 Utilities)
- SUNWxwfnt
- SUNWxwplt
- SUNWlibC
- SUNWeuluf (UTF-8 L10N For Language Environment User Files)
- SUNWuiu8 (Iconv modules for UTF-8 Locale)
- SUNWulcf (UTF-8 Locale Environment Common Files)
- SUNWmfrun
- SUNWxwice
- Solaris 8 Recommended Patch Cluster including:
  - kernel patch, 108528-24 or higher
  - C++ run-time, 108434-13 or higher
  - linker patch, 109147-26 or higher
  - Misc loc have errors in CTYPE and lv colln monetary, 109778-13 or higher
  - gzip patch, 112668-01 or higher
  - libz patch, 112611-02 or higher
  - tar patch, 110951-04 or higher
  - sh family patch, 109324-05 or higher
  - en_UTF-8 patch, 114059-02 or higher
- Additionally, thread, c and other library patch, 108993-32 or higher. Note that patch 108993-32 require the following to be installed first:
  - mntfs patch 111023-03
  - init patch 111317-05
  - mount patch 113648-03
  - netstrategy patch 115827-01
  - uadmin patch 116602-01

Solaris 9. Minimum operating system installation plus the following packages:

- SUNWgzip
- SUNWzlib
- SUNWscpu
- SUNWbash
- SUNWbcp
- SUNWxcu4(XCU4 Utilities)
- SUNWxwfnt
- SUNWxwplt
- SUNWlibC
- SUNWeu8os (American English/UTF-8 L10N For OS User Files)
- SUNWeuluf (UTF-8 L10N For Language Environment User Files)
- SUNWuiu8 (Iconv modules for UTF-8 Locale)
- SUNWulcf (UTF-8 Locale Environment Common Files)
- SUNWmfrun
- SUNWxwice
- Solaris 9 Recommended Patch Cluster including:
  - kernel patch, 112233-11 or higher
  - libc, 112874-16 or higher
  - C++ run-time, 111711-06 or higher
  - linker patch, 112963-10 or higher
  - zlib patch, 115754-02 or higher
  - Higher patches are supported.
  - November 2003 C++ Runtime PTF => xlC.aix50.rte 6.0.0.10 (Note that this PTF requires Runtime of Level 6.0.0.0 to be installed prior to installing the PTF)
  - Higher patches are supported

Solaris 10. Minimum operating system installation plus the following packages. (Higher patches are also supported.)

- SUNWgzip
- SUNWzlib
- SUNWscpu
- SUNWbash
- SUNWbcp
- SUNWxcu4 XCU4 Utilities
- SUNWxwfnt

- SUNWxwplt
- SUNWlibC
- SUNWeu8os American English/UTF-8 L10N For OS Environment User Files
- SUNWeuluf UTF-8 L10N For Language Environment User Files
- SUNWuiu8 Iconv modules for UTF-8 Locale
- SUNWulcf UTF-8 Locale Environment Common Files
- SUNWmfrun
- SUNWxwice

Hardware Requirements

A Solaris, Linux, or Windows server should meet the following requirements to run the GRC Controls Suite platform and Business Objects:

- Random-access memory (RAM): 3 gigabytes (GB)
- Hard-disk space: For a single-node installation, 40 GB of space on mirrored SCSI disks — 8 GB for a staging directory, 4 GB for a platform web tier, 26 GB for a Business Objects reports tier, and 2 GB for database metadata.

If you use Red Hat Enterprise Linux 4.0 or SUSE Linux Enterprise Server 9.0, your system must have at least Dual CPU (Xeon preferred), 2.5 GHz or faster.

If you use Solaris 8, 9, or 10, your system must have at least SPARC v8plus.

Requirements for the application server and database include:

- Database: At least 1.5 GB of storage for tables for the GRC Controls platform schema.
- 2 GB of disk space reserved for temporary data generated by segregation-of-duties analytics. (This is in addition to the 40 GB of space noted above. It is space shared by all databases that run on a server, so you may already have allowed for it.)

Software Requirements

Version 7.2.2.2 of Governance, Risk, and Compliance Controls Suite supports Oracle E-Business Suite Release 12, releases 11.5.9 and 11.5.10 (preferred), and 11.5.7 (FND Patch H) and 11.5.8 (also supported).

Oracle Client version 9.2.0.1 or greater is required for connectivity among various Oracle databases.

Each of the GRC Controls Suite platform and Business Objects requires an Oracle 9i (or later) database.

Apache Tomcat 5.0 is the only supported application server. It is bundled with the Business Objects installation.

Internet Explorer 5.5, 6.0, or 7.0 can display the GRC Controls Suite platform.

Chapter 5

Installing Linux/UNIX Server Components

If you are installing the Governance, Risk, and Compliance Controls Suite platform on a Linux or UNIX server, complete the procedures in this chapter, and omit Chapter 6. (If you are installing on Windows, omit this chapter and skip ahead to Chapter 6.) Once server components are installed, proceed to Chapter 7.

Be sure the Embedded Agents are installed in at least one Oracle EBS instance. Then load files to a staging directory and use them to install "infrastructure" — Business Objects components and the Tomcat application server. Configure the Business Objects server, and then install the GRC Controls Suite platform program files and schema.

Preparing to Install

Before installing, complete the following steps:

1. Ensure that an Oracle database exists for use by the GRC Controls Suite platform, and create a database user for it; the recommended name is XXLAAPPS_AG. Do the same for Business Objects; the recommended name is XXLAAPPS_BO. Grant these users the CONNECT and RESOURCE roles, and set these roles to DEFAULT. Ensure that the XXLAAPPS_AG user has access privileges to the v$instance table.
2. Determine the following values, which you will need during the installation:
   - The host name of the SMTP server your company uses for sending email.
   - The host name, port number, SID, user (schema) name, and password for each of databases used by the platform and Business Objects.

- The host name, port number, SID, user (schema) name, and password for the database used by an Oracle E-Business Suite instance in which the Embedded Agents have been installed to run.

3 Ensure that the machine to be used to host the GRC Controls Suite platform does not run Business Objects. (A single host should not run two Business Objects installations.) To check, run the following command:

```
ps –ef | grep bobje
```

The grep process should be the only one with "bobje" in it. Any others would indicate that an instance of Business Objects is running.

4 Determine whether ports 6400, 8005, 8080, and 8443 are available on the host. (The installation procedure uses these ports by default. If any are already in use, you'll need to substitute for them during installation.)

5 Install Oracle Client 9.2.0.1 or greater, if it is not already installed (see below).

6 Create a GRC Controls Suite user on the host Linux or UNIX operating system. The recommended name is lapps. The user need not belong to any group. As you complete the prodedures in this chapter, log on as this user.

7 Create the following directories on the host. Ensure that the user created in step 6 owns these directories and has read and write permissions to them.

- A base directory. In this document, the name $LAPPS_BASE represents the full path to this directory (for example, /opt/lapps).
- A staging directory, which is an immediate subdirectory of $LAPPS_BASE. In this document, the name $LAPPS_STAGE represents the full path to this directory (for example, /opt/lapps/stage).
- A home directory, which is an immediate subdirectory of $LAPPS_BASE. In this document, the name $LAPPS_AG_HOME represents the full path to this directory (for example, /opt/lapps/ag).
- Temporary directories: $LAPPS_BASE/tmp and $LAPPS_BASE/tmpdir. These could be links to any designated temporary directory on the host.

Installing Oracle Client

Oracle Client 9.2.0.1 or greater must be installed on the server that hosts the GRC Controls Suite platform, enabling it to connect to Oracle databases that have the GRC Controls Suite platform, Embedded Agent, and Business Objects schemas. Refer to Oracle documentation for further details on Oracle Client installation.

In this document, ORACLE_HOME represents the entire path to the directory in which you have installed Oracle Client.

Open the file ORACLE_HOME/network/admin/tnsnames.ora. For each of the GRC Controls Suite platform, Embedded Agent, and Business Objects databases, create an entry that specifies the host, dbport, and dbsid. Save the file.

Loading Files in the Staging Directory

To prepare the files you will use to install the GRC Controls Suite platform:

1. Locate the Governance, Risk, and Compliance Controls Suite Disk 1 in your Oracle media pack. In its dist directory, locate the file ag_7222_server.zip, copy the file to your $LAPPS_STAGE directory, and extract its contents there. (This creates several subdirectories of $LAPPS_STAGE, among them lib_stage and ags_infrastructure/bobje.)
2. Locate the Governance, Risk, and Compliance Controls Suite Disk 3 in your Oracle media pack. Copy its contents — two zip files — to your $LAPPS_STAGE/ags_infrastructure/bobje directory, and extract their contents there. This creates four subdirectories of $LAPPS_STAGE/ags_ infrastructure/bobje — DISK_1, DISK_2, DISK_3, and cd — and populates them with files.
3. Certain open-architecture files are required. To acquire them, download files from the following sites to your $LAPPS_STAGE/lib_stage directory.

   ```
   http://downloads.sourceforge.net/hibernate/hibernate-3.0.5.zip
   ?modtime=1117034763&big mirror=1
   http://team.andromda.org/maven2/org/jbpm/jbpm/3.0/jbpm-3.0.jar
   http://team.andromda.org/maven2/org/jbpm/jbpm-identity/3.0/
   jbpm-identity-3.0.jar
   http://downloads.sourceforge.net/junit/junit3.8.1.zip?modtime=
   1031097600&big mirror=0
   http://www.ibiblio.org/maven/mule/dependencies/xpp3/1.1.3.4d_
   b4_min/xpp3-1.1.3.4d_b4_min.jar
   ```

4. After this download, run the script preinstall.sh from your $LAPPS_STAGE directory.

Editing and Running the Environment File

To source your environment, edit and run an ag.env file. (In steps 1, 7, and 8, substitute actual paths for the environment variables.)

1. Navigate to the infrastructure directory:

   ```
   cd $LAPPS_STAGE/ags_infrastructure
   ```

2. Using a text editor, open the ag.env file in the infrastructure directory.
3. Locate the LAPPS_BASE, LAPPS_ STAGE, and LAPPS_AG_HOME entries and set them to the full paths to the base, staging, and home directories you've created (see step 7 on page 46). Locate the ORACLE_HOME entry and set it equal to the full path to the directory in which Oracle Client is installed (see page 46).

   In each case, the path ends in a semicolon, which is followed by a phrase consisting of the word *export*, the environment-variable name, and another semicolon. Be sure to retain these elements. For example, if the base directory is /opt/lapps, the base-directory entry in the ag.env file would read:

   ```
   LAPPS_BASE=/opt/lapps; export LAPPS_BASE;
   ```

4. Locate two entries that begin ". $BOBJEDIR." Comment out these entries (type a # symbol, followed by a space, at the beginning of each.)

5 Locate two entries that set aliases; one begins "alias start" and the other "alias stop." Comment out these entries as well.

6 Save and close the file.

7 Copy ag.env to your home directory:

```
cp ag.env $LAPPS_AG_HOME
```

8 Navigate to the home directory and run the file:

```
cd $LAPPS_AG_HOME
. ag.env
```

Installing Infrastructure

Installing "infrastructure" involves placing Business Objects and Tomcat files on the server, configured so that they will connect to databases and other components.

1 Navigate to the following directory and run an installation program:

```
chmod -R +x .
cd $LAPPS_STAGE/ags_infrastructure/bobje/DISK_1
./install.sh
```

2 A language-selection screen appears. Choose the language in which you want to work. (English is the default.) Press Enter.

3 An Install Type screen appears. Press Enter to accept the default, New Installation.

4 A license-agreement screen appears. Press *Y* to accept its terms.

5 When prompted for an installation directory, enter the full actual path to $LAPPS_AG_HOME.

6 Press Enter to accept the default installation type, User.

7 Press Enter to accept the default installation type, New.

8 A database-selection prompt appears. Choose 1 (Use an existing database). A list of databases then appears; select 2 (Oracle).

New prompts appear; at them, provide the host name, port number, SID, database user name, and password for the Oracle database used by Business Objects. (The user is the one you created in step 1 on page 45.) Press Enter.

9 In an application-server screen, press Enter to install Tomcat. (This is the default; Tomcat is the only supported application server.)

10 Review default port assignments for Tomcat. These should match the following values; change only those (if any) already used by other applications.

- CMS_PORT, 6400
- TOMCAT_PORT, 8080
- TOMCAT_REDIRECT_PORT, 8443
- TOMCAT_SHUTDOWN_PORT, 8005

11 Press Enter to complete the installation.

Stopping and Starting Services

At several points as you complete the remaining installation procedures, you will need to stop and then start Business Objects services. To stop the services:

1. Execute the following commands on the host server:

   ```
   $LAPPS_AG_HOME/bobje/tomcatshutdown.sh
   $LAPPS_AG_HOME/bobje/stopservers
   ```

2. Pause a few minutes to allow Business Objects services to stop. Then run the following command to ensure that they have:

   ```
   ps -ef | grep bobje
   ```

   The grep process should be the only one with "bobje" in it. If any other processes are returned, rerun the stopservers command, pause again, and rerun the ps command to ensure that servers have stopped.

To restart the services, execute the following commands on the host server:

```
$LAPPS_AG_HOME/bobje/startservers
$LAPPS_AG_HOME/bobje/tomcatstartup.sh
```

Installing a Business Objects Patch

Update Business Objects with a required patch.

1. Stop the Business Objects services. (See the preceding section, "Stopping and Starting Services.")

2. Enter the following commands:

   ```
   cd $LAPPS_STAGE/ags_infrastructure/bobje/cd/DISK_1
   ./install.sh -i $LAPPS_AG_HOME/bobje -g en
   ```

The execution of these commands installs the patch and restarts the Business Objects services; on this occasion you do not need to restart them manually.

