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Oracle Enterprise Transaction Controls Governor Implementation Guide

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Preface

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

This *Implementation Guide* is meant to provide helpful guidance on the usage of the product. Think of this document as a combination FAQ and helpful “Tips and Tricks.”

It is a supplement to the official product documentation (such as the *User Guide* and *Installation Guide*), and is not intended to replace it. If discrepancies exist between this *Implementation Guide* and the official product documentation, the guidance and functional commentary provided by official documents supersede any that may be written here.

Disclaimer

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

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

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

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Enterprise Transaction Controls Governor Setup Overview

Oracle Enterprise Transaction Controls Governor (ETCG) is a control-authoring and -handling solution that works across heterogeneous platforms to detect issues that exist at the transaction level.

ETCG is one of several applications that share an Enterprise Governance, Risk and Compliance (GRC) platform. ETCG and Application Access Controls Governor run as a Continuous Control Monitoring (CCM) module in the GRC platform. (They are also members of a set of applications known collectively as “Oracle Advanced Controls.”) Another application — Enterprise Governance, Risk and Compliance Manager — may implement a Financial Governance module and other, user-defined modules in the GRC platform. As you set up ETCG, you will use software tools specific to it as well as software tools common to it and other GRC applications.

ETCG enables its users to create models and controls that define risk transactions may present. A model or control specifies semantic business objects (BO), which supply transaction data; business objects correspond to what a business user would expect to see within an ERP environment. ETCG then finds results or incidents — transactions that are suspect because they meet the criteria defined in the model or control. Model results are considered “temporary” because the suspect transactions are replaced each time the model is run. Control results — known as incident results — are “permanent” no matter how often the control is run.

Oracle provides sets of models that promote the rapid implementation of ETCG. You can use the models as they are or create new models from them, then deploy controls for immediate transaction analysis. The delivered models support analysis in common end-to-end business processes, including Order-to-Cash, Procure-to-Pay, Financials, and Human Resources.

Consider the guidelines in this chapter as you set up ETCG for your organization.

Diagnostic Steps

Enterprise Transaction Controls Governor has been designed to be incredibly scalable by means of hardware configuration. This means ETCG performance can often be improved via a hardware change rather than an ETCG software change.

ETCG touch points span hardware, software, and network variables. Refer to the *Hardware Requirement* tab of the *Oracle Enterprise Governance, Risk, and Compliance Certifications Document* for recommended and supported hardware configurations.

Deviation from these recommendations may result in unforeseen issues and would cause additional time and require additional resources during the implementation.

It is highly recommended during implementation planning that sufficient time be allocated for setting up, testing, and troubleshooting environment-specific issues that occur commonly with the many combinations of environments available.

The following is a high-level recommendation for diagnostic steps during environment setup and implementation:

1. Work with Oracle Consulting or an Oracle partner service provider to evaluate your environment and options for a GRC installation.
 - a. Consider creating Development, Test, and Production instances. It is highly recommended that the environments for these instances be similar to one another, as varying environments could cause unexpected issues.
 - b. Search for any patches that may need to be applied.
2. Refer to the *Certifications Document* for recommended and supported hardware configurations.
3. Look on My Oracle Support for known environment variable issues.
4. Follow the *Oracle Enterprise Governance, Risk and Compliance Installation Guide* to install GRC.
5. Verify that areas of the application are working (see the *Oracle Enterprise Transaction Controls Governor User Guide* or *Oracle Enterprise Governance, Risk and Compliance User Guide* for more information).
 - a. Create a datasource (a connection to a database used by a business-management application subject to ETCG models and controls).
 - b. Synchronize access data. (“Synchronization” extracts data from business applications for analysis by GRC models and controls. Distinct processes synchronize access and transaction data. You should first synchronize access data for an ETCG instance because some transaction models may use access data.)
 - c. Create a simple transaction model to test. For example, select the Supplier business object, and specify that its creation-date attribute is greater than a date that you select. (The name of this attribute depends on whether you select an Oracle EBS or PeopleSoft datasource.)
 - d. Synchronize transaction data. (Unlike access synchronization, transaction synchronization cannot run until at least one model exists. Even then, while access synchronization applies to all access data, transaction synchronization operates only on data used by business objects cited in existing transaction models and controls.)
 - e. Return to your model. Select Run (or Run in Background) to view results.
 - f. View the transaction-analysis results.
6. Continue setups as recommended in this *Implementation Guide*.

Setup Checklist

To set up Enterprise Transaction Controls Governor, complete the steps in the following checklist. You must complete the steps identified as required; complete each optional step only if you want to use the functionality implemented by that step.

Each step is described in further detail later in this document. Moreover, the description for each step includes a reference to a section and chapter of the *ETCG User Guide* or *GRC User Guide*, in which you can find full information about the procedures for completing each step.

Administrative Setup

- ☐ 1 **Required:** Connect your instance of GRC to its database. Typically, connectivity values are set during installation; you would update the values only if your configuration needs to change. See the *GRC Installation Guide* for more information.
- ☐ 2 **Required:** Configure connections to datasources for instances of the business applications (such as Oracle EBS or PeopleSoft) that are to be subject to control by ETCG. Optionally, select a datasource to be used as the ETCG default. See “Configuring Datasources” in the Application Datasources and Libraries chapter of the *GRC User Guide*.
- ☐ 3 **Optional:** Define perspective hierarchies, each of which is a set of related values that define a context in which GRC objects may exist. Individual perspective values may be assigned to individual models, controls, and incidents (control violations). Perspectives may then be used for reporting and filtering (for example, a user may generate a report about all controls associated with a particular perspective value). Perspectives are also instrumental in GRC security: data roles define the data to which individual users are granted access, and if associated with perspective values, these roles grant access only to models, controls, and incidents associated with those values.

GRC Perspective Management enables you to create (or edit) perspectives. Or, Data Migration enables you to import them from a template. (Oracle supplies an import template that includes Business Process and Risk perspectives. You may edit these, or create others, for import.)

System perspectives for CCM Type, Datasource, Business Object, and User Defined Object are used for securing data. These are not accessible in Perspective Management and cannot be modified directly. Their values are assigned automatically as you choose to create either transaction or access models, select datasources and business objects for them, or create user defined objects.
- ☐ 4 **Optional:** Define job, duty, and data roles. A duty role defines a set of privileges, a data role defines a set of data, and a job role combines duty and data roles to define access that can be granted to users. GRC is seeded with a comprehensive set of roles; seeded roles cannot be edited, so copy them and use the copies. See the *Enterprise Governance, Risk and Compliance Security Implementation Guide*, as well as the Security Management chapter of the *GRC User Guide*.

- 5 **Required:** Define ETCG users and grant them roles. GRC comes with one configured user, for which both the user name and password are *admin*. This user has rights to all GRC features. Log on as the admin user to create other roles and users. See the *GRC Security Implementation Guide* and the “Security Management” chapter of the *GRC User Guide*.
- 6 **Optional:** Configure notifications. When a control generates incidents, ETCG may notify the result investigators via your company’s email system. For this to happen, establish a connection to your company’s SMTP server, and schedule notifications to be sent. This may be done at any time during implementation, but keep in mind that during initial implementation a higher volume of incidents is usually generated. See “Configuring Notifications” in the Application Configuration Management chapter of the *GRC User Guide*.

Create Models and View Results

- 7 **Optional:** Load model content. An ETCG import utility enables users to upload models created by Oracle or by other users (and an export utility enables users to make models available to others). Models delivered for E-Business Suite or PeopleSoft support rapid implementation of transaction analysis. See “Importing and Exporting Models and Controls” in the *ETCG User Guide*.
- 8 **Required:** Define transaction models (or copy/edit those loaded in step 7). A model may select business objects for review and define the conditions for that review. A model may mix differing business objects — for example, both Oracle Suppliers and Purchase Orders. It may include business objects from more than one business-management system, for example defining equivalent business objects in two Oracle E-Business Suite environments. See “Creating a Transaction Model” in the Creating and Managing Models chapter of the *ETCG User Guide*.
- 9 **Optional:** Create custom business objects or user defined objects. There may be times you have data that is external to your datasource, such as a list of suppliers you are blocked from doing business with, that you wish to leverage within the modeling and analysis tool. See “Using Custom Objects” in the Creating and Managing Models chapter of the *ETCG User Guide*.
- 10 **Required:** View and analyze results your transaction models generate. A view results program may be run immediately or in the background. See “Viewing or Exporting Model Results” in the Creating and Managing Models chapter of the *ETCG User Guide*.

Manage Controls

- 11 **Required:** Create transaction controls. Deploy controls from models to generate permanent incident results that can be tracked as they are accepted, rejected, or remediated. (Depending upon your GRC goals, the process of creating a control from a model is really optional; but

creating a control is the only way to generate permanent incident results for tracking and auditing.) As a part of the create transaction control action, the following steps can apply:

- Assigning a control priority is **required**. This is a number value to identify the importance of the control. When setting priorities, you should establish a consistent usage within your organization, taking into account your GRC goals and level of risk to the company for the control. The priority indicator can be used to help focus on higher areas of remediation via the Manage Incidents Results grid and reporting tools.
- Selecting at least one datasource for a control is **required**.
- **Optional:** Assign perspective values. Two sets of perspective values apply to each control. One set pertains to the control itself. The control inherits these values from the model on which it is based, although a user may add to the inherited values while creating the control. A second set of perspective values characterizes and secures incidents the control generates; these values are selected as the control is created.

See “Selecting Perspectives” in the *ETCG User Guide*, and the Perspective Management chapter in the *GRC User Guide*.

- **Required:** Select result investigators for controls. Perspective values selected for a control determine which users are eligible to be result investigators — those whose data roles are associated with matching perspective values. By default, each control designates all eligible users as result investigators; you can retain that selection, or choose one of those users.

See “Selecting Perspective Values and Result Investigators” in the Creating and Managing Continuous Controls chapter of the *ETCG User Guide*.

- Add any optional comments to the control, or associate the control to one that is related.

See “Creating Transaction Controls” in the Creating and Managing Continuous Controls chapter of the *ETCG User Guide*.

- 12 **Required:** Run control analysis. Selecting the Run action causes ETCG to identify and create incident results for selected controls. Alternatively, you can set up a schedule for the control to run regularly in the future.

Consider synchronizing the transaction data first to ensure that business-management-system data is current and the incidents generated are up to date.

If any controls depend on user defined objects, evaluate the order in which you run controls (or schedule them to run). Dataset controls, which generate data for user defined objects, should run prior to controls that use those objects.

See “Running Controls” in the Creating and Managing Continuous Controls chapter of the *ETCG User Guide*.

Manage Incidents and Remediate

- 13 **Required:** Manage incident results and remediate. Incident results can be accessed by users associated with perspective values that match perspective values assigned to the incident (including values for the Data-source and CCM Type system perspectives). Result investigators are sent a worklist, and any eligible user can navigate to the Manage Incident Result page to analyze, report, and remediate incidents to which he or she has access.

See the Resolving Incidents chapter of the *ETCG User Guide*.

Administration Setup

Before creating transaction models or controls, or running them to generate results, use features available in the Tools option of the GRC Navigator to set up your ETCG instance. Setup tasks may include configuring performance options and selecting languages in which GRC operates; connecting to datasources (instances of business applications subject to GRC models and controls); configuring perspectives, roles, and users; configuring notifications; and synchronizing data.