Setting the Business Objects Rowcount

As users run GRC Controls Suite reports, they may select parameters. The maximum number of parameters that Business Objects displays by default may be insufficient. That number is controlled by a MaxRowcountRecords property. Complete the following steps to increate the value of MaxRowcountRecords to 100,000:

1. Copy a file called LOVKey.tar.gz from your staging directory to a Business Objects subdirectory:

   ```
   cp $LAPPS_STAGE/ags_infrastructure/post-install/LOVKey.tar.gz
   $LAPPS_AG_HOME/bobje/data/.bobj/registry/software/business objects/
   suite 11.5/
   ```

2 Navigate to the directory into which you've copied the LOVKey.tar.gz file.

3 Untar the file:

```
tar -xvfz LOVKey.tar.gz
```

Configuring the Business Objects Server

Use the Business Objects Central Management Console (CMC) to configure the Business Objects components you've installed. To log on to the CMC:

1 Open a web browser and, in its address field, enter the following URL:

`http://host:8080/businessobjects/enterprise115/admin/en/admin.cwr`

In this URL, replace *host* with the name of the host system on which you installed the GRC Controls Suite platform infrastructure. If, during installation, you chose a substitute for port 8080, change the value *8080* in the URL to the correct number for your substitute port.

2 A log-in form appears. To log in for the first time, type *Administrator* in the User Name field and leave the Password field blank. (A read-only System field is set to the host name you specified in step 1. Accept the default value, *Enterprise*, for Authentication Type.) Click the Log On button.

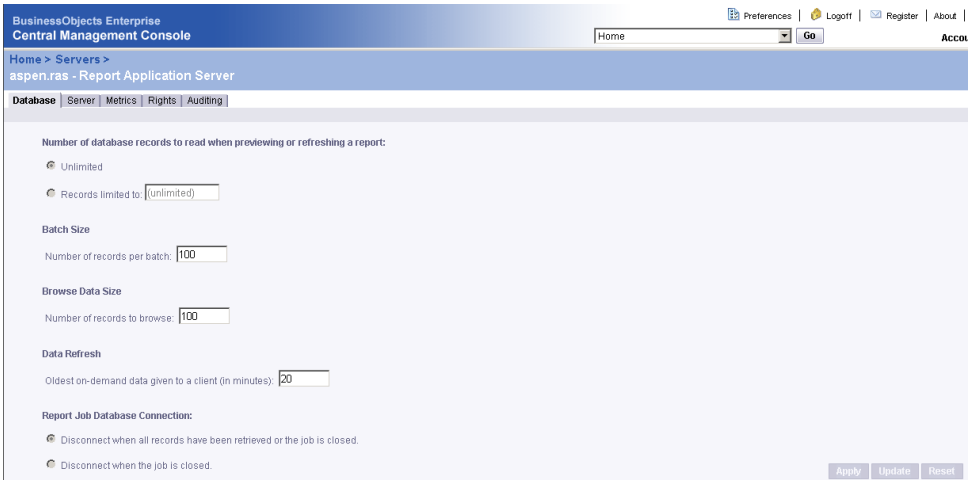
3 In the Home panel, in a section labeled Organize, click on Servers:

4 In the Servers panel, examine icons accompanying servers whose names contain the host name of the system to which you've logged on:

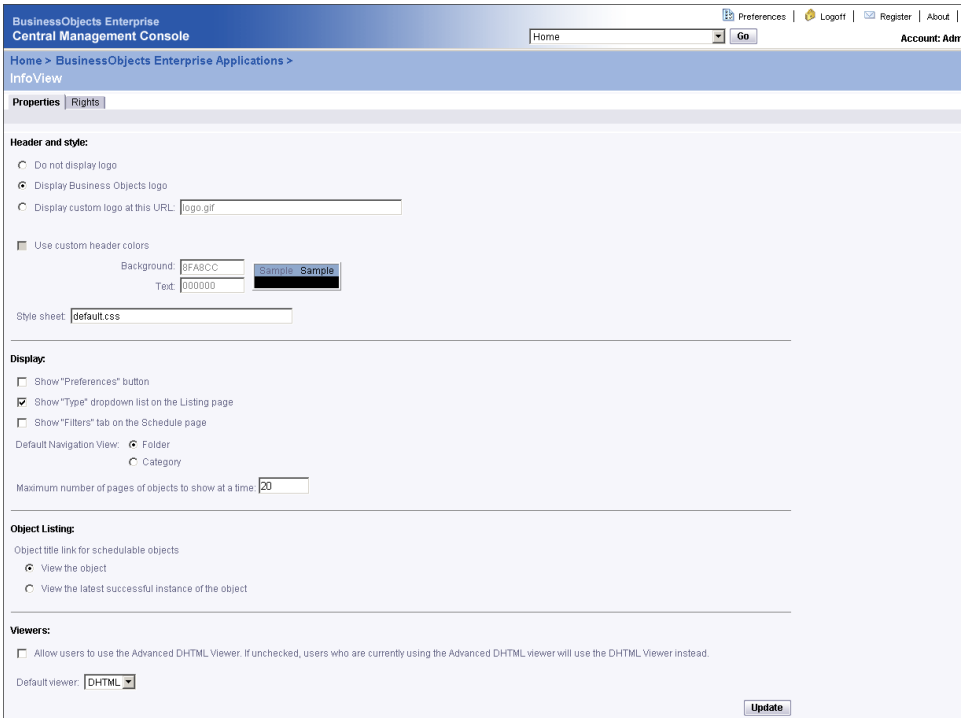
- If any shows a downward-pointing red arrow, close the CMC. Navigate to $LAPPS_AG_HOME/bobje/logging and check log files — boe-cmsd*.log and ccm*.log — for errors. Call Customer Support.
- If, however, all display upward-pointing green arrows, proceed to the next step.

5 In the Servers panel, locate the server named *hostname*.ras, in which *hostname* is the name of the host system to which you've logged on. Single-click on the name.

6 A Report Application Server panel opens for the server you've selected, with its Database tab active. Under the heading "Number of database records to read when previewing or refreshing a report," select the Unlimited radio button. Accept defaults for other fields, and click the Update button.



7 In the "breadcrumb trail" (*Home* > *Servers* > in the illustration above), click the Home link. In the Home panel, locate the Manage section; in it click on Business Objects Enterprise Applications. In a list of applications, click on InfoView. An InfoView panel opens:



8 Make these edits:

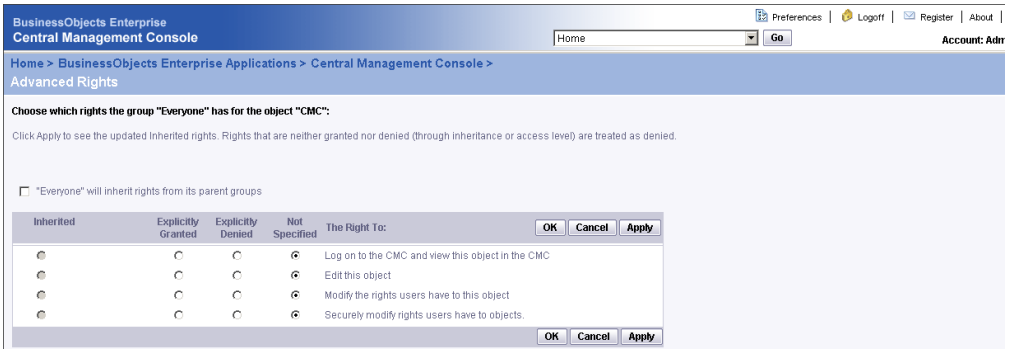
- In the Viewers section, ensure that the check box labeled "Allow users to use the Advanced DHTML Viewer…." is cleared. Then, in the Default Viewer list box, select DHTML.

- In the Display section, clear the check boxes labeled "Show 'Preferences' button" and "Show 'Filters' tab on the Schedule page."
- Accept default values for the remaining fields and click on the Update button.

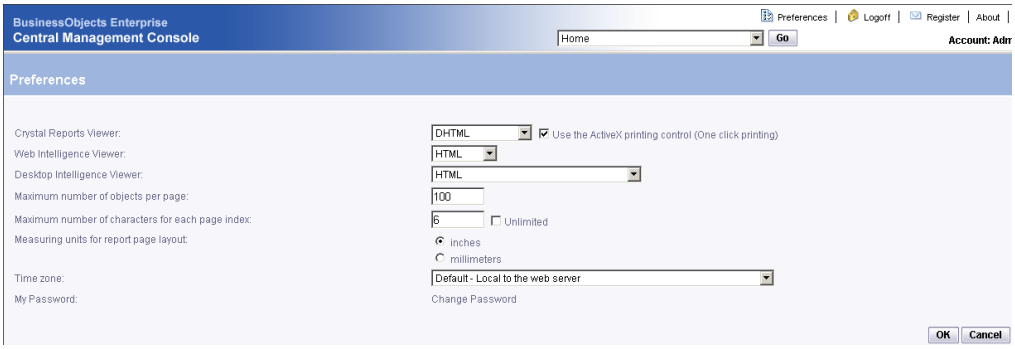
9 Click on BusinessObjects Enterprise Applications in the breadcrumbs trail and then, in the list of applications, click on Central Management Console.

10 In a Central Management Console panel, click on the Rights tab. It presents a list of users. Locate the Everyone user and click on its Advanced entry.

11 An Advanced Rights panel opens. In it, select the Not Specified radio button for the row labeled "Log on to the CMC and view this object in the CMC." Then click on the OK button.



12 The Central Management Console panel returns. Click on Home in the bread-crumb trail, and then on Preferences in a line of links along the upper right edge of the CMC.

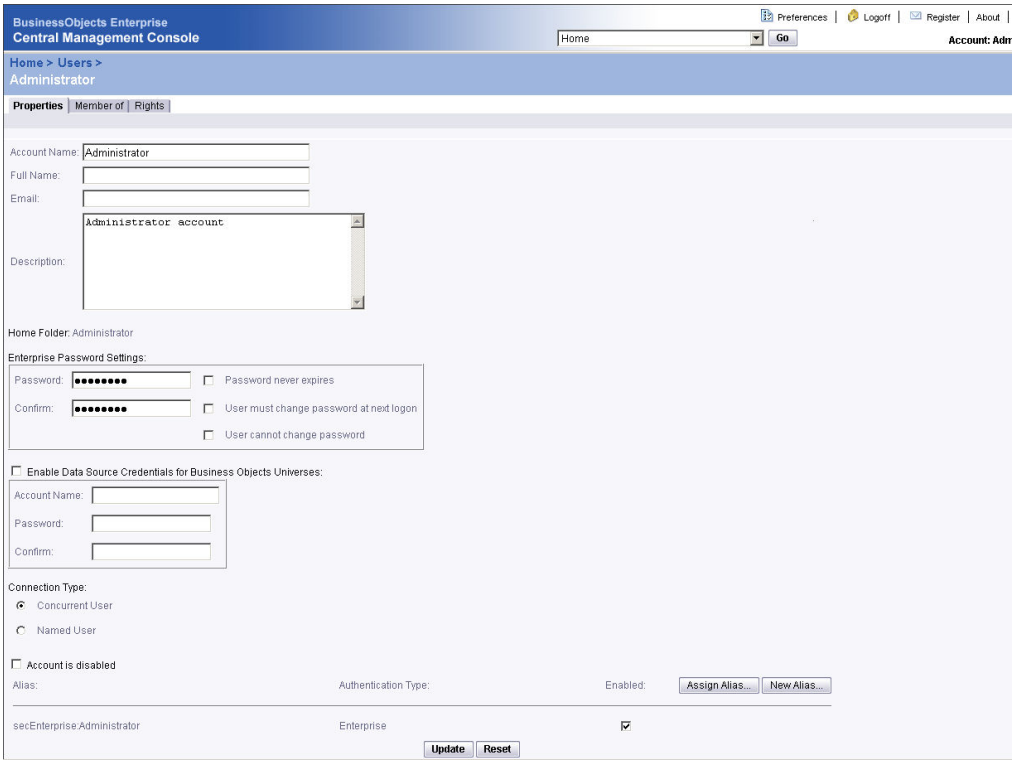


13 Make these edits:

- In the Crystal Reports Viewer list box, select DHTML.
- Select the check box labeled "Use the ActiveX printing control."
- Accept default values for the remaining fields and click on the OK button. The CMC returns to its Home panel.

14 In the Organize section on the Home panel, click on Users. An All Users panel presents a list of users; click on Administrator.

15 An Administrator panel opens. In its Enterprise Password Settings area, create a personalized password for the Administrator user. Enter a password in both the Password and Confirm fields, and click on the Update button.



16 Click on the Logoff link along the upper right edge of the CMC.

17 To apply the updates, stop and then restart Business Objects services. See "Stopping and Starting Services" (page 49).

Accommodating Firewalls

If your company has a firewall that blocks internal traffic, complete these steps:

1 Open two new ports on the machine that hosts the GRC Controls Suite platform server. Typically these ports are dynamically assigned, but because the firewall blocks dynamically assigned ports, they must be assigned statically.

2 Shut down the services, using the shutdown procedure described in "Stopping and Starting Services" on page 49.

3 Navigate to the bobje directory:

```
cd $LAPPS_AG_HOME/bobje
```

4 Using a text editor, open the file ccm.config. Perform the following edits:

- Locate the line that starts with the phrase *cmsLAUNCH*=. After the equals sign, insert the phrase *–requestport xxxx*, replacing the *xxxx* with one of the port numbers from step 1.

- Locate the line that starts with the phrase *input*LAUNCH=. After the equals sign, insert the phrase *–requestport yyyy*, replacing the *yyyy* with the other of the port numbers from step 1. (This port number must differ from the cmsLAUNCH port.)

5 Save the file and exit from it.

6 Restart the services, using the startup procedure described in "Stopping and Starting Services" on page 49.

Re-editing and Rerunning the Environment File

At this point, you must edit ag.env to set environment variables involving directories that did not exist before infrastructure was installed.

1 Navigate to your home directory:

```
cd $LAPPS_AG_HOME
```

2 The home directory contains your previously edited copy of the ag.env file. Use a text editor to open it.

3 Locate the two entries that begin ". $BOBJEDIR." Activate them by deleting from each the comment symbol (#) you added earlier (page 47).

4 Save and close the file.

5 Execute the following command:

```
. ag.env
```

Installing the GRC Controls Suite Schema

To create schema objects and seeded data for the GRC Controls Suite platform, complete some additional Business Objects setup. Then copy and edit GRC Controls Suite files. Extract and configure schema-installation files for the GRC Controls Suite platform, and then actually execute the schema installation.

Setting Up Business Objects

To configure Business Objects setup properties:

1 Navigate to a bo_setup subdirectory of your staging directory:

```
cd $LAPPS_STAGE/bo_setup
```

2 Using a text editor, open the file BusinessObjectsConfiguration.properties. The file contains the following prompts; set each to the indicated value.

- businessObjects.server: Supply the host name for the GRC Controls Suite platform server.
- businessObjects.serverPort: Use 6400 if you accepted default port values during installation. Otherwise, supply the value you set for CMS_PORT (page 48).
- businessObjects.username: Always use the value *Administrator*.

- businessObjects.password: Supply the password you set for the Business Objects Administrator user in step 15 on page 53.
- businessObjects.home: Supply the directory in which Business Objects is installed, which is $LAPPS_AG_HOME/bobje/enterprise115. As you enter this value, replace the environment variable with the full path to the directory you created as $LAPPS_AG_HOME (see page 46).
- businessObjects.commit: For the time being, set this value to *false*.

Save and close the file.

3 Set execution permissions on a removeAuthenticationRestrictions.sh file, and run the file:

```
chmod +x removeAuthenticationRestrictions.sh
./removeAuthenticationRestrictions.sh
```

4 If there are no exceptions, reopen the BusinessObjectsConfiguration.properties file and reset the businessObjects.commit property to *true*. Save and close that file, and then rerun removeAuthenticationRestrictions.sh.

Copying and Editing GRC Controls Suite Files

Put GRC Controls Suite platform files in place and prepare them:

1 Shut down the Tomcat application server:

```
$LAPPS_AG_HOME/bobje/tomcatshutdown.sh
```

2 Copy files from subdirectories of the staging directory to subdirectories of the home directory. Execute the following commands. (In the second command, a .war file name contains italicized placeholders that stand for version, schema, and build numbers. Replace these with the actual numbers, which you can determine by viewing a directory listing for the staging directory.)

```
rm –rf $LAPPS_AG_HOME/bobje/tomcat/webapps/ags
cp $LAPPS_STAGE/ags_7_2_n_snn_bnn_ga.war
$LAPPS_AG_HOME/bobje/tomcat/webapps/ags.war
cp $LAPPS_STAGE/ags_infrastructure/post-install/ags.xml
$LAPPS_AG_HOME/bobje/tomcat/conf/Catalina/localhost
cp $LAPPS_STAGE/ags_infrastructure/post-install/*.jar
$LAPPS_AG_HOME/bobje/tomcat/common/lib/
cp $LAPPS_STAGE/ags_infrastructure/post-install/tomcats*.sh
$LAPPS_AG_HOME/bobje
```

3 Navigate to the directory containing the ags.xml file:

```
cd $LAPPS_AG_HOME/bobje/tomcat/conf/Catalina/localhost
```

4 Using an xml editor, open ags.xml and perform the following edits. Each entry goes between <value> and </value> tags corresponding to each parameter.

- Locate the section headed <ResourceParams name="mail/Session">. In it, locate the mail.smtp.host parameter and, for its value, insert the host name of the SMTP server your company uses for sending email.

- Locate the section headed <ResourceParams name="jdbc/onecenterDS">. In it, locate the following parameters and supply these values for them:

  driverClassName parameter. Insert the following string:
  `oracle.jdbc.driver.OracleDriver`

  url parameter. Insert the following string. In place of *Hostname*, *Port*, and *SID*, insert actual values for the database used by the GRC Controls Suite platform.
  `jdbc:oracle:thin:@Hostname:Port:SID`

  username parameter. Supply the user name for the GRC Controls Suite platform database. It must match the name you created in step 1 on page 45.

  password parameter. Supply the password for the GRC Controls Suite platform database user identified by the username parameter.

- Locate the section headed <ResourceParams name="jdbc/appsaccessDS">. In it, locate the following parameters and supply these values for them:

  driverClassName parameter. Insert the following string:
  `oracle.jdbc.driver.OracleDriver`

  url parameter. Insert the following string. In place of the *Hostname*, *Port*, and *SID* placeholders, insert actual values for the database used by an Oracle Applications instance in which Embedded Agents have been installed to run:
  `jdbc:oracle:thin:@Hostname:Port:SID`

  username parameter. Supply the user name for the database used by the Oracle EBS instance in which Embedded Agents have been installed to run. (Conventionally, this is APPS.)

  password parameter. Supply the password for the database used by the Oracle EBS instance in which Embedded Agents have been installed to run.

Save and close the file.

Preparing Schema Installation Files

To configure schema installation properties:

1. Navigate to an installation subdirectory of your $LAPPS_STAGE directory, and set permissions within it:

   ```
   cd $LAPPS_STAGE/ags_install
   chmod +x permissions.sh
   ./permissions.sh
   ```

2. Navigate to a configuration subdirectory of the installation directory. In it, create a copy of a generic properties file so that the copy can be customized. (In the second command, replace the value *host* with the host name for the server on which you are installing the GRC Controls Suite platform.)

   ```
   cd config
   cp filters-bundle-oracle.properties filters-host.properties
   ```

3 Using a text editor, open the filters-*host*.properties file and edit the following. (Accept default values for all properties not listed here.)

- hibernate.connection.url: Supply the connect string that the GRC Controls Suite platform will use to connect to its database. Use the following, but provide actual values for the *Host*, *Port*, and *SID* placeholders.

  `jdbc:oracle:thin:@Host:Port:SID`

- hibernate.connection.username: Supply the user name for the GRC Controls Suite platform database. It must match the name created in step 1 on page 45.
- hibernate.connection.password: Supply the password for the GRC Controls Suite platform database.
- businessObjects.server: Supply the host name of the GRC Controls Suite platform server.
- businessObjects.serverPort: Use 6400 if you accepted default port values during installation. Otherwise, supply the value you set for CMS_PORT (see page 48).
- businessObjects.username: Always use the value *Administrator*.
- businessObjects.password: Supply the password you set for the Business Objects Administrator user in step 15 on page 53.
- log4j.filepath: Supply the value *ags.log*, with no path. This is a log file that records errors in processing during installation.
- appserver.hostname: Enter the host name and port number for the GRC Controls Suite platform server, separated by a colon. If you accepted default port values during installation, the port value here is 8080; if not, supply the value you set for TOMCAT_PORT (see page 48).
- callbackhost: Enter the following value. In place of the *host* and *port* placeholders, substitute the same host name and port values as you used for the appserver.hostname value:

  `http://host:port/ags`

Save and close the file.

4 Navigate back to the installation directory:

```
cd $LAPPS_STAGE/ags_install
```

5 Using a text editor, open the build.properties file. In its first line — *config*=*bundle* — replace *bundle* with the same host name you used when you edited the filters-*host*.properties file (step 3). Save and close the file.

Completing the Schema Installation

To complete schema installation for the GRC Controls Suite platform:

1 If you have not yet shut down the Tomcat application server, do so:

```
$LAPPS_AG_HOME/bobje/tomcatshutdown.sh
```

Even if you have, you should confirm that Tomcat is not running. Execute the following command; Tomcat is not running if it produces no results:

```
run ps –ef | grep tomcat
```

2 Run the GRC Controls Suite platform installation script. Execute the following command, and answer *yes* to a prompt to continue executing the script.

```
everything.sh
```

3 When the script finishes running, restart the Tomcat application server. Execute the following command:

```
$LAPPS_AG_HOME/bobje/tomcatstartup.sh
```

Setting Up the GRC Controls Suite Log

Finally, create a log, maintained by Tomcat, that records errors in processing by the GRC Controls Suite platform:

1 Copy a logging properties file from your staging directory to a directory on your server. Execute this command:

```
cp $LAPPS_STAGE/ags_infrastructure/post-install/log4j.properties
$LAPPS_AG_HOME/bobje/tomcat/webapps/ags/WEB-INF/classes
```

2 Navigate to the directory containing the log4j.properties file:

```
cd $LAPPS_AG_HOME/bobje/tomcat/webapps/ags/WEB-INF/classes
```

3 Using a text editor, open log4j.properties. In it, locate a property called log4j.appender.file.File. Set it equal to the following path and file name:

```
$LAPPS_AG_HOME/bobje/tomcat/logs/ags.log
```

4 Optionally, also set a series of log4j.logger.com.logicalapps.onecenter properties to values that determine the level of detail in log entries. From least to greatest, options are ERROR, WARN, INFO, and DEBUG (the default).

At any time, execute the following command to look for errors in the ags.log file:

```
grep –i ERR $LAPPS_AG_HOME/bobje/tomcat/logs/ags.log
```

Running a Reporting Script

You must run a script in each instance of the Embedded Agents that is to be controlled by Governance, Risk, and Compliance Controls Suite. This script creates database synonyms without which two reports cannot run. This script itself cannot run until the platform schema is created, which is why it must be run now rather than during Embedded Agents installation.

In each Embedded Agents instance:

1 In step 2 of the database-server installation procedure, you created a staging directory (see page 14). Navigate to the following subdirectory of that staging directory:

```
AppsAccess\db\plsql
```

2. Using a SQL tool, connect to the Oracle EBS database, supplying the username and password for the APPS user. For example, if the tool were SQLPlus:

   ```
   connect apps/apps
   ```

3. Run the script la_apps_access_synonyms_bo_ddl.sql. You wil be prompted for a parameter; in response, provide the Embedded Agents database username. For example:

   ```
   @la_apps_access_synonyms_bo_ddl.sql
   Enter value for 1: XXLAAPPS
   ```

4. Log off the SQL tool.

Chapter 6

Installing Windows Server Components

If you are installing the Governance, Risk, and Compliance Controls Suite platform on a Windows server, complete the procedures in this chapter and then proceed Chapter 7; you should have omitted Chapter 5. (If you are installing on Linux or UNIX, this chapter does not apply to you; see Chapter 5.)

Be sure the Embedded Agents are installed in at least one Oracle EBS instance. Then load files to a staging directory and use them to install "infrastructure" — Business Objects components and the Tomcat application server. Configure the Business Objects server, and then install the GRC Controls Suite platform program files and schema.

Preparing to Install

Before installing, complete the following steps:

1. Ensure that an Oracle database exists for use by the GRC Controls Suite platform, and create a database user for it; the recommended name is XXLAAPPS_AG. Do the same for Business Objects; the recommended name is XXLAAPPS_BO. Grant these users the CONNECT and RESOURCE roles, and set these roles to DEFAULT. Ensure that the XXLAAPPS_AG user has access privileges to the v$instance table.
2. Determine the following values, which you will need during the installation:
   - The host name of the SMTP server your company uses for sending email.
   - The host name, port number, SID, user (schema) name, and password for each of databases used by the platform and Business Objects.

- The host name, port number, SID, user (schema) name, and password for the database used by an Oracle Applications instance in which the Embedded Agents have been installed to run.

3 Ensure that the machine to be used used to host the GRC Controls Suite platform does not run Business Objects. (A single host should not run two Business Objects installations.)

4 Determine whether ports 6400, 8005, 8080, and 8443 are available on the host. (The installation procedure assigns these ports by default. If any are already in use, you'll need to substitute for them during installation.)

5 Install Oracle Client 9.2.0.1 or greater, if it is not already installed (see "Installing Oracle Client," below).

6 Create a GRC Controls Suite user on the host Windows operating system. The recommended name is lapps. The user must have Administrator privileges. As you complete the prodedures in this chapter, log on as this user.

7 Create the following folders on the host. Ensure that the lapps user owns these folders and has read and write permissions to them.

- A staging folder, into which you will download installation files. Although you can specify any folder you wish, a typical choice is C:\GrcSuiteStage.
- A home folder for the Governance, Risk, and Compliance Controls Suite. Platform and Business Objects files are installed in, and run from, this folder and subfolders of it. Although you can specify any folder you wish, a typical choice for the home folder is C:\Program Files\GrcControlsSuite.

Installing Oracle Client

Oracle Client 9.2.0.1 or greater must be installed on the server that hosts the GRC Controls Suite platform, enabling it to connect to Oracle databases that have the GRC Controls Suite platform, Embedded Agent, and Business Objects schemas. Refer to Oracle documentation for further details on Oracle Client installation.

From the folder in which you have installed Oracle Client, open the file ./network/admin/tnsnames.ora. For each of the GRC Controls Suite platform, Embedded Agent, and Business Objects databases, create an entry that specifies the host, dbport, and dbsid. Save the file.

Loading Files in the Staging Folder

To prepare the files you will use to install the GRC Controls Suite platform:

1 Locate the Governance, Risk, and Compliance Controls Suite Disk 1 in your Oracle media pack. In its dist folder, locate the file ag_7222_server.zip, copy the file to your staging folder, and extract its contents there. (This creates several

subdirectories of the staging folder, among them lib_stage and ags_infrastructure\bobje.)

2. Locate the Governance, Risk, and Compliance Controls Suite Disk 2 in your Oracle media pack. Copy its contents — two zip files — to the ags_infrastructure\bobje subfolder of your staging folder, and extract their contents there.
3. This creates four subfolders — DISK_1, DISK_2, DISK_3, and cd — and populates them with files. Copy the contents of DISK_2 and DISK_3 into DISK_1.
4. Certain open-architecture files are required. To acquire them, download files from the following sites to lib_stage subfolder of your staging folder.