Managing Application Configurations

From the GRC Properties page under Manage Application Configurations, you can set options that optimize performance. (All these setup options are documented fully in the *GRC Installation Guide* and *GRC User Guide*.) Typically, these options are set during GRC installation, and many are not changed subsequently. Others may be modified at any time after installation. Two options apply specifically to ETCG:

Graph Synchronization Date Limit: As noted earlier, synchronization is a process that extracts data from datasources for analysis by GRC models and controls. Typically, a site synchronizes data regularly, so that as users create or modify records in business applications, GRC models and controls recognize those changes. Setting a date limit returns transaction data for a time period you require for your controls, making synchronization runs more efficient.

A business object is, in effect, a set of related data fields from a datasource. ETCG distinguishes among three categories of business object — Transaction (in which records are created or updated frequently), and Operational and Configuration (consisting of master-data or setup records that change infrequently). For Transaction business objects, synchronization operates only on records created or updated in datasources after the synchronization date limit (if you set one, which is recommended for optimal performance). For Operational and Configuration business objects, however, a synchronization run encompasses all records, regardless of when they were created or updated.

There are some important points to consider:

- The Graph Synchronization Date Limit has a direct impact on performance, because it is a mechanism to limit the record set that is synchronized. It applies to all datasources and all Transaction business objects.

- There is no way to apply this setting to a specific set of Transaction business objects or datasources. Instead, it applies to all or none.
- You should initially set this Graph Synchronization Date Limit in a test environment, to improve your ETCG testing experience. But eventually you should test the date itself to determine whether there is a date that works for your organization. How much historical data does your transaction analysis require?

Note: *The Graph Synchronization Date Limit does not apply to AACG.*

Enforce Allocated Analysis Time Per Filter: A model or control consists of filters, each of which defines some aspect of a risk and selects transactions that meet its definition. When you enable the Allocated Analysis Time feature, each filter runs no longer than a number of minutes you specify. If time expires, the filter passes records it has selected to the next filter for analysis, but ignores records it has not yet examined.

When selected, this feature applies to all transaction models and controls, but you may disable it for individual models as you create them (and for controls developed from those models). This feature does not apply to access models and controls.

Other options: As you set properties options, you may consider other questions: In what languages should you enable GRC to operate? Will you need to supply data to Oracle Fusion GRC Intelligence (GRCI) for reporting purposes? What kind of password security does your company require? By carefully evaluating your business needs, you can configure your application for best performance and reporting.

(To set these options, navigate to Tools > Setup and Administration > Setup > Manage Application Configurations. Then select among Properties, Analytics, Security, and other tabs.)

Managing Application Data

You must set up at least one datasource in the Manage Application Datasources page. Each datasource is, in effect, a business application subject to transaction models and controls.

As you define datasources, consider your company's current mandates, risk tolerances, and compliance goals. You may need to connect to development instances and test instances, and to analyze data across multiple homogeneous instances or heterogeneous platforms.

Do you run transaction analysis against multiple applications? For instance, do you connect to one application for Financials and another for Human Resources? Are these on the same platform? Will you analyze transactions across multiple platforms or even cross-platform? By carefully evaluating your business needs, you can ensure that when you load or create models and controls, they will run against the appropriate datasources.

(To work with datasources, navigate to Tools > Setup and Administration > Setup > Manage Application Datasources. See the Application Datasources and Libraries chapter of the *GRC User Guide*.)

Managing Perspective Hierarchies

A perspective is a set of related values that define a context in which ETCG objects may exist. Values are hierarchical — they have parent/child relationships to one another. Individual values may be associated with individual models, continuous controls, or incident results, in effect cataloging them.

For example, an Organization perspective might contain values that map the structure of your company. Divisions, for instance, might be immediate children of the organization; each division might be the parent of a set of operating units; and so on. This would enable the company to associate individual models, controls, or incidents with the divisions, units, or other corporate entities to which they apply.

Perspectives also play a part in determining which users have access to any of these objects — those whose job roles contain data roles associated with perspective values that match the values selected for the object. (Users must also have duty roles granting privileges to work with the object.)

Each model is automatically assigned values for CCM Type, Business Object, Data-source and, potentially, User Defined Object system perspectives. These values represent selections made by the user who creates the model — whether it is an access or transaction model, and the datasources, business objects, and user defined objects selected for it. Thus, at minimum, a model is restricted to users whose data roles include matching values for system perspectives. (A user defined object is a set of data returned by a CCM continuous control that is used as if it were a business object. See page 4-11.)

However, a user who creates a model may assign other perspective values to it, further restricting its availability. Each control is developed from a model, and inherits the perspective values assigned to that model; this set applies to the control itself. So before you develop models, consider configuring perspectives that can be used to determine which users will have access not only to models, but also to controls.

A user who creates a control may add to the values it inherits from the model on which it is based, and selects a second set of perspective values for it. This second set applies to incidents generated by the control, and determine which users are eligible to investigate incidents. (Incidents also inherit CCM Type and Datasource values from the control.) You may consider creating perspectives to secure incidents while you create those that secure models and controls. Or you may wait until you are ready to convert models into controls, when you may have a better idea of who should resolve incidents generated by controls.

(Even after models and controls are created, or incidents are generated, you can edit them to modify any of the sets of perspectives associated with them.)

GRC Perspective Management enables you to create (or edit) perspectives. Or, Data Migration enables you to import them from a template (see chapter 3). Once created, a perspective hierarchy becomes available for use with objects of a given type only after it is associated with that type in a GRC Manage Module Perspectives page.

(To work with perspectives, select Perspective Management under Tools in the Navigator. For information on managing perspectives and associating them with objects, see the *GRC User Guide*.)

Managing Roles

In GRC, duty roles grant access to functionality, data roles grant access to data, and job roles combine duty and data roles to define distinct combinations of functionality and data to which users may be granted access.

Before you begin setting up your roles, consider who will use ETCG (and GRC), and for what purposes. Seeded data, duty, and job roles are provided as templates. Common practice is to copy seeded roles and modify them as required.

Examples of roles may include:

- Auditors — May be able to review generated incidents and view model results.
- Internal Controls Group — May help review/create models and controls, view results, and run reports.
- Business Area/Application Owners — May conduct a variety of activities such as creating models and viewing results, defining perspectives and assigning result investigators, deploying controls and monitoring incident remediation, and running reports.
- System Administrator — May set up datasources, application configuration, notification configuration, and perform other administrative tasks.
- Remediation User — May analyze incidents and update status during remediation.

(To work with roles, select Setup and Administration under Tools in the Navigator, then Manage Roles under Security. See the *Enterprise Governance, Risk and Compliance Security Implementation Guide*, as well as the Security Management chapter of the *GRC User Guide*.)

Managing Users

Before you begin creating users — during the role-creation process — you should have considered who will use ETCG (and GRC), and for what purposes. Also evaluate roles for ETCG in conjunction with access to business objects and datasources. Consider a naming convention for user names and apply one or more roles to each user as appropriate.

(To set up users, select Setup and Administration under Tools in the Navigator, then Manage Users under Security. See the Security Management chapter of the *GRC User Guide*.)

Managing Notifications

Notification schedules determine how often users are notified when worklists are generated.

A worklist is a record of incidents generated by a control, as well as a link to the GRC page on which incidents may be resolved. A user sees the worklist if he is a result investigator for the control that generated the incidents; the worklist appears on his home page.

Because worklists correspond to controls, a worklist for any given user encompasses all pending incidents generated by a control to which the user has security access. The worklist remains active until all its incidents have been reviewed and submitted at a status that does not leave them in a pending state. If a worklist exists, its control is re-run, and new pending incidents are generated, those incidents are added to the existing worklist. GRC creates a new worklist for a given control only if the control is run after all the incidents associated with an earlier worklist are no longer pending.

GRC can use a company's email system to send messages when new worklists are generated. Each result investigator receives a message when any number of his controls create new worklists. The message is consolidated — it lists all new worklists. However, no email notification is sent when new incidents are added to an existing worklist.

Before creating a notification schedule, consider how often incidents will be generated, and how immediate is the need to review or fix those incidents.

(To configure notifications, navigate to Tools > Setup and Administration > Setup > Manage Application Configurations, and select the Notification tab. See “Configuring Notifications” in the Application Configuration Management chapter of the *GRC User Guide*.)

About Data Synchronization

To maximize performance and handle cross-platform analysis, ETCG employs data synchronization — a job that extracts transaction data from ERP systems and loads that data into the GRC database.

You can run synchronization manually from the Create Transaction Model page. If so, the job applies to a single model (which you select); it loads data belonging to business objects that are used by the model and that have not previously been synchronized. Typically, you use this feature to prepare data to test a model after you have created it.

Alternatively, you can synchronize data from the Manage Application Datasources page (which is available from the Setup and Administration tasks). If so, you load or update data for all business objects used in all models or controls that apply to a data-source (which you select). From this page, you can run synchronization manually or schedule synchronization jobs to run.

In either case, you cannot run transaction synchronization until at least one model exists.

A Graph Synchronization Date Limit (if enabled in the Properties tab of the Manage Application Configurations page) causes the synchronization of certain frequently modified business objects to operate only on records created or updated in datasources on or after a specified date. (See “Managing Application Configurations” on page 2-1.)

When run from the Manage Application Datasources page, synchronization jobs are typically incremental. Once a given business object has been synchronized, GRC applies the following logic to creation dates and last-update dates for that object:

- If the creation date for a record is greater than the date of the last synchronization run, a new row is inserted.

- If the last-update date for a record is greater than the date of the last synchronization run, the existing row is updated.
- If a transaction record is deleted from the datasource, synchronization does not recognize the deletion, and the record remains in GRC.

(If the base table that stores data for a business object does not record creation and last-update dates, GRC performs a full synchronization for that object. This is the case for many PeopleSoft tables.)

In general, when data in ETCG has aged substantially beyond equivalent data in a datasource, synchronization should precede transaction analysis against that datasource.

- Transaction data changes daily, so a daily synchronization is recommended if you perform transaction analysis daily.
- If, for another example, your company evaluates transactions on a monthly basis, then you may need to run the synchronization process only once a month.

A Rebuild Graph action, which can be run from the Manage Application Datasources page, is like a full synchronization. It deletes all data for a given datasource and rebuilds the business object and relationship mappings for all models and controls that analyze risk in that datasource. You would typically run it for one of the following reasons:

- You have changed the graph synchronization date limit.
- You suspect data corruption, as might occur if an ERP system goes down during a synchronization run.
- You apply a patch.

See “Synchronizing Data” and “Model-Data Synchronization” in the *ETCG User Guide*.

Import Perspectives

As an alternative to configuring perspective hierarchies in GRC Perspective Management, you may use a Data Migration feature to import perspectives and their values. Data Migration is especially useful for mass creation of perspectives. To use this feature, load perspective data into a “template” (an Excel spreadsheet), and then run an import process against the template.

Apart from system perspectives used for security, no perspectives are seeded with the Continuous Control Monitoring (CCM) module. However, Oracle offers a template that defines two perspectives — Business Process and Risk. You may accept these as they are defined or edit them. You may find it useful to begin with this template as an example for creating your own perspectives and values.