   ```
   http://downloads.sourceforge.net/hibernate/hibernate-3.0.5.zip
   ?modtime=1117034763&big mirror=1
   http://team.andromda.org/maven2/org/jbpm/jbpm/3.0/jbpm-3.0.jar
   http://team.andromda.org/maven2/org/jbpm/jbpm-identity/3.0/
   jbpm-identity-3.0.jar
   http://downloads.sourceforge.net/junit/junit3.8.1.zip?modtime=
   1031097600&big mirror=0
   http://www.ibiblio.org/maven/mule/dependencies/xpp3/1.1.3.4d_
   b4_min/xpp3-1.1.3.4d_b4_min.jar
   ```

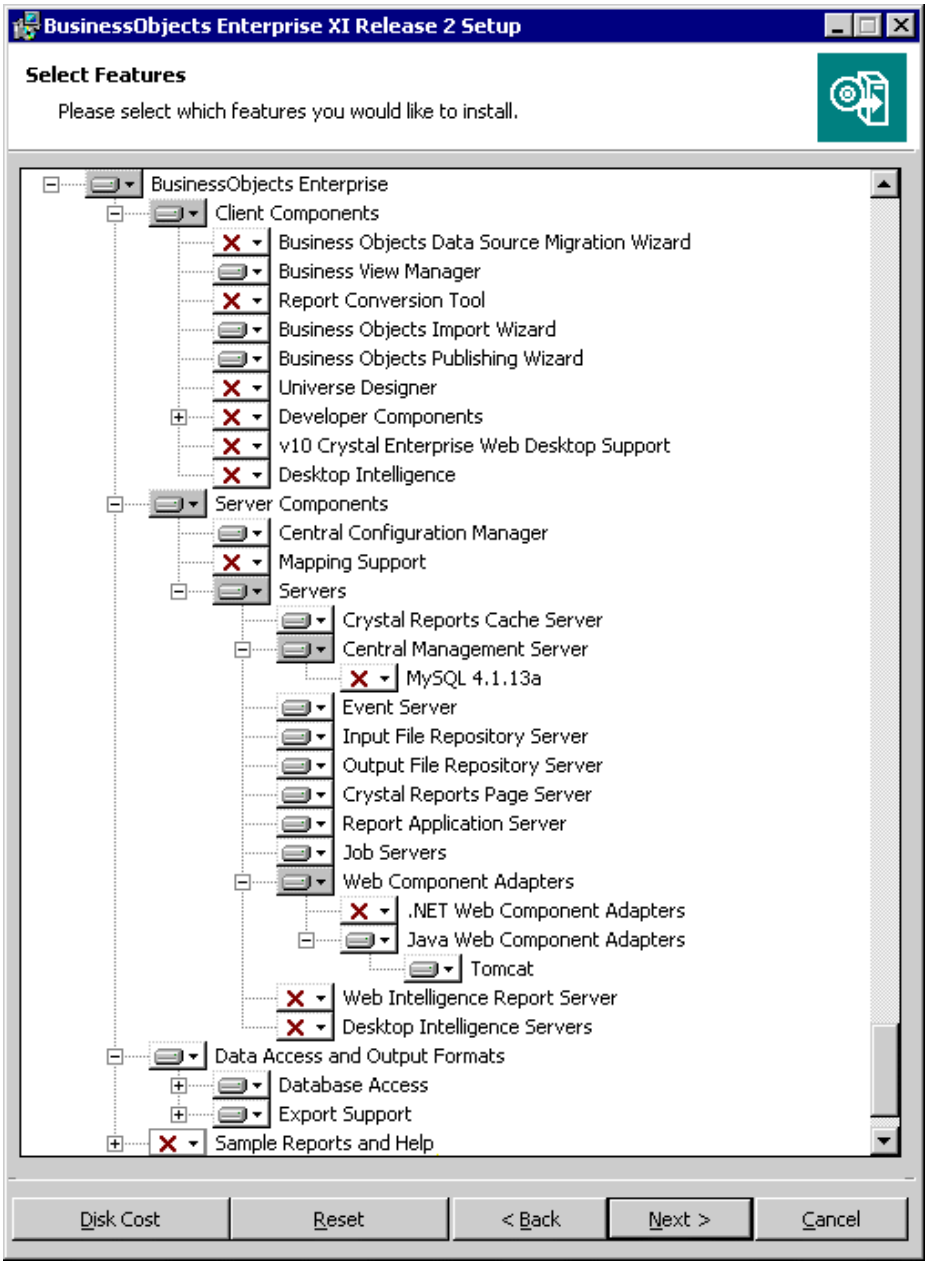
5. After downloading these files, run the file preinstall.bat from your staging folder.

Installing Infrastructure

Installing "infrastructure" involves placing Business Objects and Tomcat files on the server, configured so that they will connect to databases and other components.

1. Navigate to the ags_infrastructure\bobje\DISK_1 subfolder of your staging folder. In it, run the Setup.exe file.
2. A language-selection window appears. In its list box, choose the language in which you want to work. (English is the default.) Click on the OK button.
3. A Welcome window appears. Click on its Next button.
4. A license-agreement window appears. Click on its acceptance radio button, and then on the Next button.
5. A Select Client or Server Installation window appears. Select its Perform Server Installation radio button and click on the Next button.
6. A User Information window appears. Its Full Name and Organization fields display values for the current user — in this case, the lapps user. Leave the Install Performance Management check box cleared, and click on the Next button.
7. A Directory Selection window appears. In its Destination Folder field, enter the full path to the GRC Controls Suite home folder. Then click on the Next button.
8. An Install Type window appears. Select its Custom radio button and click on the Next button.

9 A Select Features window appears, with all features selected. Click on features to deselect them until your configuration matches the one in the following illustration; then click the Next button. A feature is selected when its icon looks like a box and is deselected when its icon looks like a red × symbol.



10 A CMS Clustering window appears. Select its Yes radio button. Be sure the "Enable servers upon install" check box is selected. Click on the next button.

11 A CMS Database Information window appears. Select the Oracle radio button. Then set these values for the Oracle database you will use for Business Objects:

- In the Server field, enter the alias for the Business Objects database instance as it is configured in the tnsnames.ora file.

- In the Username and Password fields, enter the user name and password for the Business Objects database. (This is the user created in step 1 on page 61.)

Click on the Next button.

12 A Choose Web Component Adapter Type window appears. Select the check box labeled "Java application server," and beneath it select the radio button labeled "Install Tomcat application server." Click on the Next button.

13 A Configure Tomcat window appears:

- Review the default installation folder for the Java application server (a sub-folder, called Tomcat, of your GRC Controls Suite home folder).
- Review default port assignments: 8080 for connection port, 8005 for shut-down port, and 8443 for redirect port. Change only those used by other applications. (A CMS port, set in the background to 6400, cannot be changed here.)

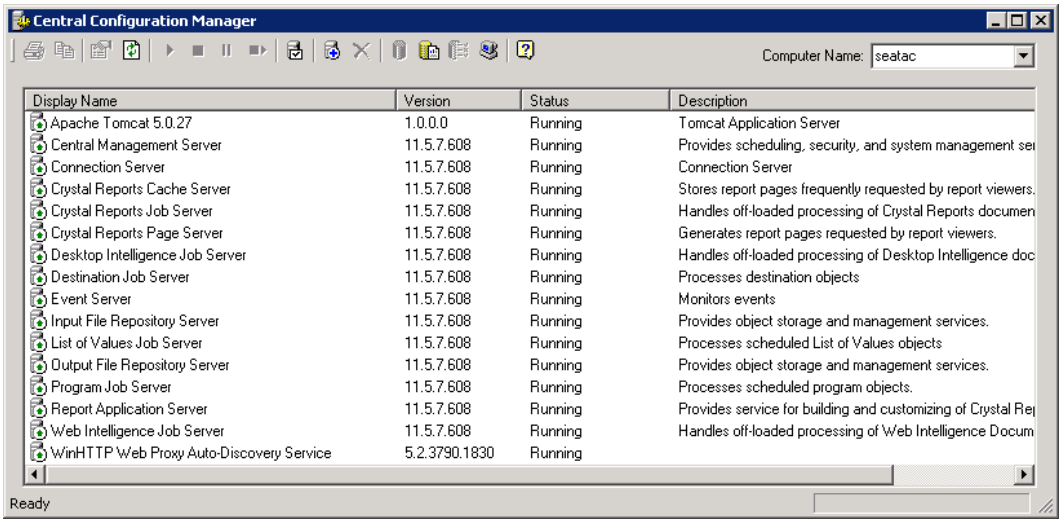
Click on the Next button.

14 A Start Installation window appears. Click on its Next button. When installation is complete, the window displays a Finish button. Click on it.

Stopping and Starting Services

At several points as you complete the remaining installation procedures, you will need to stop and then start Business Objects services. Here's how.

From the Windows Start menu, click on Programs, then BusinessObjects XI Release 2, then BusinessObjects Enterprise, then Central Configuration Manager. The following window opens:



If the icons accompanying the listed services display upward-pointing green arrows, the services are running. To stop them:

1 Select the services (click on the first, hold down the shift key, and click on the last).

2 Click on the stop icon, a square located sixth from the left in the tool bar near the top of the window.

If the icons accompanying the listed services display down-pointing red arrows, the services are stopped. To start them:

1 Select the services.

2 Click on the start icon, a rightward-pointing triangle located fifth from the left in the tool bar.

Installing a Business Objects Patch

Update Business Objects with a required patch.

1 Stop the Business Objects services (see the preceding section, "Stopping and Starting Services").

2 Navigate to the \ags_infrastructure\bobje\cd subfolder of your staging folder.

3 Run the Setup.exe file. Respond to its prompts.

The completion of this procedure installs the patch and restarts Business Objects services; on this occasion you do not need to restart them manually.

Modifying Tomcat Settings

Default memory allocations for the Tomcat application server on Windows are not adequate for GRC Controls Suite reporting functions. To adjust these allocations:

1 From Windows Start, click on Programs/Tomcat/Tomcat Configuration.

2 An Apache Tomcat Properties window opens. In it, select the Java tab.

3 A Java Options field displays several lines of text that define parameters. Add the following three lines. (You may insert them anywhere among the lines that are already present.)

```
-XX:MaxPermSize=256m
-Xms512m
-Xmx1024m
```

4 Set the Initial Memory Pool field to 512.

5 Set the Maximum Memory Pool field to 1024.

6 Click on the OK button.

Setting the Business Objects Rowcount

As users run GRC Controls Suite reports, they may select parameters. The maximum number of paramaters that Business Objects displays by default may be insufficient. It's

recommended that you reset this valut to at least 100,000. To do so, create a registry key:

1. Click on the Start button, and then on Run in the Start menu. In the Run dialog, type *regedit* in the Open field, and click the OK button. The Registry Editor opens.
2. The left column of the Registry Editor displays a list of "keys," in a tree format. Here, you will create HKEY_LOCAL_MACHINE\SOFTWARE\Business Objects\Suite 11.5\Crystal Reports\DatabaseOptions\LOV.

   Elements of this key exist already on your system. Navigate along this path as far as it exists, and click on its last child object. Then create the remaining child keys: select Edit in the menu bar, then New in the Edit menu, and then Key in the New submenu. A write-enable value, *New Key #1*, appears; overwrite this value with the name of the new key you want to create.

   Suppose, for example, that to begin with the key HKEY_LOCAL_MACHINE\SOFTWARE\Business Objects\Suite 11.5 exists. You would click on the Suite 11.5 key and from it, create the Crystal Reports key; you would then click on the Crystal Reports key and from it, create the DatabaseOptions key; and you would then click on the DatabaseOptions key and from it, create the LOV key.
3. Click on the LOV key. Then select Edit in the menu bar, New in the Edit menu, and String Value in the New submenu. A new field appears in the right panel of the Registry Editor, labeled *New Value #1*. This entry is write-enabled; change the name to *MaxRowsetRecords*.
4. Double-click on the MaxRowsetRecords entry. An Edit String dialog box appears. In its Value Data field, enter 100000 (or a larger value). Then close the dialog box; click on its OK button. The value you entered now appears in the Data column for the MaxRowsetRecords entry in the right panel of the Registry Editor.
5. Close the Registry Editor: Click on the × symbol in its upper right corner.

Configuring the Business Objects Server

Use the Business Objects Central Management Console (CMC) to configure the Business Objects components you've installed. To log on to the CMC:

1. Open a web browser and, in its address field, enter the following URL:

   `http://host:8080/businessobjects/enterprise115/admin/en/admin.cwr`

   In this URL, replace *host* with the name of the host system on which you installed the GRC Controls Suite platform infrastructure. If, during installation, you chose a substitute for port 8080, change the value *8080* in the URL to the correct number for your substitute port.
2. A log-in form appears. To log in for the first time, type *Administrator* in the User Name field and leave the Password field blank. (A read-only System field is set to the host name you specified in step 1. Accept the default value, *Enterprise*, for Authentication Type.) Click the Log On button.

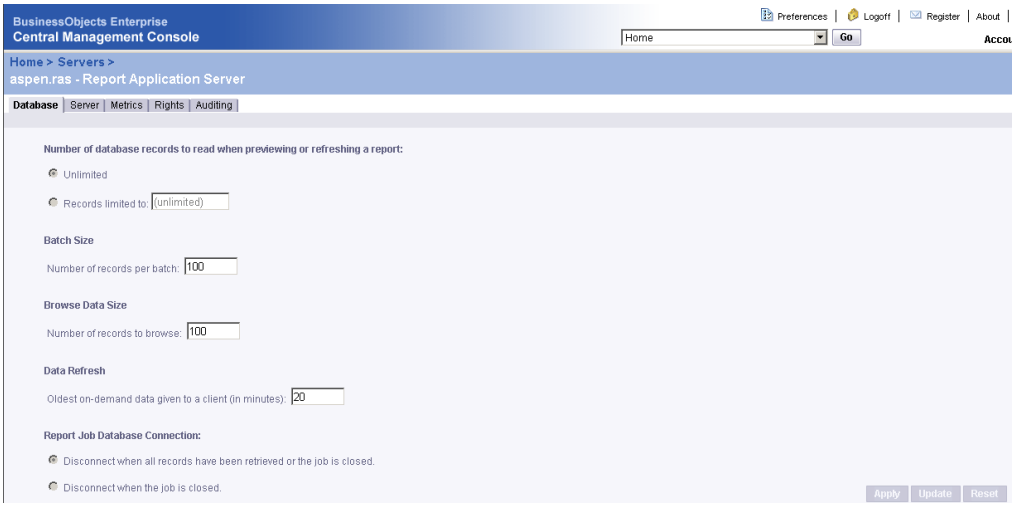
3 In the Home panel, in a section labeled Organize, click on Servers:

4 In the Servers panel, examine icons accompanying servers whose names contain the host name of the system to which you've logged on:

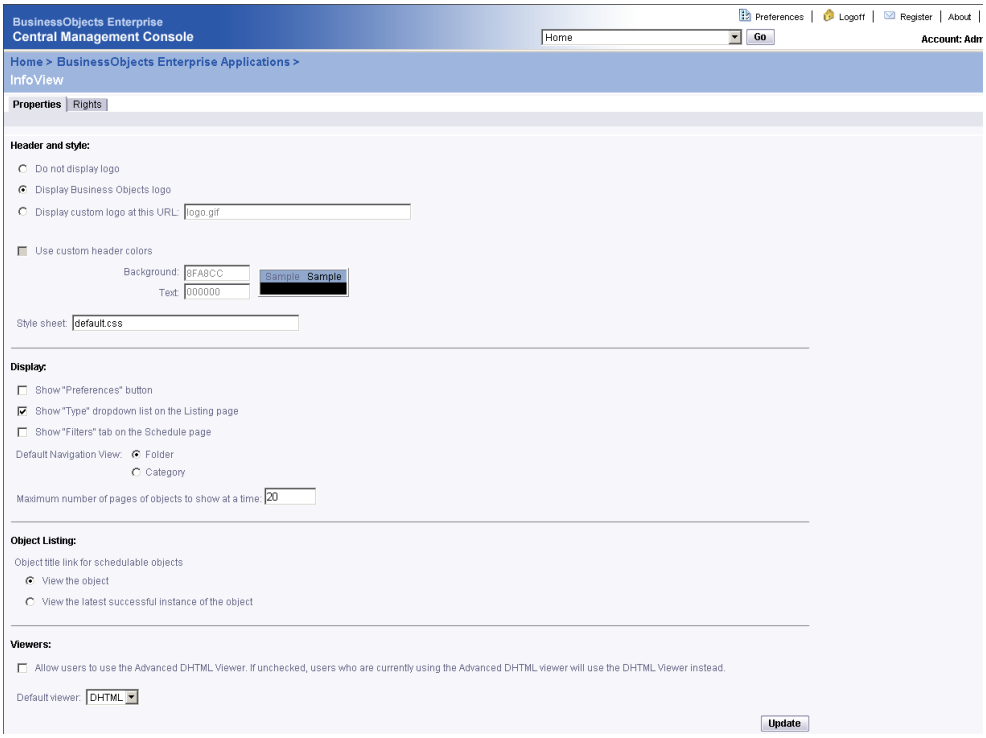
- If any shows a downward-pointing red arrow, close the CMC. Navigate to $LAPPS_AG_HOME/bobje/logging and check log files — boe-cmsd*.log and ccm*.log — for errors. Call Customer Support.
- If, however, all display upward-pointing green arrows, proceed to the next step.

5 In the Servers panel, locate the server named *hostname*.ras, in which *hostname* is the name of the host system to which you've logged on. Single-click on the name.

6 A Report Application Server panel opens for the server you've selected, with its Database tab active. Under the heading "Number of database records to read when previewing or refreshing a report," select the Unlimited radio button. Accept defaults for other fields, and click the Update button.



7 In the "breadcrumb trail" (*Home* > *Servers* > in the illustration above), click on the Home link. In the Home panel, locate the Manage section; in it, click on Business Objects Enterprise Applications. In a list of applications, click on InfoView. An InfoView panel opens (as shown at the top of the next page).



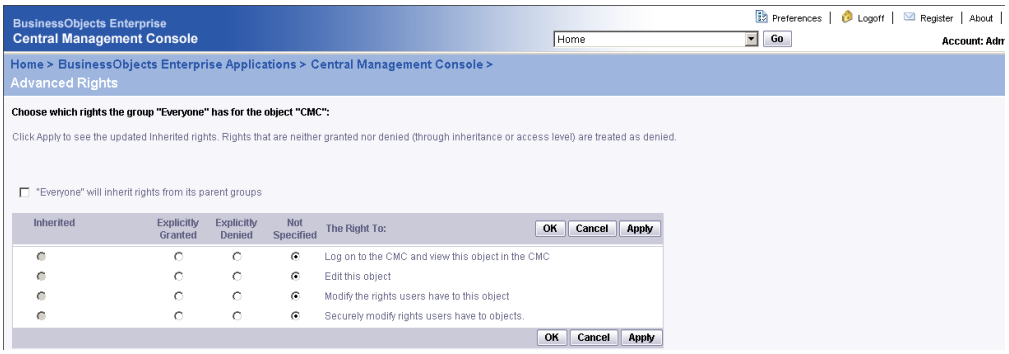
8 Make these edits:

- In the Viewers section, ensure that the check box labeled "Allow users to use the Advanced DHTML Viewer…." is cleared. Then, in the Default Viewer list box, select DHTML.
- In the Display section, clear the check boxes labeled "Show 'Preferences' button" and "Show 'Filters' tab on the Schedule page."
- Accept default values for the remaining fields and click on the Update button.

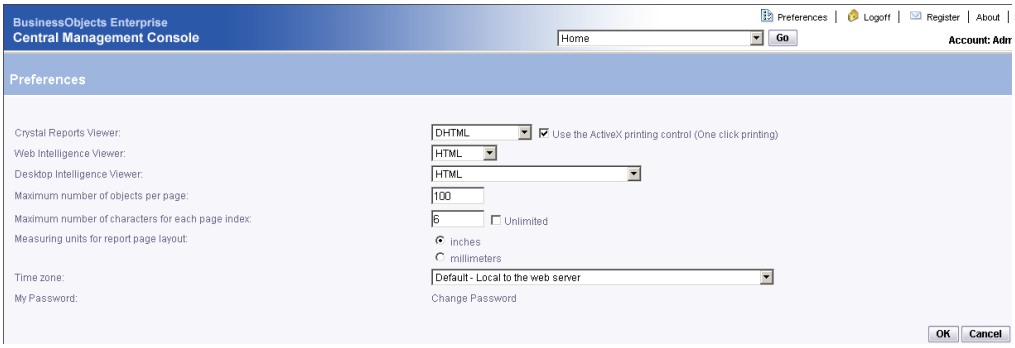
9 Click on BusinessObjects Enterprise Applications in the breadcrumbs trail and then, in the list of applications, click on Central Management Console.

10 In a Central Management Console panel, click on the Rights tab. It presents a list of users. Locate the Everyone user and click on its Advanced entry.

11 An Advanced Rights panel opens. In it, select the Not Specified radio button for the row labeled "Log on to the CMC and view this object in the CMC." Then click on the OK button.



12 The Central Management Console panel returns. Click on Home in the bread-crumb trail, and then on Preferences in a line of links along the upper right edge of the CMC.

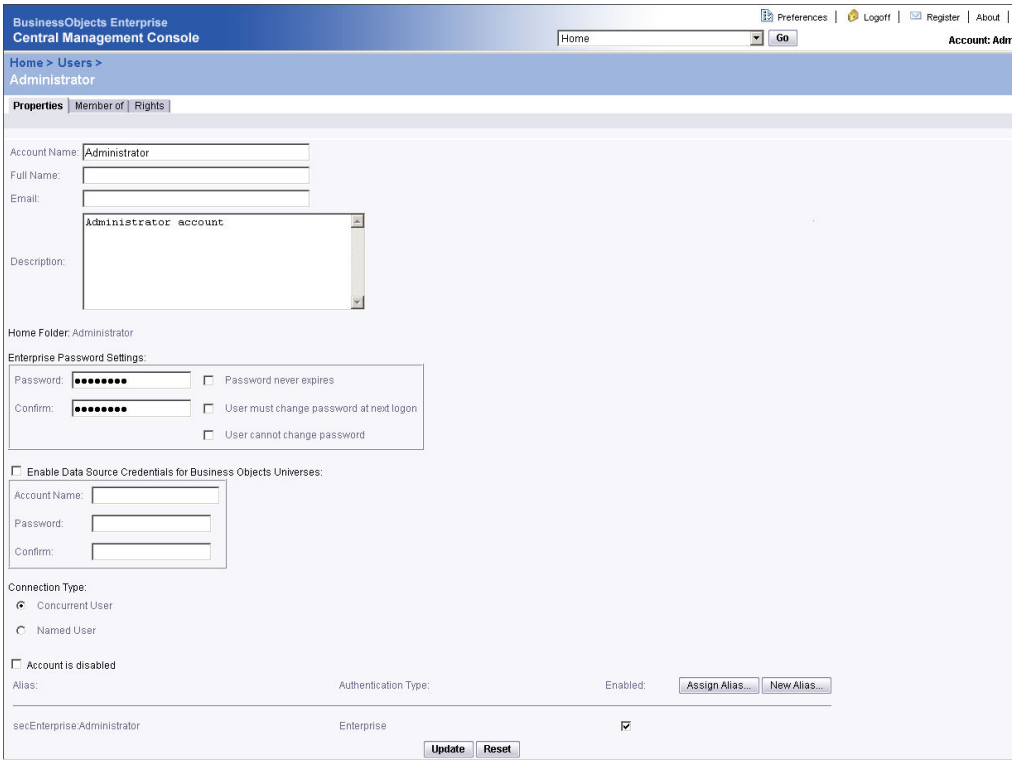


13 Make these edits:

- In the Crystal Reports Viewer list box, select DHTML.
- Select the check box labeled "Use the ActiveX printing control."
- Accept default values for the remaining fields and click on the OK button. The CMC returns to its Home panel.

14 In the Organize section on the Home panel, click on Users. An All Users panel presents a list of users; click on Administrator.

15 An Administrator panel opens. In its Enterprise Password Settings area, create a personalized password for the Administrator user: Enter a password in both the Password and Confirm fields, and click on the Update button.



16 Click on the Logoff link along the upper right edge of the CMC.

17 Stop and then restart Business Objects services. (See "Stopping and Starting Services" on page 65.)

Accommodating Firewalls

If your company has a firewall that blocks internal traffic, complete these steps:

1 Open two new ports on the machine that hosts the GRC Controls Suite platform server. Typically these ports are dynamically assigned, but because the firewall blocks dynamically assigned ports, they must be assigned statically.

2 Shut down the services. (See "Stopping and Starting Services" on page 65.)

3 Using a text editor, open the file ccm.config, which is located in the \bobje subfolder of your GRC Controls Suite home folder. Make the following edits:

- Locate the line that starts with *cmsLAUNCH*=. After the equals sign, insert the phrase *–requestport xxxx*, replacing the *xxxx* with one of the port numbers from step 1.
- Locate the line that starts with *input*LAUNCH=. After the equals sign, insert the phrase *–requestport yyyy*, replacing the *yyyy* with the other of the port numbers from step 1. (This port number must differ from the cmsLAUNCH port.)

4 Save the file and exit from it.

5 Restart the services. (See "Stopping and Starting Services" on page 65.)

Installing the GRC Controls Suite Schema

To create schema objects and seeded data for the GRC Controls Suite platform, complete some additional Business Objects setup. Then copy and edit GRC Controls Suite files. Extract and configure schema-installation files, and then actually execute the schema installation. Note the following as you complete the next several sections:

- Replace the term *GrcHome* in commands with the full path to your GRC Controls Suite home folder, for example C:\Program Files\GrcControlsSuite.
- Replace the term *GrcStage* in commands with the full path to your GRC Controls Suite staging folder, for example C:\GrcSuiteStage.
- Recognize that although commands are written to be executed in the Command Prompt window, you can use Windows Explorer instead to complete tasks.

Setting Up Business Objects

To configure Business Objects setup properties:

1 Navigate to a bo_setup subfolder of your staging folder:

```
cd GrcStage/bo_setup
```

2 Using a text editor, open the file BusinessObjectsConfiguration.properties. The file contains the following prompts; set each to the indicated value.

- businessObjects.server: Supply the host name for the GRC Controls Suite platform server.
- businessObjects.serverPort: Assuming you have accepted default port values during installation, use 6400.
- businessObjects.username: Use the value *Administrator*.
- businessObjects.password: Supply the password you set for the Business Objects Administrator user in step 15 on page 70.
- businessObjects.home: Supply the folder in which Business Objects is installed, which is a \bobje\enterprise subfolder of your GRC Controls Suite home folder. As you enter this value, supply the full path to the folder, and use two backslashes wherever a Windows path would ordinarily use one. For example:

  C:\\Program Files\\GrcControlsSuite\\bobje\\enterprise\\
- businessObjects.commit: For the time being, set this value to *false*.

Save and close the file.

3 From the \bo_setup subfolder of your staging folder, run a file called removeAuthenticationRestrictions.bat— double-click on it in Windows Explorer, or type its name and press the Enter key in the Command Prompt window.

4 If there are no exceptions, reopen the BusinessObjectsConfiguration.properties file and reset the businessObjects.commit property to *true*. Save and close that file, and then rerun removeAuthenticationRestrictions.bat.

Copying and Editing GRC Controls Suite Files

Put GRC Controls Suite platform files in place and prepare them:

1 Shut down the Tomcat application server by running a shutdown.bat file:

```
GrcHome\bobje\tomcat\bin\shutdown.bat
```

2 An ags subfolder may be located several levels below your GRC Controls Suite home folder. If so, remove it and its contents.

```
rmdir /s GrcHome\bobje\tomcat\webapps\ags
```

3 Copy files from subfolders of the staging folder to subfolders of the home folder.

```
copy GrcStage\ags_7_2_n_snn_bnn_ga.war
GrcHome\bobje\tomcat\webapps\ags.war
```

```
copy GrcStage\ags_infrastructure\post-install\ags.xml
GrcHome\bobje\tomcat\conf\Catalina\localhost
```

```
copy GrcStage\ags_infrastructure\post-install\*.jar
GrcHome\bobje\tomcat\common\lib\
```

4 Navigate to the folder containing the ags.xml file:

```
cd GrcHome\bobje\tomcat\conf\Catalina\localhost
```

5 Using an xml editor, open ags.xml and perform the following edits. Each entry goes between <value> and </value> tags corresponding to each parameter.