Preparing a Perspective File

The template file for a perspective import consists of three worksheets:

- **Perspective:** This worksheet contains information needed to create perspectives that, once imported, can be found in Perspective Management (under Tools in the GRC Navigator). Information from the Perspective worksheet populates the Definition section of the page.
- **PerspectiveItem:** This worksheet contains information needed to establish perspective values. Once imported, these values appear in the Hierarchy tab of the Hierarchy Details section of the Perspective Management page.
- **PerspectiveHierarchy:** This worksheet determines the hierarchical structure of the perspective. For example, for the Business Process perspective, a Business Process value exists at the highest level, also known as the “root.” All other values defined for the Business Process perspective appear as children of the root value. It is possible to have multiple levels in a hierarchy.

The seeded template is called Business Process and Risk Perspective Template.xml. Use it (as is, or with perspectives or values added or deleted) to perform an “initial load” — one for which all data in the file is new to the GRC instance. (You can perform any number of initial loads, but only for all-new perspectives. Any data existing in the target GRC instance must be removed from the template.)

Or, generate a template from your GRC instance and use it for an “incremental load” — one that adds values to perspectives that already exist on the GRC instance.

Individual records within worksheets may contain two ID values. For example, the Perspective worksheet contains both a `Persp_Tree_ID` and a `Persp_Tree_System_ID` column. For any column whose heading contains the phrase `SYSTEM_ID`, be aware:

- For an initial load, in which all data is new, `SYSTEM_ID` cells must be blank.
- For an incremental load, in which you add values to already-existing perspectives, the `SYSTEM_ID` for a piece of existing data contains an encrypted value; do not change it. The `SYSTEM_ID` for any new piece of data must once again be blank.

You will provide values for other (non-system) IDs, as described in the following procedures.

The following examples demonstrate how to make changes to a template. Note, in particular, that although you can delete values or perspectives from a template, you cannot use Data Migration to delete values or perspectives from those that already exist on a GRC instance.

Adding Values

Define a new value in the `PerspectiveItem` worksheet, and use the `PerspectiveHierarchy` worksheet to define its place in a perspective already defined in the `Perspective` worksheet.

For example, assume you want to add the value “Information Technology” to the Business Process perspective in the `Business Process and Risk Perspective Template.xml` file.

1. In the `PerspectiveItem` worksheet, create the new value:
 - a Copy a row in which the `Persp_Type_Code` value identifies the perspective to which you want to add a value. (In this example, select a Business Process row — one in which `Persp_Type_Code` = `GRC_Persp_Business_Process`). Paste the copy as the last row.
 - b Change entries in the `NAME` and `DESCRIPTION` cells to those appropriate for the new value. (In this example, the `NAME` value is “Information Technology.”)
 - c Change the `Persp_Item_ID` to a unique numeric value.
2. In the `PerspectiveHierarchy` worksheet, define the new value’s place in the hierarchy of values (in this example, a child of the root value).
 - a Again, copy a row in which the `Persp_Type_Code` value identifies the perspective with which you are working (`GRC_Persp_Business_Process` in this example). Paste it as the last row.
 - b Change the value in the `Child_Name` cell to match the value you added (in step 1b) to the `NAME` cell of the `PerspectiveItem` worksheet. (In this example, the value is “Information Technology.”)
3. Save the file. Follow verification steps described in “Saving the XML File” (page 3-5).

Adding Perspectives

Use all three worksheets to define a perspective, define the values it will contain, and define their hierarchical relationships.

For example, assume you want to add a new perspective called “Organization.” Its root value will also be “Organization”; its next level is to contain the values “EMEA Unit” and “NA Unit”; each of these is to have Accounting and Production departments as children.

To create this perspective hierarchy:

1. Enter information about the perspective itself in the Perspective worksheet:
 - a Copy an existing row and paste it as the last row.
 - b Change values in the NAME and DESCRIPTION cells to those you desire. (In this example, the NAME value would be “Organization.”)
 - c Change the PERSP_TYPE_CODE to a unique value. In this example, that value might be GRC_PERSP_ORG.

Note, however, that before you import the template, you must use the GRC Manage Lookup Tables feature to create this value as a lookup of the GRM_PERSPECTIVE_TYPE lookup type. See the *GRC User Guide* for information on managing lookup tables.
 - d Change the PERSP_TREE_ID to a unique numeric value.
2. In the PerspectiveItem worksheet, enter information about the root (highest level) value in the perspective hierarchy.
 - a Copy an existing row and paste it as the last row.
 - b Change the values in the NAME and DESCRIPTION cells to appropriate new values. (In this example, the name would be “Organization.”)
 - c Change the PERSP_TYPE_CODE to match the one used in the Perspective worksheet (GRC_PERSP_ORG in this example; see step 1c).
 - d Change the PERSP_ITEM_ID to a unique numeric value.
3. In the PerspectiveItem worksheet, enter information about all other values in the perspective hierarchy:
 - a Copy the row you created in step 2 and paste it as the last row.
 - b Change the values in the NAME and DESCRIPTION cells to appropriate new values. (In this example, one name value would be “EMEA Unit.”)
 - c Change the PERSP_ITEM_ID to a unique numeric value.
 - d Repeat these steps for each value you want to add to the perspective hierarchy. (In this example, other name values would include “EMEA Accounting,” “EMEA Production,” “NA Unit,” “NA Accounting,” and “NA Production,” each in its own row.)
4. In the PerspectiveHierarchy worksheet, establish the relationship between your root value and one of its immediate child values.
 - a In the PerspectiveHierarchy worksheet, copy an existing row and paste it as the last row.

- b** Set `PERSP_ITEM_NAME` to the name of the root value you created in step 2 (“Organization” in this example).
 - c** Set `CHILD_NAME` to the name of a value that you created in step 3, and that is to be an immediate child of the root value (for example, “EMEA Unit”).
 - d** Set `TREE_NAME` to name of the perspective you created in step 1 (“Organization” in this example).
 - e** Because the value you selected as `PERSP_ITEM_NAME` (step 4b) is the root, set `ROOT` to Y.
- 5.** Repeat step 4 for all other values that are to be immediate children of the root. (In this example, create a parent/child relationship between “Organization” and “NA Unit.”)
- 6.** Define relationships for values at other levels:
 - a** In the PerspectiveHierarchy worksheet, copy an existing row and paste it as the last row.
 - b** Set `PERSP_ITEM_NAME` to the name of a perspective value that is to be the parent of another value (for example, “EMEA Unit”).
 - c** Set `CHILD_NAME` to the name of the value that is to be the child of the value you just selected (for example, “EMEA Accounting”).
 - d** Set `TREE_NAME` to name of the perspective you created in step 1 (“Organization” in this example).
 - e** Because the value you selected as `PERSP_ITEM_NAME` is not the root, set `ROOT` to N.
 - f** Repeat these steps for other lower-level relationships (in this example, “EMEA Unit” to “EMEA Production,” and “NA Unit” to each of “NA Accounting” and “NA Production”).
- 7.** Save the file. Follow verification steps described in “Saving the XML File” (page 3-5).

Deleting Values

To remove a value from a perspective, delete the row defining the value from the PerspectiveItem worksheet. From the PerspectiveHierarchy worksheet, delete any rows defining its relationships to other values.

For example, assume you want to delete the value “Logistics” from the Business Process perspective in the Business Process and Risk Perspective Template.xml file:

- 1.** In the PerspectiveItem worksheet, find and delete the row with the Logistics value.
- 2.** In the PerspectiveHierarchy worksheet, find and delete the row with the Logistics value.
- 3.** Save the file. Follow verification steps described in “Saving the XML File” (page 3-5).

Or, use all three worksheets to delete an entire perspective — the perspective itself, its values, and its relationships. For example, assume you want to delete the Risk perspective from the Business Process and Risk Perspective Template.xml file:

1. In the Perspective worksheet, find and delete the row that defines the perspective you want to delete (in this example, the row with the Risk value).
2. In the PerspectiveItem worksheet, delete all rows in which the `Persp_Type_Code` value identifies the perspective you deleted in step 1 (in this example, rows in which this value equals `GRC_Persp_CCM_Risk_Type`).
3. In the PerspectiveHierarchy worksheet, delete all rows in which the `Persp_Item_Name` value identifies the perspective you deleted in step 1 (in this example, Risk).
4. Save the file. Follow verification steps described in “Saving the XML File” (below).

Adding New Values to Existing Perspectives

Once perspectives exist on a GRC instance, you can use Data Migration to add new values to them (although you cannot update existing values). First, export perspectives to which you want to add values; this creates an XML file to be edited. Add values to that file. (You will use the “Incremental Load” option to import the file to the same instance from which you exported it, because the Incremental Load option matches on encrypted IDs in the XML file.)

1. Log on to GRC. In its Navigator, select Setup and Administration in the Tools menu, and then select Data Migration among the Module Management tasks.
2. Click the Create Import Template button.
3. In a Create Import Template pop-up, choose the “With Data — Perspectives Only” option, and click the OK button.
4. GRC generates an XML file. Save it to your machine and open it.
5. Follow the procedure described in “Adding Values” (page 3-2) to add values to existing perspectives.
6. Save the file. Follow verification steps described in “Saving the XML File” (below).

Saving the XML File

When preparing the XML, be sure of the following:

- Render the `Persp_Type_Code` in capital letters with no spaces.
- NAME values cannot exceed 150 characters.
- Be sure all required values are populated. (Each column header declares whether a value is required.)
- Be sure all values respect the data required type. (Each column header defines the data type.)
- If perspectives have user defined attributes (UDAs) these may need to be populated.
- Avoid using any special characters, including carriage returns.

- Be sure there are no duplicates in the NAME and ID columns in all the worksheets.
- Remove any formatting or formulas you may have added to the worksheet.
- Remove all data filters, if any, from each worksheet.
- Be sure the template is saved as XML Spreadsheet (2003 Excel) or XML Spreadsheet 2003 (*.xml).

In addition, consider the following suggestions:

- Take a backup of the database just prior to running the import process and after all the setup and configuration is complete. This provides the ability to restore the instance and back out the imported data if the data load is not to your satisfaction.
- It is good practice to make a copy of the XML file generated as a backup before adding or changing the data within it in.
- After importing any new perspectives, ensure desired objects such as model, control and result have been associated.
- Ensure that a user is defined to have access to view all the imported data.

Importing the Perspective File

To run the import process:

1. Log on to GRC. In its Navigator, select Setup and Administration in the Tools menu, and then select Data Migration among the Module Management tasks.
2. In the Available Modules grid, select the CCM module. Then click the Import Data File button.
3. In an Import File window, click the Browse button, and navigate to the location of the import file. Select the file, so that its name appears in the field to the left of the Browse button.
4. In the Import File window, select an import method:
 - Select Initial Load if all data contained in the import file is new to the module (even if other perspective data already exists in the module).
 - Select Incremental Load if the import file contains any records that add values to perspectives already existing in the module. (The file may also contain data that is new to the module.)
5. Click the Import button. A message presents a job number. Note the number, then close the message (click on its OK button).
6. Navigate to the GRC Manage Jobs page. (Select Manage Jobs among the Setup tasks in the Navigator.)
7. In the Manage Jobs page, locate the row displaying the job ID you noted in step 5. In its Message cell, click on the Job Completed link.
8. A Job Detail window opens. In it, click on the Job Results link.
9. Review import statistics, including the number of imported records and validation errors. (If validation errors occur, no data is imported. You would need to correct the errors in the import file, then perform the import once again. You can export validation errors to Excel so that correcting the import file is easier.)