- Locate the section headed <ResourceParams name="mail/Session">. In it, locate the mail.smtp.host parameter and, for its value, insert the host name of the SMTP server your company uses for sending email.
- Locate the section headed <ResourceParams name="jdbc/onecenterDS">. In it, locate the following parameters and supply these values for them:

  driverClassName parameter. Insert the following string:
  `oracle.jdbc.driver.OracleDriver`

  url parameter. Insert the following string. In place of *Hostname*, *Port*, and *SID*, insert actual values for the database used by the GRC Controls Suite platform.
  `jdbc:oracle:thin:@Hostname:Port:SID`

  username parameter. Supply the user name for the GRC Controls Suite platform database. It must match the name you created in step 1 on page 61.

  password parameter. Supply the password for the GRC Controls Suite platform database user identified by the username parameter.
- Locate the section headed <ResourceParams name="jdbc/appsaccessDS">. In it, locate the following parameters and supply these values for them:

  driverClassName parameter. Insert the following string:
  `oracle.jdbc.driver.OracleDriver`

  url parameter. Insert the following string. In place of the *Hostname*, *Port*, and *SID* placeholders, insert actual values for the database used by an Oracle EBS instance in which Embedded Agents have been installed to run:
  `jdbc:oracle:thin:@Hostname:Port:SID`

  username parameter. Supply the user name for the database used by the Oracle Applications instance in which Embedded Agents have been installed to run. (Conventionally, this is APPS.)

  password parameter. Supply the password for the database used by the Oracle EBS instance in which Embedded Agents have been installed to run.

Save and close the file.

Preparing Schema Installation Files

To configure schema installation properties:

1 Navigate to an installation configuration subfolder of your staging folder:

```
cd GrcStage\ags_install\config
```

2 Make a copy of a generic properties file, called filters-bundle-oracle.properties. Call the copy filters-*host*.properties, replacing the value *host* with the host name for your GRC Controls Suite platform server.

3 Using a text editor, open the filters-*host*.properties file and edit the following. (Accept default values for all properties not listed here.)

- hibernate.connection.url: Supply the connect string that the GRC Controls Suite platform will use to connect to its database. Use the following, but provide actual values for the *Host*, *Port*, and *SID* placeholders.

  `jdbc:oracle:thin:@Host:Port:SID`

- hibernate.connection.username: Supply the user name for the GRC Controls Suite platform database. It must match the name created in step 1 on page 61.
- hibernate.connection.password: Supply the password for the GRC Controls Suite platform database.
- businessObjects.server: Supply the host name of the GRC Controls Suite platform server.
- businessObjects.serverPort: Assuming you have accepted default port values during installation, use 6400.
- businessObjects.username: Always use the value *Administrator*.
- businessObjects.password: Supply the password you set for the Business Objects Administrator user in step 15 on page 70.
- log4j.filepath: Supply the value *ags.log*, with no path. This is a log file that records errors in processing during installation.
- appserver.hostname: Enter the host name and port number for the GRC Controls Suite platform server, separated by a colon. If you accepted default port values during installation, the port value here is 8080; if not, supply the value you set for the connection port (see step 13 page 65).
- callbackhost: Enter the following value. In place of the *host* and *port* placeholders, substitute the same host name and port values as you used for the appserver.hostname value:

  `http://host:port/ags`

Save and close the file.

4 Navigate back to the ags_install folder (the parent of the folder in which you are currently working):

`cd..`

5 Using a text editor, open the build.properties file. In its first line — *config*=*bundle* — replace *bundle* with the same host name you used when you edited the filters-*host*.properties file (step 3). Save and close the file.

Completing the Schema Installation

To complete schema installation for the GRC Controls Suite platform:

1 If you have not yet shut down the Tomcat application server, do so:

`GrcHome\bobje\tomcat\bin\shutdown.bat`

2 Run the GRC Controls Suite platform installation script. Execute the following command, and answer *yes* to a prompt to continue executing the script.

```
GrcStage\ags_install\everything.bat
```

3 When the script finishes running, restart the Tomcat application server. Execute the following command:

```
GrcHome\bobje\tomcat\bin\startup.bat
```

Setting Up the GRC Controls Suite Log

Finally, create a log, maintained by Tomcat, that records errors in processing by the GRC Controls Suite platform:

1 Copy a logging properties file from your staging directory to a directory on your server. Execute this command:

```
copy GrcStage\ags_infrastructure\post-install\log4j.properties
GrcHome\bobje\tomcat\webapps\ags\WEB-INF\classes
```

2 Navigate to a folder containing the log4j.properties file:

```
cd GrcHome\bobje\tomcat\webapps\ags\WEB-INF\classes
```

3 Using a text editor, open log4j.properties. In it, locate a log4j.appender.file.File property, and set it equal to the following path and file name. (Be sure to replace the term *GrcHome* with the full path to your home folder, and to include two backslashes wherever a Windows path would ordinarily require one.)

```
GrcHome\\bobje\\tomcat\\logs\\ags.log
```

4 Optionally, also set a series of log4j.logger.com.logicalapps.onecenter properties to values that determine the level of detail in log entries. From least to greatest, options are ERROR, WARN, INFO, and DEBUG (the default).

At any time, you can open the ags.log file to look for errors or other information. The log is located at a path you established earlier:

```
GrcHome\bobje\tomcat\logs\ags.log
```

Running a Reporting Script

You must run a script in each instance of the Embedded Agents that is to be controlled by Governance, Risk, and Compliance Controls Suite. This script creates database synonyms without which two reports cannot run. This script itself cannot run until the platform schema is created, which is why it must be run now rather than during Embedded Agents installation.

In each Embedded Agents instance:

1 In step 2 of the database-server installation procedure, you created a staging directory (see page 14). Navigate to the following subdirectory of that staging directory:

```
AppsAccess\db\plsql
```

2. Using a SQL tool, connect to the Oracle EBS database, supplying the username and password for the APPS user. For example, if the tool were SQLPlus:

   ```
   connect apps/apps
   ```

3. Run the script la_apps_access_synonyms_bo_ddl.sql. You wil be prompted for a parameter; in response, provide the Embedded Agents database username. For example:

   ```
   @la_apps_access_synonyms_bo_ddl.sql
   Enter value for 1: XXLAAPPS
   ```

4. Log off the SQL tool.

Chapter 7

Deploying Reports

To deploy GRC Controls Suite reports and "business views" that support them, use Business Objects tools run from a Windows client system.

Setting Up

To install Business Objects components on your Windows client system:

1. Create a staging folder on the Windows client.
2. Obtain installation files. These are the same as the files one would use for Business Objects installation on a Windows server. Thus, as before, locate the Governance, Risk, and Compliance Controls Suite Disk 2 in your Oracle media pack. Copy its contents — two zip files — to your client staging folder.
3. This creates four subfolders — DISK_1, DISK_2, DISK_3, and cd — and populates them with files. Copy the contents of DISK_2 and DISK_3 into DISK_1
4. Navigate to the DISK_1 subfolder of your staging folder and, in it, run the Setup.exe file.
5. A language-selection window appears. In its list box, choose the language in which you want to work. (English is the default.) Click on the OK button.
6. A Welcome window appears. Click on its Next button.
7. A license-agreement window appears. Click on its acceptance radio button, and then on the Next button.

8 A Select Client or Server Installation window appears. Select its Perform Client Installation radio button and click on the Next button.

9 Accept default values for all remaining issues.

10 Install a required Business Objects patch on the client system: Navigate to the cd subfolder of the client staging folder and, in it, run the Setup.exe file. Respond to its prompts.

In your Oracle media pack, locate the Governance, Risk, and Compliance Controls Suite Disk 1. From its dist directory, copy the file ag_7222_report_center.zip to your staging directory. Extract the contents of the file. This creates a Reports Center folder and, beneath it, a Business Views folder and other folders containing reports.

Finally, ensure that Oracle Client is installed on the Windows machine, and that aliases in the tnsnames.ora file for this instance of Oracle Client match those configured for the Oracle Client instance on the GRC Controls Suite platform server.

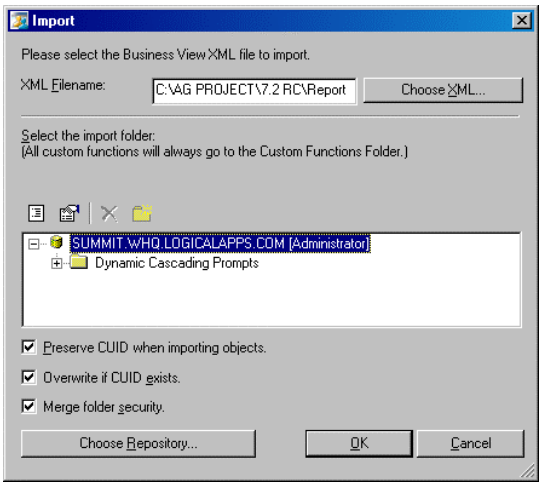
Importing Business Views

Use a Business View Manager to import "business views" — a set of .xml files:

1 Open Business View Manager from a Business Objects folder under Windows Start. As you log on, supply these values, and then click the OK button:

- System: The host name and CMS_PORT number of the GRC Controls Suite platform server, separated by a colon. Omit the port number (and delimiting colon) if you accepted the default value, 6400, for CMS_PORT (page 48 or 65).
- User Name: The value *Administrator*.
- Password: The Administrator password created in the Central Management Console (page 53 or 70).
- Authentication: The value *Enterprise*.

2 Click on Tools in the Business View Manager menu bar, and then on Import in the Tools menu. The following Import dialog appears.



3 In the large white field, ensure that the line displaying the server host and domain name is selected.

4 Click on the Choose XML button. A navigation dialog opens; in it, navigate to the Report Center/Business Views subdirectory in your staging directory. Select any of the business views and click on the Open button in the navigation dialog. The path to the business-view xml file you selected should appear in the XML Filename field of the Import dialog.

5 Ensure that the three checkboxes near the bottom of the form are selected. These are labeled "Preserve CUID when importing objects," "Overwrite if CUID exists," and "Merge folder security."

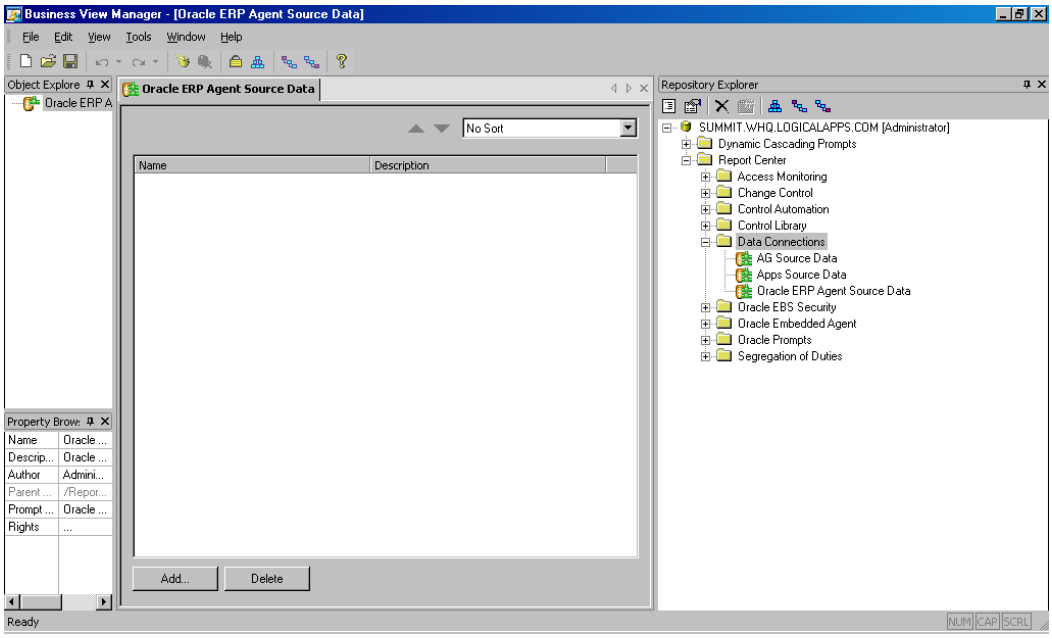
6 Click on the OK button. Choose to overwrite if there is any existing content. Business View Manager creates a Report Center directory, imports the business-view xml file into it, and displays the result in the large white field of the Import dialog.

7 Repeat steps 4–6 for each of the .xml files remaining in the Report Center/ Business Views subdirectory of your staging directory.

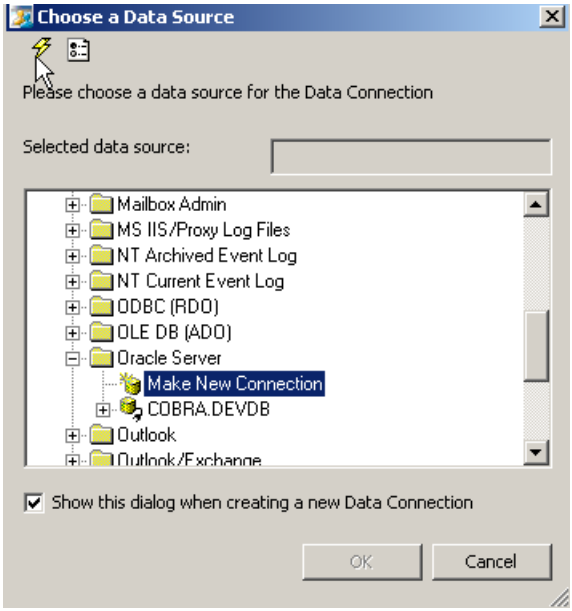
Establishing Data Connections

Next, set up static data connections to the databases for the GRC Controls Suite platform and for Embedded Agents instances, and then include each in one of two dynamic data connections.

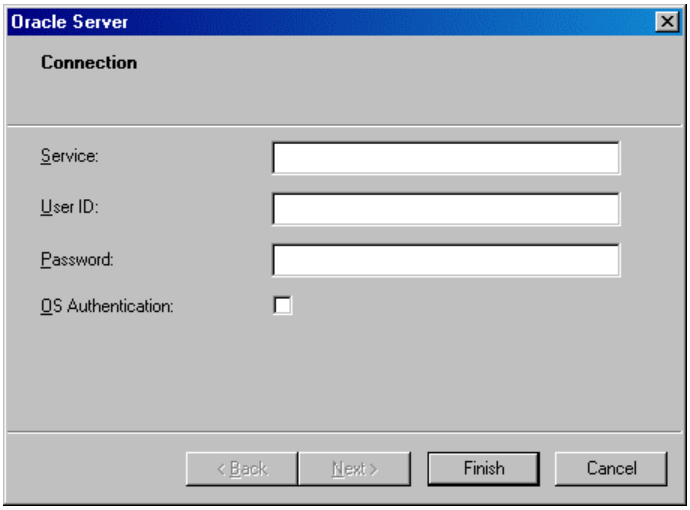
1 In the Repository Explorer, click on the Data Connections folder under Report Center. Descending from its entry, you should you should see dynamic data connections, among them AG Source Data and Oracle ERP Agent Source Data.



2 Click on File in the menu bar, then on New in the File menu, and then on Data Connection in the New submenu. A Choose a Data Source dialog opens:

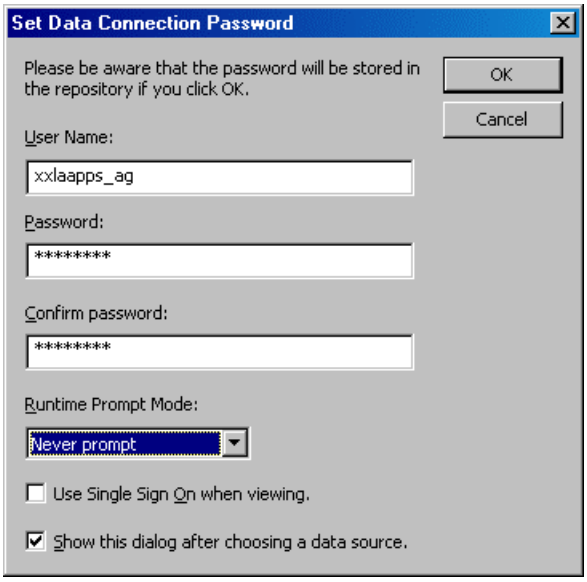


3 In its list, click on Oracle Server. If no data connections yet exist, a Connection dialog opens. If connections exist, they are listed beneath the Oracle Server entry, along with a Make New Connection option. Click on that option to open the Connection dialog.



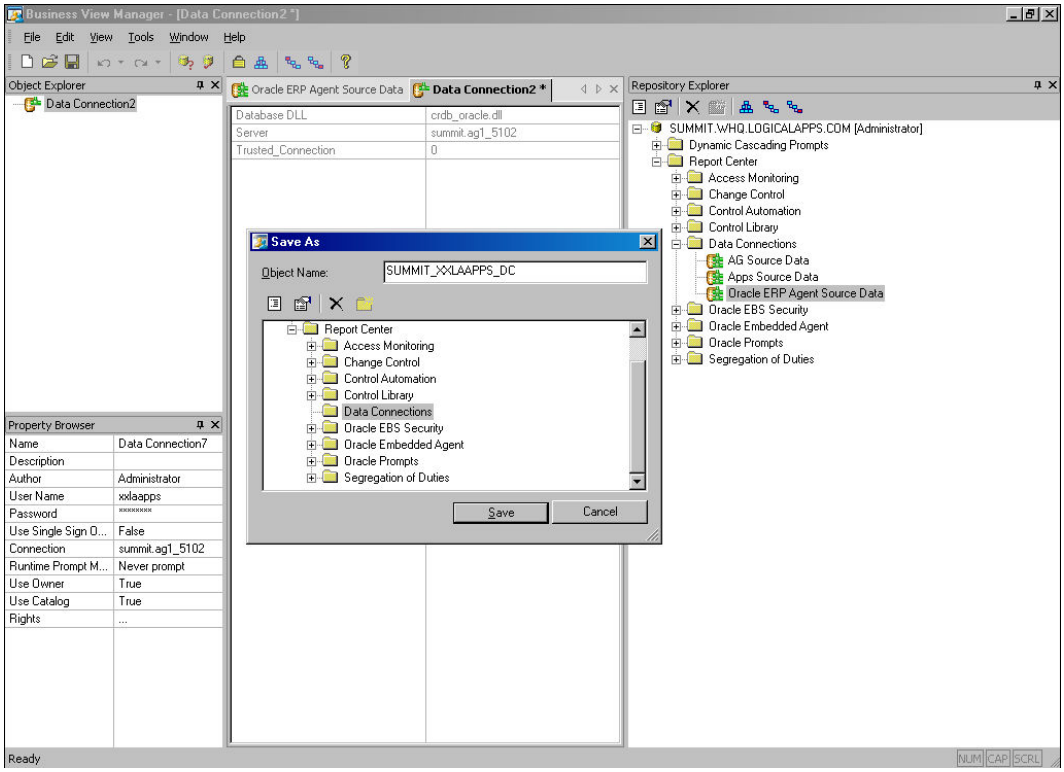
4 Fill in the Connection fields with values the database used by your GRC Controls Suite platform. For Service, supply the alias for the database instance as it is configured in the tnsnames.ora file. For User ID, supply the database user (schema) name; for Password, supply the database password. Leave the OS Authentication check box cleared.

5 Click on the Finish button. A Set Data Connection Password dialog opens:



6 In the User Name field, type the same database user (schema) name as you did in step 4; in the Password and Confirm Password fields, type the same password. In the Runtime Prompt Mode list box, select the value *Never Prompt*. Ensure that the "Use Single Sign On when viewing" check box is cleared. Click on the OK button.

7 The Business View Manager once again becomes active, displaying values you've set for the data connection both in the central panel and in Property Browser area along the left column.



8 Save the data connection: Click on File in the menu bar and then Save in the file menu. A Save As dialog appears. In it, enter a name for the data connection in the Object Name field, and in the larger white field click on the Data Connections folder beneath the Report Center folder. Click on the Save button.

The Repository Explorer displays an entry for the static data connection you've configured, descending from the Data Connections folder. (To distinguish a static connection from a dynamic one, look at their icons. One green pipe symbol indicates a static connection, and two indicate a dynamic connection.)

9 Repeat steps 2–8 to create static data connections for Embedded Agent data sources. There should be one connection for each of the Embedded Agent instances with which GRC Controls Suite is to work.

10 Associate the static data connections with the appropriate dynamic data connections.

Under Data Connections in the Repository Explorer, double click on the AG Source Data dynamic connection. A window for that connection opens in the central panel of the Business View Manager. Drag the data connection you configured for the GRC Controls Suite platform from the Repository Explorer to the central panel. Click on File in the menu bar and then on Save in the File menu.

Then, under Data Connections in the Repository Explorer, double click on the Oracle ERP Agent Source Data dynamic connection. A window for that connection opens in the central panel of the Business View Manager. Drag each of the Embedded Agents data connections you configured from the Repository Explorer to the central panel. Click on File in the menu bar and then on Save in the File menu.

Publishing Reports

To publish reports, use a Publishing Wizard, which is accessible from the Business Objects folder under Windows Start.

1 From the initial Publishing Wizard screen, click on the Next button.

2 Enter the following logon values, then click on the OK button.

- System: The host name and CMS_PORT number of the GRC Controls Suite platform server, separated by a colon. Omit the port number (and delimiting colon) if you accepted the default value, 6400, for CMS_PORT (page 48 or 65).
- User Name: The value *Administrator*.
- Password: The Administrator password created in the Central Management Console (page 53 or 70).
- Authentication: The value *Enterprise*.

3 A Select Files panel of the Publishing Wizard opens. Click on its Add Folder button.

This opens a Browse for Folder dialog; in its "Choose folder…" field, navigate to and click on the Report Center directory, which is a subdirectory of your staging directory. Select the Include Subfolders check box (click on it so that a check mark appears). Confirm that the list box near the bottom of the dialog displays the value *Report (*.rpt)*, which should be the default. Click on the OK button.

This closes the Browse for Folder dialog, and the Select Files panel once again becomes active, displaying a list of reports from the folders you've selected. Click on its Next button.

4. A Specify Location panel of the Publishing Wizard opens. In it, a large field displays the name of your GRC Controls Suite instance. (The Publishing Wizard uses the values you entered in step 2 to point to this instance.) Click on this value, and then on the New Folder icon (the leftmost of three above the large field; it looks like a folder). A New Folder entry appears, in editable mode, below the entry for your GRC Controls Suite instance; change its name to *Report Center*. Click on the Next button.

5. A Specify Folder Hierarchy panel of the Publishing Wizard opens. In it ensure that the radio button labeled *Duplicate the folder hierarchy* is selected. In the list box near the bottom of the panel, select the value *include none*. Click on the Next button.

6. A Confirm Location panel of the Publishing Wizard opens. It displays the file names below the folder in which they will be published. Confirm that the values are correct, and click on the Next button.

7. In the next several Publishing Wizard panels, you need do nothing. Click on the Next button in each until you reach the Specify Repository Refresh panel. That panel lists the reports you are publishing; in it, click on the Enable All button. Then click on the Next button.

8. In the next several Publishing Wizard panels, you need do nothing. Click on the Next button in each until you reach the Reading Files panel. When the Wizard finishes reading files, another panel lists the reports you are publishing. Click on the Next button. This commits the objects; finally, click on the Finish button.

Configuring Access to Reports

Each GRC Controls Suite user is assigned a "primary application role" and any number of "reporting roles." Each of the reporting roles specifies a selection of reports the user is able to open and review. After publishing a new set of reports, you must correlate each report to its reporting roles by completing the following steps on the server for the GRC Controls Suite platform:

1. If you have a Linux or UNIX server, source the GRC Controls Suite environment. Navigate to the home directory, which contains the ag.env file. Ensure the file has been edited correctly (see pages 47 and 54), and then run it. (If you have a Windows server, this step does not apply.)

2. Navigate to the bo_setup subdirectory of the staging directory on the server for the GRC Controls Suite platform.
3. Using a text editor, open the BusinessObjectsConfiguration.properties file. In it, ensure that the businessObjects.commit property is set to *true*. Save the file and close it.
4. Execute a file called loadAccessRights.sh (on a Linux or UNIX server) or loadAccessRights.bat (on a Windows server). The file is also located in the bo_setup subdirectory. If you have a Linux or UNIX server, first use the chmod command with the +x switch to set execute permissions on the file.

Restarting Services

To activate the newly installed GRC Controls Suite platform and Business Objects components, you must stop and then restart the services. Use the stop- and start-services procedures appropriate for your operating system. For Linux or UNIX, see page 49; for Windows, see page 65.

Chapter 8

Configuring the GRC Controls Suite Platform

Once the GRC Controls Suite platform is installed, several configuration steps remain. These steps include:

- Configuring licenses.
- Setting properties.
- Configuring data sources.
- Importing control monitors.
- Running background programs that set up Application Access Controls Governor for use. (This also involves creating a GRC Controls Suite user with permissions to run the background programs.)
- Creating database users, and enabling database tables for auditing, to prepare the Access Monitoring feature of Application Access Controls Governor for use.
- Assigning a user to a default workflow routing, and activating the routing.

Configuring Licenses

To run GRC Controls Suite applications, you need to install license files. These include not only a licence for the GRC Controls Suite platform, but also licenses for Application Access Controls Governor, Transaction Controls Governor, and Preventive Controls Governor.

To implement these licenses:

1. Log on to the GRC Controls Suite platform. Use the following URL:

   `http://Host:Port/ags`

   Replace *Host* with the host name of your GRC Controls Suite platform server. Replace *Port* with the value *8080* if you accepted default port values during installation. Otherwise, supply the value you set for TOMCAT_PORT on a Linux or UNIX server (page 48) or connection port on a Windows server (page 65).

2. Log on as a System Administrator, for which the user name and password are both *admin*.

3. Click on the Administration tab and, in the Administration Home page, the Manage Licenses link.

4. In the Organization Name field, type *Oracle*.

5. In your Oracle media pack, locate the Governance, Risk, and Compliance Controls Suite Disk 1. Insert it in the drive of the computer from which you are working.

6. For each license you choose to implement, enter the path and name for the license file in the appropriate License Information field. License files are located in the licenses directory of the Governance, Risk, and Compliance Controls Suite disk. Their names are as follows:

   - platform.lic for the GRC Controls Suite platform
   - accessGovernor.lic for Application Access Controls Governor
   - dataGovernor.lic for Preventive Controls Governor
   - policyGovernor.lic for Transaction Controls Governor

   You can either type the path and name for each license file, or select the Browse button and navigate to the file.

7. Click on the Save button.

Setting Properties

From the Administration tab of the platform, you can also select a Manage Configuration Properties link to view or set properties for the application. Generally, you can accept default values, but you may choose to confirm that values are set correctly, or reset some values.

Several properties are set automatically to values you chose while completing server-installation procedures. You need not change them. These include the following:

- adminUser
- appserver.hostname

- businessObjects.enterpriseDirectoryName
- businessObjects.InfoViewPath
- businessObjects.reportSecurity
- businessObjects.server
- businessObjects.serverPort
- businessObjects.username
- callbackhost

The following properties can take the following values:

- businessObjects.password: This property defaults to the Business Objects Administrator password created during installation (see page 53 or 70); do not change it. In future, however, if you change this password in the Central Management Console, you must also change it here.
- datasources.connection.pool.min.size and datasources.connection.pool.size: These two properties combine to designate the number of simultaneous connections that the platform opens to its database. The number of connections is always at least the number set by the "min.size" property. Additional connections open on demand, up to the number set by the "size" property (and so it must always be set to a larger number than the "min.size" value).