Create Models and View Results

You may decide to load the transaction models provided by Oracle, or create your own. By doing so, you will have a number of analysis models to be reviewed with appropriate business owners, and compared against the company's goals for governance, risk, and compliance. It will probably be necessary to use a combination of delivered models and new models you create and edit.

During this phase of implementation, you must consider all available features of the application to assist with your GRC goals, the transaction controls you might require, and the users who will work with Enterprise Transaction Controls Governor. Consider the following:

- If you plan to deploy controls, defining a model to create a control is a required step.
- Models may be beneficial for your internal and external auditing requirements. Auditors can be granted access to the Manage Models page to perform some of their own analysis without disturbing the controls you have in place.
- Evaluate the main differences between models and controls to determine if the model will eventually be deployed as a control:
 - Model results generated during analysis represent a snapshot in time, or temporary results, because they are replaced each time the model is run. Control runs track permanent results (known as incident results) that cannot be deleted and require a more formal analysis and remediation process.
 - Controls contain additional criteria that models do not, such as status, priority, result investigator, and comments.
 - Because models are used as part of control setup, or as an analysis tool by auditors and business owners, models can be deleted by users with appropriate access, but controls cannot.

At this point, you should have a good idea of the GRC or business-performance goals of the company and know what areas of the business should be focused on. Reviewing each model and its content is necessary to ensure that the goals of the company are being met. There are several ways to approach defining models. A common approach is outlined in the following steps:

1. Identify GRC goals of the company.
2. Load the set of prebuilt models.

3. Hold workshops with subject-matter experts (SMEs) to define and review models.
4. Create or edit models as needed.
5. Generate and analyze the data results for model.
6. Perform any initial remediation where possible.
7. Validate and refine models.

(This chapter contains references to more detailed instruction in other user guides.)

Import Model Content

A model is available to those users whose data roles specify perspective values that match values assigned to the model.

When you import transaction models built by Oracle, they are assigned values for two system perspectives: For a CCM Type perspective, the value is “Transaction,” and for a Business Object perspective, values correspond to the business objects used by the model. When you select a datasource for each of these models, a value corresponding to your selection is assigned for a third system perspective, Datasource. Thus each imported model is available to users whose roles specify matching values for the CCM Type, Datasource, Business Object, and User Defined Object perspectives. You may assign values for other perspectives to secure these models further.

Create Models

You will probably find the need to create new models to have sufficient coverage of your company’s GRC goals. You could start with one of the prebuilt models and edit it as a new model, or create a new model from scratch. Models can be created at any time, and their logic modified or altered to arrive at the desired rules and data attributes necessary to assist you in identifying and evaluating suspect data in your transaction system. This becomes even more important if the model is to be deployed as a control, because the model logic and result display (attributes) for a control cannot be changed.

To create models efficiently, it’s important to understand how ETCG synchronization works. You have two options:

- In the Manage Transaction Models page, you can select a model and synchronize the data it uses. However, this process loads data only for business objects (cited in the selected model) that have never been synchronized before. So this synchronization option enables you to add new objects as you create or edit a model, and then load the data you need to test that model. You might, for example, edit a model, adding a business object to it; you would synchronize it from the Manage Transaction Models page only if the new object had not already been used in a model that had already been synchronized.
- In the Manage Application Datasources page (among the Setup and Administration tasks), you can select a datasource and run synchronization. The job applies to all business objects used in all models (and controls) configured to evaluate risk in the datasource you’ve selected. It loads data for business objects (and

their relationships) that have not yet been synchronized, and for new or revised records in previously synchronized business objects.

In either case, the synchronization job is queued in the Manage Jobs page (among the Setup and Administration tasks). You can check the status of the job there.

There are several key things to consider when defining models:

- Select all the necessary business objects.
- Use the right datasources.
- To perform initial data and control-requirements testing, attempt to “over-filter” at first — define model filters so that results are limited to a manageable number of rows.
- For complex models, consider whether you need to limit the amount of time spent on any one filter during model analysis. If so, set an Enforce Allocated Analysis Time per Filter feature in the GRC Properties page (see page 2-2). By default, it applies to all models, but you may disable it for individual models that do not require it as you create those models.
- Select only the most important attributes in the Result Display. (An attribute is an individual piece of transaction data owned by a business object — for example Supplier Name in the Supplier business object.) The selection of attributes directly impacts the amount of suspect data rows that might be returned.

For example, you may select the Purchase Order ID or the Line ID attribute from the Purchase Order business object. The former would return far fewer results for analysis, because suspect data would be aggregated to the header level rather than to the individual line/detail rows that make up the purchase order.

See the use cases in the appendix of this document to refer to various model-definition examples. Also see “Creating a Transaction Model” in the Creating and Managing Models chapter of the *ETCG User Guide*.

Business Objects

When defining transaction models, select one or more business objects related to the transaction data in your source system that you wish to analyze. (Each user’s data roles determine the business objects to which the user has access; other business objects are not available.)

If selected objects are logically unrelated, a warning message indicates this as you attempt to save the model. In many cases, you may find only one or two business objects are necessary to analyze and research suspect results. As an example:

- When you use the Payables Invoice business object, include the Supplier business object to use the Supplier Name attribute.
- When you use the Payment business object, it already contains the Supplier Name attribute and does not require the additional Supplier business object.

Many delivered business objects are common across datasource types (platforms), but some are platform specific. Additionally, within a business object that is common across platforms (for example, PeopleSoft and EBS), there can be both common attributes and platform-specific attributes. As an example, a Business Unit attribute

is specific to a PeopleSoft transaction, whereas attributes like ID and Name can be common in the business object.

***Note:** When your organization requires business objects or attributes that are not available, contact Oracle to learn how to extend the delivered content.*

Datasources

In general (excluding any customizations) the current release of ETCG supports the following datasources:

- Oracle E-Business Suite releases 12.1 and 11.5.10.2 are delivered integrations that include adapter and metadata.
- PeopleSoft Enterprise Financials 9.1+ (that includes 9.1 and 9.2) is a delivered integration that includes adapter and metadata.

***Note:** For PeopleSoft 9.1+, the adapter and metadata are supported only against datasources that use an Oracle database.*

- Grc, which is used in conjunction with the User and Access Entitlement business objects, as well as user defined objects. (The datasource basically points to itself to leverage access-oriented object information stored in GRC.)
- XLS datasource, which is used in conjunction with spreadsheets you may have leveraged to create your own custom objects.

It is not necessary to define either the Grc or XLS datasources under the Manage Application Datasources page. These are system-delivered datasources that appear as options in your Create Transaction Model or Edit Transaction Model page.

After you select business objects as you create a new model, select datasources for the model — click the Manage Datasource button on the Create Transaction Model page. (Each user's data roles determine the datasources to which the user has access; other datasources are not available.)

It is imperative that you select datasources before you begin to work in the Model Logic and Result Display regions, because some attributes are platform-specific. Selecting a datasource exposes the common and platform-specific attributes available for the datasource.

***Note:** Select a datasource to be used as the ETCG default in the Manage Application Datasources page under Setup and Administration. This setting will automatically apply the default datasource and display the available attributes when business objects are added to new or revised models.*

Model Logic

As you create an ETCG model, you construct “filters,” each of which defines an aspect of risk and selects transactions that satisfy the definition. At its most basic, a filter consists of an attribute, a “condition” (a mathematical or other operator), and usually a third term. There are three filter types: standard (general), function, and pattern.

Standard filters are the most flexible and frequently used. They support all combinations of conditions in conjunction with objects, attributes, and values.

Understanding Model Logic for System-Generated Objects

In special cases, one or more standard filters may create a “system-generated object” — a set of return values that may be used in subsequent filters as if it were a business object. Such a filter may specify an attribute, the Equals condition, and, as the third term, the same attribute. Or it may specify an attribute and the Similar or Similar to condition, in which case the filter checks each value of the attribute for similarity to other values of the same attribute.

The return records are organized into groups. One group comprises transactions in which the attribute equals a particular value, or satisfies a definition of similarity in a particular way. Another group comprises transactions in which the attribute equals a distinct value, or satisfies the definition of similarity in a distinct way. And so on.

For example, if you want to identify duplicate invoices by supplier, but with different invoice dates, you might create the following three filters:

- Filter 1: The Supplier ID attribute of the Payables Invoice business object equals itself (the Supplier ID attribute of the Payables Invoice business object).
- Filter 2: The Invoice Number attribute of the Payables Invoice business object equals itself (the Invoice Number attribute of the Payables Invoice business object).
- Filter 3: The Invoice Date attribute of a system-generated object, called “Equals [Payables Invoice.Supplier ID AND Payables Invoice.Invoice Number],” does not equal itself (the Invoice Date attribute of the system-generated object).

The first two filters create the system-generated object cited in the third filter. Each of this object’s groups comprises records with common supplier ID and invoice number. The third filter selects records for each invoice (in each group) in which dates vary.

Note that among the values for a given attribute, one (or more) may not equal any other. (In the example, a one-time-pay supplier may exist only once.) When a filter sets an attribute equal to itself, it does not return such “single-member records.” It is important to keep this in mind as it relates to your business requirements for the model, and how you use the system-generated object in subsequent filters.

Note also that in the example, the third filter places an attribute of an object both on the left and right of the Does not equal condition (it uses the Does not equal condition to compare an attribute to itself). This is possible only if the object is a system-generated object. You cannot use the Does not equal condition to set an attribute unequal to itself if the attribute belongs to a delivered business object or a custom object.

To review an example, see Use Case 8 on page A-10.

Other Model Logic

A function filter applies an aggregating rule to groups of attribute values; it may accept groupings created by a user-defined object or create groupings itself. Functions include Sum, Average, Count, Rank, Inclusive, and Exclusive. For example, you can group on the Supplier Name for the Payment object, sum the Payment Amount values for each supplier, and return records in which the sum is greater than a defined value.

Pattern filters are statistical algorithms that identify baselines and anomalies in data. Two delivered patterns are available: Mean and Benford. Pattern filters can be used

in conjunction with other filters. If at first your pattern model does not return any graph data points/suspect transactions, try lowering threshold numbers.

By default, each filter you add to a model has an AND relationship with other filters. You can drag general or function filters alongside one another to create OR relationships.

The “Group Filters” option is used to combine filters into one logical element.

Conditions

For the general and function filters, available conditions vary depending upon the attribute selected for the filter.

The complete list of conditions includes: Less than, Less than or equal to, Greater than, Greater than or equal to, Equals, Does not equal, In, Not in, Between, Is blank, Is not blank, Different than, Contains, Does not contain, Related to, Is not related to, Similar, Similar to, Starts with, Ends with, and Expresses. Except for the Is blank, Is not blank, and Similar conditions, additional criteria are required, such as a value or an object and its attribute.

Examples of their usage include:

- Use “Greater than” with two attributes like Amount Paid and Invoice Amount (such as Amount Paid Greater than Invoice Amount). Other simple conditions include “Greater than or equal to,” “Less than,” “Less than or equal to,” and “Between.”
- Use the “Contains” condition in conjunction with text attributes. As an example, define the filter for a Description attribute that includes value *Miscellaneous*. You cannot enter a list of values (as you can for the “In” condition); rather, the logic identifies records that include the value entered in the filter. This value may be case sensitive, if a Match Case advanced option is selected.
- “Does not contain” is the opposite of “Contains.” As an example, define a filter in which the Invoice Source attribute does not contain the value *recur*, to ignore any recurring invoices. This value may be case sensitive, if a Match Case advanced option is selected.
- Use “Similar” to create groups of records, in each of which the values of a single attribute are similar. Use “Similar to” to create groups in which the values of two attributes are similar (a value of either attribute may be similar to other values of the same attribute or to values of the other attribute).