  In effect, these properties set the number of users who retrieve data from or save data at once to the database used by the platform, each using a connection only for the brief time required to complete one of those operations. The number of users employing connections at a given moment is much smaller than the number logged on to the platform. The default values — 3 for the "min.size" property and 10 for the "size" property —typically need not be changed.
- email.returnAddress: This sets the "from" address used in email messages sent by the GRC Controls Suite workflow system to users notifying them that approval tasks have been assigned to them.
- exception.link.show: This determines whether error messages contain a link that activates a display of detailed information about database errors. Valid values are *true* (the default) and *false*.
- Licensee: This must be set to the same value as the Organization Name field on the Manage Licenses panel. (See the preceding section, "Configuring Licenses.")
- pagination.show.all: The platform presents lists of items in grids, the footer row of which contains a Show Results list box that determines how many rows a grid displays at once. (The grid entries are divided into pages, each of which consists of the number of rows chosen for display.) In the Show Results list box, one can choose the value *All*. Because an attempt to display all records, no matter how many, in a single page can harm performance, the pagination.show.all parameter sets a limit on the number of records returned when a user selects the Show All Results option in a list. The default value is 1,000.

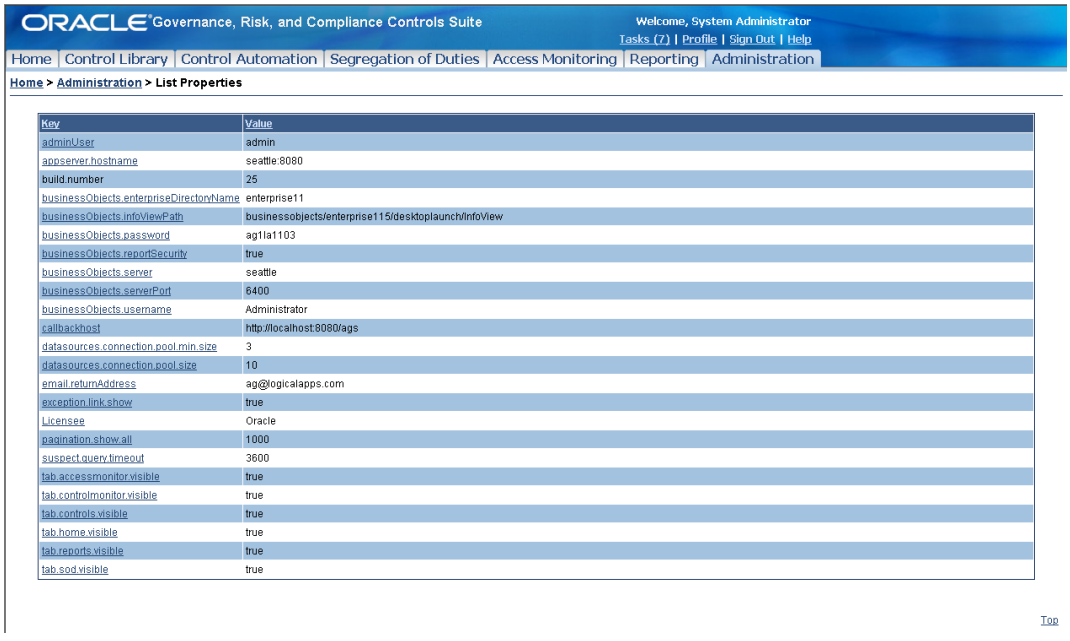
- suspect.query.timeout: This property sets the amount of time a control monitor may run before it times out. If control monitors fail to return suspects, try setting a larger value for suspect.query.timeout — its unit of measurement is seconds, and its default value is 3600.

The platform contains tabs that activate panels in which one works with various features. The remaining properties determine which tabs are available for selection. Valid values are *true* (the default for each), which presents the tab to all users, and *false*, which hides the tab from all users. Property names correspond to tab names as follows:

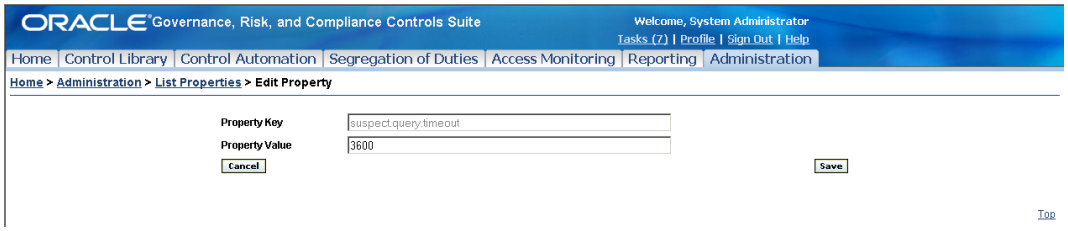
- tab.accessmonitor.visible: Access Monitoring
- tab.controlmonitor.visible: Control Automation
- tab.controls.visible: Control Library
- tab.home.visible: Home
- tab.reports.visible: Reporting
- tab.sod.visible: Segregation of Duties

To set properties:

1. In the GRC Controls Suite platform, click on the Administration tab.
2. In the Administration home, click on the Manage Configuration Properties link. A List Properties panel opens:



3 Locate the property you want to set, and click on its name in the Key column. An Edit Property panel opens.



4 Enter a new value in the Property Value field, and click on the Save button. The focus returns to the List Properties panel, with the new setting displayed.

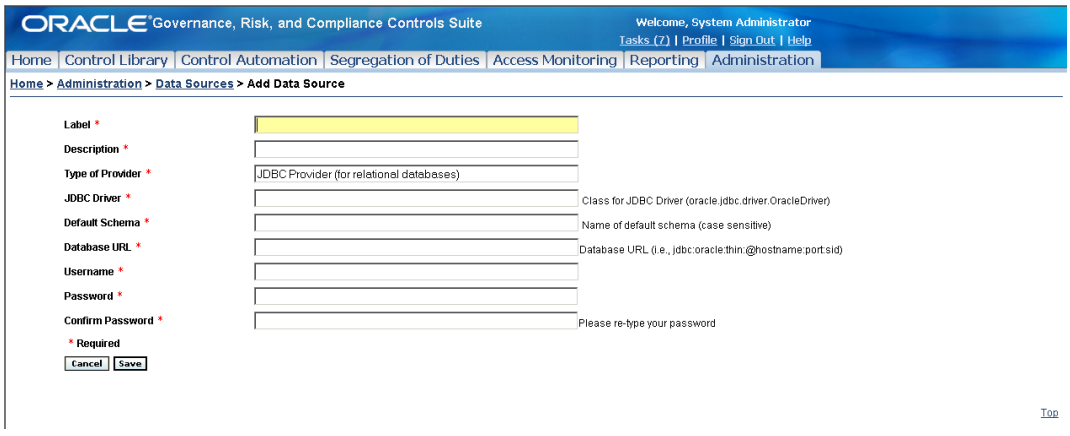
Configuring Data Sources

During server installation, you supplied information required for the GRC Controls Suite platform to connect to an APPS database for an instance of Oracle E-Business Suite in which the Embedded Agents run. You need now to use a Data Sources feature of the platform to supply the information again. You can also use this feature to set up additional Oracle EBS/ Embedded Agents data sources. The information you enter in the Data Sources panels is used by the Segregation of Duties and Access Monitoring features.

1 In the platform, click on the Administration tab.

2 In the Administration home, click on the Manage Data Sources link.

3 A Data Sources panel opens. To create a new data source, click on the Add Data Source button; an Add Data Source panel (shown below) opens. To edit an existing data source, click on its name; a View Data Source panel opens, in which you would click on an Edit Data Source button. An Edit Data Source panel opens; it's identical to the Add Data Source panel, except that it displays current values for the selected data source.



4 Supply these values:

- Label and Description. Provide entries that name and describe the data source. The label will appear in a list box from which users can select data sources when they use the Segregation of Duties and Access Monitoring features.
- Type of Provider. Accept the default:

  `JDBC Provider (for relational databases)`
- JDBC Driver. Always supply the following value:

  `oracle.jdbc.driver.OracleDriver`
- Default Schema. Provide the schema name of the APPS database for the instance of Oracle Applications in which the Embedded Agents run. Because this would be an Oracle database, this value should be the same as the value you will supply in the Username field (see below), and is conventionally *APPS*.
- Database URL. Provide the JDBC connect string that GRC Controls Suite will use to connect to the APPS database for an instance of Oracle EBS in which the Embedded Agents run. This entry takes the following form, with actual values replacing the *Hostname*, *Port*, and *SID* placeholders:

  `jdbc:oracle:thin:@`*`Hostname`*`:`*`Port`*`:`*`SID`*
- Username. Supply the user name for the APPS database cited in the Database URL field. Conventionally, this value is *APPS*.
- Password and Confirm Password. Supply the password configured for the database user identified by the Username entry.

5 Click on the Save button. The focus shifts to the View Data Source panel, which displays the values you've saved. In that panel, click on the Test Data Source button. A message either reports that the test is successful or reports errors; in the latter case, click on the Edit Data Source button to correct the errors.

Importing Control Monitors

A control monitor employs one or more statements, written in structured query language (SQL), that define actions subject to control. It establishes a sequence in which the statements are evaluated and the records they return are designated as "suspect tasks." Each monitor is configured in Transaction Controls Governor.

A set of "prepackaged" control monitors comes with Transaction Controls Governor. To import them:

1 In your Oracle media pack, locate the Governance, Risk, and Compliance Controls Suite Disk 1. In its content/Transaction Controls Governor directory, locate the file ag_7222_monitors_oracle_ebs_11i.zip. Copy the file to the staging directory on your GRC Controls Suite platform server.

2 Use an import feature in the GRC Controls Suite platform to extract control monitors from this file and to import them into Transaction Controls Governor.

See the *Transaction Controls Governor User's Guide* for the complete procedure. In the platform, click on the Help link (which is located near the upper right corner of every panel on the Platform). A Help home page opens; in it, click on the link for Transaction Policy Governor. The *Transaction Policy Governor User's Guide* opens; in its contents panel, click on the link for Prepackaged Control Monitors.

Running Background Programs

If your company uses Application Access Controls Governor, you'll need to prepare it by running one or more "background program."

- SOD rules specify responsibilities or functions that should not be assigned simultaneously to individuals. Some rules permit conflicting responsibilities or functions to be assigned if they are approved, and so rules designate approvers. For this purpose, a Populate WF Roles Table program filters workflow roles, as they are defined in Oracle E-Business Suite, to select those appropriate to serve as SOD-rule approvers, and places the filtered selection of roles in a table that supplies values to an Approver field on an Add SOD Rules panel. You must run this program.
- If you intend to run Oracle EBS Security reports — which list responsibilities, menus, and functions available to individual users — you would first run a program called Populate User Access Data Table. It updates a database table that contains information about users' assignments and provides that information to the reports.
- Moreover, you may choose to import SOD rules contained in a "content spreadsheet," first editing them to contain values appropriate for your site, and then uploading them all at once. If so, you would run a Load SOD Conflict Rules program. (There are two content spreadsheets — one containing SOD rules for use with Oracle Release 12 and the other for use with earlier versions. Both are contained on the Governance, Risk, and Compliance Controls Suite Disk 1, in a content/Application Access Controls Governor Oracle EBS directory.)

You are currently logged on as a System Administrator, a "primary application role" that does not have rights to run background programs. The System Administrator can, however, create users at other roles, and so you must create a user with permission to run the programs — one whose primary application role is AG Super User, SOD Super User, Author, Manager, or Rule Builder. You would then log on as that user to run the background programs.

Refer to GRC Controls Suite user's guides for appropriate procedures. In the platform, click on the Help link. The Help home page opens. In it, do the following:

- For information on creating users, open the *Governance, Risk, and Compliance Controls Suite User's Guide*: In the Help home page, click on the link for that document. In its contents panel, click on the User Administration link.
- For information on running background programs, open the *Application Access Controls Governor User's Guide*: In the Help home page, click on the link for that document. In its contents panel, click on the link for Background Programs.

Preparing Access Monitoring

Access Monitoring enables GRC Controls Suite users to request temporary access to database tables or to Oracle responsibilities. Requests are subject to approval, and once they are approved, the access is continually audited. Access Monitoring maintains a set of user IDs for responsibility-access requests; as each user's access expires, his ID can be reused. However, a distinct set of IDs applies to database-table access, and a database administrator must create these database user IDs.

Each database user ID must begin with the letters *LAAG*. IDs may otherwise follow any format, but the recommended format is LAAGDB*x*, where *x* is a unique number.

After the IDs are created, a concurrent request called "Access Monitor — DB Users Synchronization Process" must be run in the GRC Controls responsibility of Oracle EBS; this enables Access Monitoring to recognize the IDs and display them so that they are available for selection. The request takes no parameters.

For Access Monitoring to work, database tables must be audit-enabled, regardless of whether they are to be accessed directly or through a responsibility. To enable tables for auditing, one uses an Access Monitoring Content form — one of the Embedded Agents. A set of tables is typically audit-enabled during system installation; afterwards users may use the Access Monitoring Content form to determine which tables (and columns) are already audit-enabled, and add to them.

For information on enabling database tables for auditing, open the *Application Access Controls Governor User's Guide*: In platform, click on the Help link. In the Help home page, click on the Application Access Controls Governor link. The *User's Guide* opens; in its contents panel, click on the link for Access Monitoring.

Preparing the Default Workflow Routing

GRC Controls Suite controls and "control-library" objects must be approved after being created or modified. Each access request generated through the Access Monitoring feature must be approved before it is granted. And suspects generated by control monitors must be reviewed. To define sequences in which review requests are sent to users, groups, or both, GRC Controls Suite implements workflows.

GRC Controls Suite comes with a Default Approval Workflow so broadly defined that it can route for review any control-library object, access request, or suspect that is not captured by any other workflow that users may configure. Initially it is at an Editing status, and it does not specify any user to perform reviews. As an installation step, you must designate a user who belongs to this workflow, and then activate it. You can use the admin user that came already created on GRC Controls Suite, or you can create another user for this purpose.

As already noted (on page 91), you can consult the *Governance, Risk, and Compliance Controls Suite User's Guide* for information on creating users. The "Creating Workflows" chapter of that guide (and in particular the section of that chapter titled "Editing a Workflow Routing") provides instructions for adding a user to a workflow and activating a workflow. Once again, the *User's Guide* is accessible from the Help link of the GRC Controls Suite platform.