In most cases, similarity is measured in percentage. For example two text strings are 50 percent similar if half their characters are duplicate. (Generally, specify 80 percent or greater similarity to avoid large numbers of false positives.) Dates are similar if they fall within a specified number of days of one another.

Clear an “Include unique data rows” advanced option to exclude records that are not similar to others. Select the option to include dissimilar records, each of which in effect creates its own, one-record group.

A record may qualify for more than one group. By default, however, it belongs only to one group — that in which its similarity to other members of the group is

strongest. You can set a “Generate Results for Similar Groups” advanced option to have records belong to all groups for which they qualify.

- Another way to use “Similar to” is to create a link, or a relationship, between two attributes of objects that are not otherwise related. This is especially useful for the analysis of custom objects created from external data. (To review an example, see Use Case 5 on page A-7.)
- The “Related to” condition is available only when a user defined object or a custom object is selected as the first object in a model filter definition. By default, a user defined or custom object has no relationship to other objects. The “Related to” condition establishes a relationship between an attribute of the user defined or custom object and an attribute of another object. (To review an example of how this condition is used, see Use Case 9 on page A-12.)
- Use the “Starts with” or “Ends with” condition in conjunction with text or numeric attributes. As an example, define the filter for a Name attribute that “Starts with” the value *Super*. This value may be case sensitive, if a Match Case advanced object is selected. As another example, define a filter for an Amount attribute that “Ends with” 0. This value can ignore values after the decimal if an “Ignore after floating point” advanced option is selected.
- You can use the “Equals” condition with any attribute type. It returns records in which a value of the attribute is equal either to a value of another attribute or to a specific value.

A filter may set an attribute of a business object equal to itself (cite that business object/attribute pair both the left and right of the “Equals” condition). For example, to identify duplicate (same) invoice numbers, create a filter in which the Invoice Number attribute of the Payables Invoice business object equals itself. This creates a system-generated object that is available for use in subsequent filters. (To review an example, see Use Case 8 on page A-10.)

- You can use the “Does not equal” condition, like the “Equals” condition, with any attribute type. It returns records in which a value of the attribute does not equal either a value of another attribute or a specific value.

If you have used an “Equals” filter to create a system-generated object, you can use “Does not equal” to set an attribute of that object unequal to itself (create a filter in which that attribute appears both to the left and right of the “Does not equal” condition). This would uncover situations in which the values of one (or more) attributes are the same, but the values of another are not. (You cannot, however, place an attribute of a business object both to the left and right of the “Does not equal” condition. Instead, a system-generated object is required.)

For example, you may want to find records in which payables invoice numbers match, but operating units differ. One filter would use the “Equals” condition to create a system-generated object — Equals[Payables Invoice.Invoice Number]. A second filter would cite the Operating Unit ID attribute of that object on both the left and right sides of the “Does not equal” condition. (To review an example, see Use Case 8 on page A-10.)

- Use “Different than” to analyze data rows not similar across two attributes, in the same or a different business object, based on a percentage of difference. (You cannot cite an attribute of a business object both before and after this condition.

Instead, you must use an attribute of a system-generated object. Such an object would be generated by a preceding filter that cites an attribute of an object both before and after the Similar, Similar to, or Equals condition.)

- Use “In” to identify numbers or strings that appear in the selected business object attribute. It is treated as an equals on the value, and is not used to identify values that contain the number or string. As an example you might want to include only invoices with a Payment Status attribute of partially paid or fully paid, represented by *P* or *Y*, respectively. Separate multiple values for the “In” condition with a semicolon (for example, ‘P;Y’). Check the Match Case advanced option of if it is appropriate for the values you enter.
- “Not in” is the opposite of “In.” It identifies numbers or strings (separated by semicolon) that are ignored in the results. For example, you might use it to exclude European currency types from the results — you might enter ‘EUR;GBP’ as the value. Check the Match Case advanced option of if it is appropriate for the values you enter.
- Use the “Is not related to” condition between two related business objects to identify records that are available in one, but do not exist in the other. For example, if an invoice has never been on hold, you would not expect the invoice to appear in the hold object. The filter would be defined as “Payables Invoice Is not related to Payables Invoice Hold,” and the results include only records that have never been on hold.
- Use the “Expresses” condition to reference a dictionary of words that may exist in a string attribute of a delivered business object or another custom business object. The Expresses requires a custom business object that uses words (a type of dictionary) that is compared against another string attribute to identify records where the word exists.
- Use one of six functions — Average, Count, Sum, Rank, Inclusive, and Exclusive — in a function filter. For example, specify the Remit to Supplier Name of the Payables Invoice business object to group invoices by supplier. Then use the Sum function to add up the invoice amounts for each supplier.

Advanced Options

As part of the general and function filter types, there is an Advanced Options expandable region. (Pattern filters do not support the Advanced Options region.) Depending upon the condition being used, the options include:

- Include unique data rows, which is used in conjunction with the Similar and Similar to conditions.
- Similar Word, which is used in conjunction with the Similar and Similar to conditions for a standard (general) filter on a string type attribute.
- Generate Results for Similar Groups, which is used in conjunction with the Similar and Similar to conditions.
- Apply condition across the same data row, which can be used when the Similar to condition specifies two attributes that belong to a single business object.
- Over interval, which applies only to a function filter using a date attribute. (To review an example, see Use Case 7 on page A-9.)

- Display in Descending Order, which applies only to a function filter that uses the Rank function.
- Generate Subgroups is available to a function filter that calls a system-generated object, and is typically used with the Count function. It determines how the filter uses the object's groups, and subgroups of them, to report results.
- Enable synonyms, which is used in conjunction with the Equals and Contains conditions for a standard (general) filter on a string type attribute.
- Match case, which forces the value entered to recognize case sensitivity.
- Ignore leading and trailing spaces, which ignores spaces.
- Time component options to date attributes for standard (general) filters include:
 - Include time with date to consider both date and time while looking for matches in date values.
 - Apply range of time to find matches only for records that fall within the defined time range.
 - Apply day of week to find matches only for records worked on specified days.

Note: Time for this advance option is dependent on availability from the database source. The default for missing time when selected is 00:00:00.

- Ignore after floating point, which ignores values after the decimal point when the Begin with condition is used on an amount attribute type.
- Partial Match, which is available to filters that create system-generated objects. These include function filters; similar and similar to filters; and equals filters, when the business object and attribute are identical on both sides of the condition. The sets of data identified by the filter perform a full match, but a partial match option is available. See “Using Filters That Return Sets of Values” in the Creating and Managing Models chapter of the *ETCG User Guide*.
- Include Empty Row is used with the Expresses condition to return all attribute values, not only those that match terms included in an Expresses dictionary (a custom object created for use with the Expresses condition).
- Exclude, which applies to both general and function filters.

Designing Models

As you create or edit models, you determine the order in which filters are to be evaluated. Typically, you arrange them so that results returned by one filter feed the next. For example, a function filter may group invoices by supplier and calculate the average invoice amount for each supplier. It may be preceded by a filter that selects the invoices you want to consider — say, those issued within a certain date range. Even so, other considerations may enter into how you arrange filters or otherwise design models. Here are some simple guidelines:

- For better performance, apply simple filters first. These filters can include those that use fixed values for purposes such as defining date ranges (for example, a date greater than a fixed value or between two fixed values), establishing thresholds (for example an amount greater than 10,000), or identifying types of transactions (for example credit invoice types).

- Consider using as your first filter one that would create the smallest dataset for subsequent filters to analyze. For example, your first filter might apply a relative value on a date attribute to select only the most recent month's worth of data. As subsequent filters are processed, the more they narrow the dataset further, the better the model will perform..
- As discussed elsewhere, you can use the Equals condition to create a system-generated object (set an attribute of a business object equal to itself). If you want to create more than one of these filters, and they call the same business object, place them in sequence (if your model logic permits) to create a single, combined system-generated object. This increases efficiency and reusability.
- Function filters, or filters that apply the “Related to” condition to user defined objects, are best applied after simple filters.
- If a filter uses the “Similar” condition, place it last (if your model logic permits).
- Consider a step process to prototype your model as you add objects and filters. Also, consider building the model against a small dataset (for example, you could filter for a date range or for a specific range of values). With each step, you can use results to verify model design. If you build an entire model at once, and results are not what you expect them to be, you will have to troubleshoot the design and may end up removing, adding, and re-validating logic to identify the issue.

Result Display

In the Result Display region of the Create Transaction Model page, select attributes you want to include in your result set. Your selections can affect performance. Some attributes will cause a model to return many more records than others.

Some attributes exist only as calculations performed by the model. Examples include groups formed by a filter that sets an attribute equal or similar to itself, or the sum, average, ranking, or count in a function filter that performs one of those calculations. Although they are not visible in the Result Display region, they are included automatically in model results.

You must actively select any other attribute to include it among the model results. (Even those that define the model logic are excluded from results unless you specifically select them as result attributes.)

Your selections determine the “granularity” of results. For example, a function filter may group invoices by supplier, then calculate the sum of invoice amounts for each supplier. The sum, a calculated attribute, is included automatically in the result set.

You may choose the Invoice Amount attribute of the Payables Invoice business object as a result attribute. (Even though the model logic uses it to calculate sums, it is not included automatically.) If so, results include a row for each invoice, which is necessary so that individual amounts can be reported. Rows would be grouped by supplier, and each would also show the sum for the supplier’s invoices (and values for any other attributes selected as results). If you exclude the Invoice Amount attribute, however, results include only one row for each supplier, reporting the sum of that supplier’s invoices.

If you intend to deploy a model as a control, assign a key attribute as the first in the list. This value appears in an Incident Information field of the Manage Results page to facilitate analysis, sorting, filtering, and reporting of generated incidents.

Select Perspectives

Select perspective values that categorize and secure the model. A perspective may be configured to be required for an object. If so, a user cannot save the object without selecting a value for the required perspective. (Each perspective hierarchy becomes available for use with an object only after being associated with that type of object in the Manage Module Perspectives page. If no hierarchy has been associated with the model object, no Perspectives panel appears in Create Transaction Models page.)

When perspective values are assigned to objects, only users whose data roles are associated with matching perspective values can gain access to those objects. By default, Datasource, Business Object, CCM Type, and (potentially) User Defined Business Object system perspectives apply to each model, and are inherited by controls developed from a model. (See “Managing Perspective Hierarchies” on page 2-3.)

Create Custom Business Objects

At times, you may want to use a custom object — data from a source other than those registered as business objects within GRC. A custom object can be used by itself, with delivered business objects, with user defined objects, or in conjunction with the Expresses condition.

You would create a custom object as an .xml file and import it into ETCG. Most likely, this would involve exporting data to some initial format, such as Excel, potentially doing some data manipulation, and then saving that to the .xml file format. This is fully documented in the *ETCG User Guide*. However, it’s important to note that you must be sure you have properly defined data types in column headers, and you have removed all formatting from the document, before you convert it to .xml.

When the custom business object is imported, the user is prompted to assign a type, such as Financials or Procurement. This type is important, as it determines who can access the custom business object. For instance, if you assign the Financials type to a custom object, ensure first that you have a data role granting access to the Financials type. Otherwise, you will not have access to the custom object after you import it.

See “Using Custom Objects” in the Creating and Managing Models chapter of the *ETCG User Guide*.

Create User Defined Objects

A user defined object is a set of data returned by a CCM continuous control that is used as if it were a business object. Each column in the results returned by one of these specially configured controls serves as an attribute of the object generated from the control.

Either an access or a transaction control can generate the data set upon which a user defined object is based. However, once created, the object can be used only in a transaction model or control, which may cite any combination of user defined objects, custom objects, or seeded business objects.

A control can generate incidents, or it can provide data to a user defined object, but it cannot do both. The user who creates a control determines which purpose it serves by selecting an appropriate value for a Result Type field — “Incident” for a control that generates incidents, or “Dataset” for a control that supplies data to a user defined object.

When it is created, a user defined object has no join relationship to other objects. While defining filters in transaction models, you can use a “Related to” operator to establish a join relationship between an attribute of a user defined object and an attribute of a seeded business object, a custom object, or another user defined object.

You might need to create a user defined object for any of several reasons. Here are some examples:

- The user defined object can create datasets that you can reuse across many models. For example, you might create a Business (Operating) Unit object for which only ID and Name are required, or a Person object for only ID and Name.
- You may need to consolidate data that is not readily available in seeded business objects you want to use. For example, you may want to find invoices in which the payment term for a supplier differs from term defined in the supplier master. Although term names are required, the appropriate business objects use term ID values; a user defined object can supply the term names. (See Use Case 9 on page A-12.)
- You may use results generated by a dataset control (for example, calculated results from a function filter, such as a count or sum) to perform analysis in another model or control. For example, find invoices whose amounts are greater than the average invoice amounts grouped by an object.
- You may want to use a custom attribute whose definition requires information from more than one business object. For example, convert invoice amounts in multiple currencies to US dollars; to do so, multiply invoice amount by conversion rate, where Invoice Amount and Conversion Rate are attributes of distinct objects. (See Use Case 10 on page A-14.)

Remember that a part of the process of developing a user defined object is to create a model and deploy it as a control, and once you do, you cannot edit the control. As you configure the model, ensure that you select all the result attributes you need to provide useful data to other models (and controls) that will call the user defined object. As you deploy the control, make sure to set the Result Type field to “Dataset.” Finally, once the object exists, plan the order in which you run controls and synchronization jobs — the control that supports the user defined object needs to run before other controls that call the object.

Create and maintain user defined objects in a Manage User Defined Objects page. For more on the use of this page, see “Managing User Defined Objects” in the Creating and Managing Continuous Controls chapter of the *ETCG User Guide*.

View and Analyze Model Results

Use model results to audit transaction data, identify potential risk or fraud, and make corrections. Also use the model to define and test proposed controls.

Use the online view result grid to analyze the model data, or extract it to Excel to save your findings, perform further analysis, and distribute information to other users.

This phase allows you an opportunity to modify your models, their logic, and attribute requirements if you will use them as controls or user defined objects. If you intend to deploy a model as a control to track permanent incident results, also set up perspectives so that you can assign result investigators (see chapter 5).

You select the attributes for which a model returns result values. However, model results may include information beyond that provided by the attributes you select:

- **Function.** When a model uses a function filter, a column displays calculations returned by the function. For example, if a model filter uses the Count function, a column in the results displays the count value for each data record.
- **Interval.** A function filter may use a date attribute to sort records into groups. If so, an Over Interval advanced option may establish date ranges that define the groups. In this case, an Interval column reports the range that applies to each result. For example, a filter may use the Sum function to add values within each of four quarters, and the Interval column reports the quarter that applies to each sum.
- **Similar and Similar to.** If a filter uses the Similar or Similar to condition, a column displays the value that makes each record similar to another. It may, for example, be a three-character text string that occurs in each of two six-character values that are required to be 50 percent alike.
- **Equals.** If a filter uses the Equals condition to state that an attribute of a business object is equal to itself, this column displays the value for a given record that is equal to the value in another record.

If several filters use the Equals condition in this way, but appear one after another and cite the same business object, the equal values are concatenated into one entry in a single Equals column. Multiple Equals columns appear if multiple filters use the Equals condition in this way, but are not sequential, are in an OR relationship, or use different business objects.

- **Group and Grouping Value:** If a model uses a filter in which the Equals condition sets an attribute of a business object equal to itself, the Group field reports the business object and attribute cited in the control, and the Grouping Value field reports the common value of this attribute.

If a model uses a filter to find transactions with similar values for a specified attribute, the Group field displays the word *Similar* and the specified attribute, and the Grouping Value field displays the value of that attribute for a given incident.

If a model uses a function to calculate a value for a specified attribute across a group of transactions, the Group field identifies the calculation (count, sum, or average) and the specified attribute, and the Grouping Value field displays the calculated value for a given incident.

If a model uses a pattern to create a baseline value, the Group field displays the pattern type and the attribute upon which the pattern is based, and the Grouping Value field displays the baseline value.

- Incident Information. This value is the first attribute selected in the Result Display region when the model was built. It is key if the model is deployed as a control, because it can be used for sorting, filtering, and reporting in the grid. Choose a meaningful attribute as the first in list.

Note: *The additional columns displayed in the model results also apply to controls. They are displayed in the incident results.*

See “Viewing or Exporting Model Results” in the Creating and Managing Models chapter of the *ETCG User Guide*.

Assign Perspectives and Result Investigators

Before deploying any model as a control, you should evaluate your perspective and result investigator requirements. Think about who will be involved in the review process when incidents are generated and how to categorize your controls. (This chapter contains references to more detailed instruction in other user guides.)

At this point, you are just about ready to deploy your models as controls. Before you do, think about who will be involved in the investigation process when incidents are generated. You may need to perform some additional perspective configuration, so that you can assign perspective values to the controls you create, and so direct the incidents they generate to users whose roles specify matching perspective values.

Each control is assigned two sets of perspective values. One applies to the control itself, and the other applies to incidents the control generates. The control inherits the first set from the model upon which it is based (although you may add values to this set). You select the second set — the one that applies to incidents — as you create the control. (After the control is created, you can also edit either set of perspective values.)

Perspectives assigned to your controls allow you to filter those controls (and any incidents they generate) by the perspective values you define. For instance, if you have controls handled by certain regions in your company, it may make sense to create a new perspective called Region. In that perspective you may have values such as North America, South America, and Europe. It is possible, for instance, that you have different people in charge of investigating incidents for the violations that happen in the North and South American regions than you do in the Europe region. You may choose to deploy a similar control with different conditions focusing on specific operating units that fall within those regions.

Continuing with that example, you would then be able to apply different result investigators to each control. You may have an Internal Controls group in charge of reviewing controls in Europe and a different group in charge of reviewing controls in North and South America. Different result investigators could be created and assigned to the appropriate controls.

Another implementation approach might be to assign all incident results generated by the control to a “result manager,” who reviews incident results and assigns them to appropriate investigators. For instance, a result manager in charge of “Americas” might assign some incidents for that region to investigator Jsmith, and other inci-

dents to investigator Ataylor. This approach would require the result manager to have an Assign Incident Result privilege.

Yet another approach might be to set the result investigator to All Eligible Users. It would be up to the users to determine which incident results they own, and act on them. So even though Jsmith and Ataylor can both see the incidents, Jsmith knows which incidents he is in charge of, and Ataylor knows which incidents she is in charge of.

Manage Controls

Typically, a continuous control defines transaction risk and generates incidents (records of transactions that exceed the defined risk). A control may instead define a set of data that is incorporated into a user defined object, which may then be used in transaction models and controls as if it were a business object.

Incidents are considered permanent. As mentioned earlier, you use a valid model as the foundation to create a control that either generates incidents or generates a dataset for a user defined object. (This chapter contains references to more detailed instruction in other user guides.)

Create Controls

Select models that have been tested and refined before creating a control. The process of using a model to create a control behaves like a copy action; once the control is created, updates to the original model have no impact to the control. Model components (name, description, objects, logic, attributes, and perspectives) are copied into the control as the first step. The control then captures additional information such as priority, status, datasource, related controls, result management perspective assignment (result investigator), and the ability to add any comments to the control that you define. Once a control is created and updated, and analysis is run, permanent incidents are created.

After the control is run, you can update some control elements— such as priorities, perspectives, comments, and result investigator — one control at a time or en masse.

You can create a control from a defined model or pattern model. Note, however, that a pattern model generates graphic results, but when a control is generated from the pattern model, the graph is unavailable. Use caution in deploying a pattern model as a control; before doing so, perform extensive analysis with the model. When a pattern model is deployed as a control, one incident is created per unique row for all the rows underlying the data points in your graph. Incidents basically represent a single transaction from your ERP system. You could potentially end up with a high volume of incidents that might be hard to analyze and manage.

See “Creating Transaction Controls” in the Creating and Managing Continuous Controls chapter of the *ETCG User Guide*.

Assign Priorities

In the Priority field, enter a number that expresses the importance of the control (and related incidents) in comparison with others. You should establish a set of priority values and enforce consistent usage within your organization.

Select Datasources

As you create a control, select one or more datasources for it. (Even if this is to be the datasource already selected for the model from which the control is developed, you must actively select the datasource for the control.)

Select Result Type

In the Result Type field, select “Incident” to have the control generate incidents that are to be resolved in Result Management. Or, select “Dataset” if you are developing a control that will supply data to a user defined object (which may be used in transaction models and controls as if it were a business object).

Assign Perspectives

A perspective (once again) is a set of related values, and individual values may be associated with individual models, controls, or incidents. Each control may have two sets of perspective values: “Control Perspectives” values characterize and secure the control itself. These are inherited from the model upon which the control is based, although you can add to them while creating the control. “Result Management Perspective Assignment” values characterize and secure incidents the control generates; you select these values while creating the control.

Each incident inherits, from the control that generates it, values for the CCM Type and Datasources system perspectives. The assignment of other perspective values is optional, but can be very beneficial for the analysis and remediation of incidents. One can use these values for sorting, filtering, and reporting. In addition, they determine which users have access to the incidents (see “Assign Result Investigator,” below).

Assign Result Investigator

A “result investigator” looks into incidents and assigns a status to each that reflects what is done to resolve it. Initially, the control that generates a set of incidents also designates the result investigators for those incidents. Worklists alert investigators to the incidents they need to resolve (see “Managing Notification Configurations” on page 2-4).

The perspective values assigned to an incident determine the users who are eligible to serve as result investigators for that incident. Initially, each incident inherits perspective values from the control that generates it — not only values for the CCM Type and Datasources system perspectives, but also those selected as Result Management Perspective Assignment values for the control.

By default, the control selects, as result investigators, all users whose job roles include data roles with matching perspective values (and duty roles that authorize working with incidents). The user who creates a control may accept this “All Eligible Users” setting, or may select one among the eligible users.

Other Control Considerations

A control's status is Active (the default) or Inactive. If a control is inactivated after generating incidents, they are set automatically to a Control Inactive status.

You may also create comments regarding the control.

Run Control Analysis

You are now ready to run the analysis for your selected controls, to generate incidents and begin your formal remediation process. New incidents created during this process are assigned the status of Assigned.

Some additional information you should understand about the transaction control and the incidents it generates is as follows:

- Each incident created is assigned a unique identifier.
- Each incident contains only one transaction record.
- You must have appropriate data access to see the incidents in your Manage Incident Results grid.
- The Manage Incident Results grid displays some attributes from the transaction control logic that will assist you during analysis and reporting for remediation. They include Incident Information, Grouping, and Grouping Value. (Any additional columns outside these three are also generated in the incident results for filters like similar, similar to, function, interval on function, and equals across the same business object and attribute, but are included in the incident details and not available in the grid.)

See “Running Controls” in the Creating and Managing Continuous Controls chapter of the *ETCG User Guide*.

Manage Incidents and Remediate

Transaction analysis identifies transactions that meet the criteria of the deployed controls. These transactions are only suspect. They may or may not represent actual violations. Additional review and research of the results may result in any of the following conclusions:

- A transaction involves error or fraud. If so, other upstream controls should be employed to reduce the risk of the occurrence of such transactions in the future.
- A transaction was a known and accepted deviation from general corporate policy, and appropriate approvals and sign-offs were obtained.
- A transaction was acceptable in the context of its occurrence. This may be deemed a false-positive and may warrant the modification of the model logic.

If suspect transactions are deemed to be in violation of the control environment, then remediation steps are required. Involving the appropriate people during remediation is imperative. Remediation within transaction analysis is not the same as it is for other types of violations, such as segregation of duties (SOD). Transactions cannot be removed from the system — they will continue to exist. Remediation comes in the form of identifying appropriate preventive and upstream controls and potentially entering in adjusted transactions and modifying previously submitted reports.

You can approach remediation in various ways; some are outlined below. These approaches facilitate analysis and remediation, but may need adjustment based on your company's goals for governance, risk, and compliance.

See “Viewing Controls or Incidents in Summary” in the Resolving Incidents chapter of the *ETCG User Guide*.

Remediation Flow

The transaction analysis and remediation lifecycle incorporates the following four high-level phases, which represent the various areas of analysis and remediation opportunities as part of your GRC goals.

Define Models and Logic

Creating and working with models provides you the ability to perform auditing requirements, testing of delivered content or new models, and transaction analysis to

identify risk and perform some initial remediation. Models can even be used for some potential housekeeping or maintenance of transaction data or transaction setups.

Modify Models

During the model-modification phase, edit your models to prepare for creating controls. You would probably want to re-run a model and analyze the data results to validate, and perform any final logic changes or remediation prior to signing off with users and deploying as a control to track permanent incidents.

Deploy Controls

When creating and running controls, assign priorities that might designate higher-risk areas to focus on. Assign perspectives to categorize and secure incident results generated by the transaction control. Based on these perspectives, select an eligible result investigator to be sent worklists when new incident results are generated.

Remediate

The more formal remediation process is performed under Result Management — Manage Incident Results. By sorting and filtering in the online grid, and generating necessary reports to assist in the analysis, users can take action against the incident results created when the transaction control is run.

Remediation Checklist

The following checklist provides a more detailed list of where remediation steps can be performed across the application processes for ETCG. When you are ready to begin remediation, log on to ETCG and work through these steps. Where you begin your remediation in this checklist depends on whether you are in initial evaluation (identifying models and reviewing initial suspects), or you have controls deployed and are analyzing the incidents they generate. (This chapter contains references to more detailed instruction in other user guides.)

Define Models and Logic

- ☐ 1 Run transaction analysis for *all* key models (defined and pattern).

Loading all the prebuilt models, creating new models in critical business processes and activities, and running transaction analysis will provide a quick view of your company's overall transaction health and provide a basis for beginning analysis and prioritization.

If there are areas of high risk, and yet specific defined models cannot be identified, running some pattern analysis on the related business objects may provide enough information to start.

Make sure models are structured properly. If initial results generate significant volume, the logic of your model may not be fine-grained

enough. For example, it's better to focus on higher-dollar-value items first, so perhaps the value of your amount threshold is increased.

See “Creating a Transaction Model” in the Creating and Managing Models chapter of the *ETCG User Guide*.

- ☐ **2** Evaluate highest risk, priority, and volume.
Focus on areas with the highest risk, priority, and volume. Depending on your company's GRC goals, determine focus areas to begin analyzing. Focusing on key areas allows you to close up your greatest areas of risk and reduce the possibility that additional transaction violations will occur in the future.
- ☐ **3** Investigate transaction results and source.
Just because a transaction record is generated based on your model logic, doesn't necessarily mean there is a problem in your environment. Remember that these are just suspect transactions and therefore further investigation is required.
- ☐ **4** Analyze using on-line tools and distribute.
Use on-line tools to analyze results; for example, export model results to Excel or other spreadsheet applications. These tools enable users to perform complex analysis using functions and pivot tables, and share the reports created.

Various users should review and act on the results that are generated. Generally, for example, different business owners are interested when different models are violated. Since a model relates to specific business objects, assigning the results to these owners should be straightforward.

See “Viewing or Exporting Model Results” in the Creating and Managing Models chapter of the *ETCG User Guide*.

Modify Models

- ☐ **5** Run and re-analyze transaction results.
After a period of time once the necessary upstream controls have been put in place, review the transactions as of that point in time forward. This will provide the necessary data points to determine if additional remediation activities are necessary.
- ☐ **6** Validate that models are ready to deploy as controls.
Perform many of the same steps identified in the first business process area – Define Models and Logic.

Once you are satisfied with a model to be used as a control, you are ready to deploy the control to use the more formal tracking of transaction risks.

Deploy Controls

- 7 Assign and update priorities, perspectives, and result investigators.
Assign the appropriate result investigators who are involved in the remediation process. Assigning standard priorities and relevant perspective values will help facilitate users' remediation of incident results when the control is created and run.
See "Creating Transaction Controls" in the Creating and Managing Continuous Controls chapter of the *ETCG User Guide*.
- 8 Monitor control and incident result status.
Use online tools to monitor the remediation process of your controls:
 - If GRCI is implemented (and your roles permit you access to it), you may find an Intelligence tab in both the Manage Controls and Manage Incident Results work areas. There, graphical analysis and drill-down reports are available.
 - Under the Manage Controls task, there is a Controls Dashboard that provides graphs to assist in your control analysis.
 - Under the Manage Incidents task, there is an Incidents Dashboard that provides graphs to assist in your incident analysis.
 - Use the Manage Controls grid to sort, filter, and report.
 - Use the Manage Incident Results grid to sort, filter, and report.See the Resolving Incidents chapter of the *ETCG User Guide*.
- 9 Extract control and incident data or run reports.
For transaction controls and their incidents, the following is a list of available reports provided in GRC:
 - Control Detail Extract Report
 - Incident by Control Summary Extract Report
 - Incident Summary Extract Report
 - Transaction Incident Details Extract ReportThese reports are also available via Reports Management.
See the Reporting chapter of the *GRC User Guide*.

Remediation

- 10 Review, analyze, and update incidents, including status.
Use the grid under Manage Incident Results to perform initial online analysis such as sorting, filtering, and reporting. Update one or many incidents at the same time to make changes to status, perspectives, or result investigator assignments, or to add comments or attachments.
The following are the status options:
 - Assigned. This is auto assigned for further review when control incident is created.

- Remediation. Select this to indicate additional follow-up action is required.
- Accepted. Select this to indicate no follow-up action is required.
- Resolved. This is used as a follow up state to “Remediate.” No further action is necessary.
- Control Inactive. This is not available for selection, but is auto assigned if the Control is inactivated or a datasource is removed from a Control.

Generally, incidents at the Assigned or Remediate status are considered pending, and those at the Accepted, Resolved, or Control Inactive status are considered closed (although this can depend upon whether an incident is “saved” or “submitted” as it is assigned a new status).

See the Resolving Incidents chapter of the *ETCG User Guide*.

☐ **11** Evaluate highest risk, priority, and volume.

This is the same as Step 2 above, except you may edit and add comments to transaction incidents, and they are tracked and recorded and cannot be deleted. Again, focus on areas with the highest risk, priority, volume, and GRC goals to determine where to begin analyzing. Focusing on key areas allows you to close up your greatest areas of risk and reduce the possibility that additional transaction violations will occur in the future.

To assist you in identifying higher risk and priorities, access the Intelligence tab (if available) for graphical analysis and drill-down reports.

☐ **12** Extract control and incident data or run reports.

For transaction incidents, you will want to leverage the same incident reports mentioned in Step 9 above, or continue to use the online grid to perform some sorting, filtering, and analysis.

See the Reporting chapter of the *GRC User Guide*.

☐ **13** Investigate transaction incidents and propose/perform changes.

Just because a transaction incident is generated, this does not mean there is a problem in your environment. Set incidents that do not require further investigation to Accepted status. Set incidents that are suspect and require further investigation to Remediate status.

When the Manage Incidents Results grid is refreshed, only pending incidents (incident results in an In Investigation state) are displayed, to minimize the amount of data you work with in the grid. You can still access all incident results by changing your search criteria.

As mentioned earlier, transactions cannot be removed from your ERP system. Therefore, remediation primarily comes in the form of identifying appropriate preventive and upstream controls and potentially entering in adjusted transactions and modifying previously submitted reports.

It is possible for an incident to be closed automatically by the system because its risk logic no longer applies. Suppose, for example, that a control contains a filter that states, “Invoice status not equal to Canceled.” The control generates an incident for a particular invoice, but that invoice is subsequently canceled. When the control is run again, the incident is automatically closed.

Appendix

This appendix provides additional information on ETCG, such as troubleshooting tips, use cases, and lists of delivered business objects and pattern mappings.

Troubleshoot Custom Objects (xml)

From the Create Transaction Model page, you can import custom objects as .xml files. If a custom object import fails, consider the following:

- Determine whether the import file format is correct (for formatting requirements, see the “Using Custom Objects” section of the *ETCG User Guide*). For example, column headers must not include spaces, since each is the name for an attribute.
- File size may impact your ability to import. If you are working with a large amount of data, consider importing a zip file version of the xml document.
- In addition to ensuring that you’ve satisfied the formatting rules listed in the *User Guide*, consider removing any font-related formatting as well, such as colored cells and bold text.
- In the event your custom object indicates a successful import, but no attributes appear for the object, double check any date format. For example, edit one date cell to ensure that it uses the supported format (*mm/dd/yyyy*), and use the Format Painter to apply that format to the other date cells.
- When you refresh an existing custom object, you may add or delete rows. However, use the exact format of the original. Do not add columns. Do not change attribute names or types (header-row information). If you need to make such changes, you are effectively creating a new object. In this case, delete the old one first, or give the new one a name that distinguishes it from the old one.

Researching Run Errors

When a GRC job generates errors, system or database administrators may consider the following:

- Consult grc.log, which shows whether errors are environment- or SQL-related. (Open the log in a web browser at <GRC URL>/log/grc.log.)

- If the log suggests that an error is a SQL problem, paste the SQL into a SQL editor, and see if it brings results.
- Check the admin log files in the WebLogic server (if your GRC instance runs with WebLogic middleware). To see the admin logs from a web browser, create a subdirectory called adminlogs under the grc log folder. Create “symlinks” from adminlogs to this folder. Then the URL is <GRC URL>/log/adminlogs/<admin log files>.

Use Case 1: Maintenance of Operational Data

The following two examples show how you can use ETCG and its delivered business objects to maintain operational data.

Similar Supplier Names

Your ERP datasources may have rules to verify that supplier naming conventions do not permit duplications or similarities. An ETCG model can also check for excessive similarity in the values for one or two attributes that you select. This use case uncovers supplier names that are too similar.

Start by creating a new model and assigning a unique name and description.

This model uses the Supplier business object and evaluates data from the delivered PeopleSoft Financials 9.1 datasource. Criteria to be configured in the Manage Data-source window include:

Business Object Name	Datasource Name	Datasource Type <display>	Version <display>	Default <display>
Supplier	Name of PeopleSoft datasource	PeopleSoft	9.1	true/false

Define a filter that uses the Similar condition to analyze a single attribute, Supplier Name. A higher Percent Similar value reduces the number of data rows the model returns, but requires a closer name match.

The filter collects records into groups, in each of which records meet the standard of similarity in a distinct way. A record may qualify for more than one group, but by default (and in this example) a Generate Results for Similar Groups advanced option is unchecked, and so each record belongs only to the single group in which its similarity to other members is strongest. If this option were selected, each record would belong to all groups for which it qualifies.

Also by default, an Include Unique Data Rows advanced option is unchecked, so results include only records that are in fact similar to other records. If this option were selected, the model would return every supplier name; each that was not similar to others would, in effect, form a “group” with only one member.

The filter criteria include:

No.	Field	Common
Filter 1	Object	Supplier
	Attribute	Supplier Name
	Condition	Similar
	Percent Similar	95%
	Advanced Options: Include unique data rows	<unchecked>
	Advanced Options: Generate Results for Similar Groups	<unchecked>

For the data result set, select enough attributes to assist in evaluation of the data. In this example of the supplier maintenance use case, you may only require attributes like Supplier Name, Supplier ID, and Set ID.

Audit of Recent Supplier Updates

You may want to audit updates to operational data, such as supplier data, on your ERP datasource. An ETCG model can identify records from a given business object, such as Supplier, that have been updated over any period of time.

Start by creating a new model and assigning a unique name and description.

This model uses the Supplier business object and evaluates data from the delivered EBS 12.1 datasource. Criteria to be configured in the Manage Datasource window include:

Business Object Name	Datasource Name	Datasource Type <display>	Version <display>	Default <display>
Supplier	Name of EBS datasource	EBS	12.1	true/false

Define a filter that uses the Relative Value against the last updated date in order to identify updates made within the last 30 days. The filter criteria might include:

No.	Field	Common
Filter 1	Object	Supplier
	Attribute	Last Updated Date
	Condition	Greater than
	Type	Relative Value
	Value and Units	30 Days

For the data result set, select enough attributes to assist in evaluation of the data. In this example, you may only require attributes like Supplier Name, Supplier ID, Last Updated Date, and Last Updated By User (or Last Updated By Name).

Note: EBS consistently supports the use of the created and last-updated information like date and user; PeopleSoft does not. If you require attributes that are not supported in delivered business objects, contact Oracle to learn how to extend delivered content. Additionally, when you use your EBS datasource and you include the Created By User or the Last Updated By User attribute from a business object as

part of your data result set, you can select an additional attribute that includes the Created By Name or Last Updated By Name, respectively. Created By Name and Last Updated By Name are the only attributes that provide a user name translation.

Use Case 2: Superuser Transaction Controls

Superuser transaction controls (STC) provide visibility to transactions made by users whose access is granted through specific access points. For example, an organization may want to track the supplier or payment transactions impacted by users who have been granted a superuser role.

Superuser transaction models are special cases of ETCG models. They automatically relate the access-oriented objects defined in the model with the included transaction objects. Superuser transaction models have certain requirements in the construct of the model to achieve the desired results.

Prerequisite: You must synchronize access data for your ERP datasource; do so from the Manage Application Datasources page. The superuser transaction control type leverages and requires the access model hierarchy graph generated through this process, and more specifically, utilizes a single data store to normalize data into one global user data store — namely the User business object.

Note: For the PeopleSoft 9.1 adapter and metadata, the superuser transaction control is not supported in conjunction with the delivered business objects. Only EBS consistently supports the use of the created and last-updated information like date and user; PeopleSoft does not. If you require attributes that are not supported in delivered business objects, contact Oracle to learn how to extend the delivered content.

Start by creating a new model and assigning a unique name and description.

Business objects for this model include User, Access Point, and an object that contains information about the type of transaction you want to investigate — for example Supplier if you want to track those who use a Superuser responsibility to edit supplier records.

Complete these steps to create the model:

1. Add the Access Point business object to the model canvas. This would be to specify the access point assigned directly to users in the application. For example, in EBS 12.1, this could be identified by a specific authorization type like responsibility.
2. Add the User business object to the model canvas.
3. Add a transaction business object to the model canvas. For example, add Supplier to see which users have used Superuser responsibility to edit suppliers.
4. Manage the business object datasources.
 - a. Assign the access-related business object (User) to the Grc datasource.
(Note: The Grc datasource is system-defined, and in this case appears as an option only when you assign the datasource for the User business object.)
 - b. Assign the Access Point and transaction-related business objects to the target datasource.

For example, you might set values in the Manage Datasource window as follows:

Business Object Name	Datasource Name	Datasource Type <display>	Version <display>	Default <display>
User	Grc	Grc	8.x	False
Access Point	Name of EBS datasource	EBS	12.1	true/false
Supplier	Name of EBS datasource	EBS	12.1	true/false

5. Create necessary filters. You need to specify an Access Point name and type for the value. For example, base the analysis on the Payables Superuser responsibility. Filter criteria might include:

No.	Field	Common
Filter 1	Object	Access Point
	Attribute	Access Point Name
	Condition	Equals
	Value	Payables Superuser <or authorization name/type that makes sense in your organization>

For the data result set, select enough attributes to assist in the evaluation. This superuser transaction example identifies records updated by a super user responsibility, and so you may require attributes like Supplier Name and Supplier ID, but also include the Last Updated By User and Last Updated Date attributes, since the data analysis applies to updates (specifically, the last-updated-by user).

Use Case 3: Sensitive Access Model

This sensitive access model (SAM) use case demonstrates how an ETCG model can identify privilege conflict. In this example, a model locates users who have created a supplier and paid that same supplier.

Note: For the PeopleSoft 9.1 adapter and metadata, the sensitive access model is not supported in conjunction with the delivered business objects. Only EBS consistently supports the use of authorization values in a transaction model; PeopleSoft does not. Contact Oracle to learn how to extend the delivered capabilities.

Start by creating a new model and assigning a unique name and description.

This model uses the Supplier and Payment business objects, and evaluates data from the delivered Oracle 12.1 datasource. Criteria to be configured in the Manage Datasource window include:

Business Object Name	Datasource Name	Datasource Type <display>	Version <display>	Default <display>
Payment	Name of EBS datasource	EBS	12.1	true/false
Supplier	Name of EBS datasource	EBS	12.1	true/false

Define two filters not only to identify where a user has both created a supplier and paid that supplier, but also to force the data results to a specific time frame. In this use case, the first filter recommends using a date greater than some recent date defined by the user. When you apply more than one filter, it is recommended that your first filter be the one that can eliminate the greatest number of data rows from processing. The filter criteria include values shown in the following table:

No.	Field	Common
Filter 1	Object	Supplier
	Attribute	Created Date
	Condition	Greater than
	Type	Fixed value*
	Value	<recent mm/dd/yyyy date>
Filter 2	Object	Supplier
	Attribute	Created by User
	Condition	Equals
	Type	Object
	Object	Payment
	Attribute	Created by User

*Consider using a relative value for the date, especially if you plan to use and run the model or control in production on a regular basis, like monthly. A relative value enables you to define a period based on the system date; for example, “greater than 30 days” would look for suppliers created in the last 30 days.

For the data result set, select enough attributes to assist in evaluation of the data, such as Supplier Name, Created Date/By User for both business objects, Last Updated Date/By User for both business objects, Payment Date, Payment Amount and Currency, and a Payment identifier like Check Number.

Use Case 4: Combine SAM with STC

This use case will show how Use Case 3 can be combined with superuser transaction information (as documented under Use Case 2).

Note: As indicated in Use Case 2, the PeopleSoft 9.1 adapter and metadata are not supported in conjunction with the delivered business objects.

Start from Manage Model and duplicate the SAM model. Select the Edit action for this newly created model. Rename the model and update the description.

All existing business objects, filters, and attributes apply from previous use case. You’ll also add the following business objects to this new model: User and Access Point. Point the User object to the Grc datasource. (The User is an Authorization type and stores global users of all source systems; the data for the model comes from the GRC application you are working in.) The datasource criteria would include:

Business Object Name	Datasource Name	Datasource Type <display>	Version <display>	Default <display>
User	Grc	Grc	8.x	true/false
Access Point	Name of EBS datasource	EBS	12.1	true/false

Define an additional filter to select a specific name and type of access point, such as Purchasing Superuser responsibility, which exists within your organization that might apply. The filter criteria include values shown in the following table:

No.	Field	Common
Filter 3	Object	Access Point
	Attribute	Access Point Name
	Condition	Equals
	Value	<e.g., Purchasing Superuser>

Use Case 5: Custom Object with Delivered Business Object

You can import a spreadsheet (.xml file) to use as a custom business object. You can use the custom object by itself, or with a delivered business object; in the latter case, you can use the “Similar to” or “Related to” condition to establish a relationship between attributes of the two objects. In this example, the custom object comprises a list of suppliers with which the company no longer wishes to do business. Its Name attribute will be compared to a Remit to Supplier Name attribute from the Payment business object to verify none have recently been paid.

Start by importing the new custom object on the Create Transaction Model page. (See the *ETCG User Guide* for information on how to format a spreadsheet file for use as a custom object, and how to import it.) You might want to test this custom business object in a model by itself and run data results, to verify all attributes and data rows were imported successfully.

After testing and verifying the new custom object is valid, create a new model that uses this object and the delivered Payment business object. Use the Manage Data-source window to associate the delivered Oracle 12.1 datasource with the Payment business object, but associate XLS datasource to the custom object:

Business Object Name	Datasource Name	Datasource Type <display>	Version <display>	Default <display>
Suppliers—Do Not Contact	XLS datasource	XLS	XLS	false
Payment	Name of EBS datasource	EBS	12.1	true/false

Define a filter in which the “Similar to” condition establishes a relationship between the Name attribute of the Suppliers—Do Not Contact custom object and the Remit to Supplier Name attribute of the Payment business object. A higher Percent Similar value reduces the number of data rows the model returns, but requires a closer name match. The “Include unique data rows” field is unchecked, indicating a match is required to bring in the name. Checking it would return every name, even those without “similar to” matches.

Filter criteria include:

No.	Field	Common
Filter 1	Object	Suppliers—Do Not Contact
	Attribute	Name
	Condition	Similar to
	Object	Payment
	Attribute	Remit to Supplier Name
	Percent Similar	90%
	Advanced Options: Include unique data rows	<unchecked>

For the result data set, select enough attributes to assist in evaluation of the data. In this case, include the custom object Name and the Payment Remit to Supplier Name.

Note: “Similar to” and “Related to” are the only conditions that establish a relationship between attributes of a custom object and a delivered business object. The “Similar to” condition recognizes matches between attribute values that are from 50 to 99 percent alike; the “Related to” condition requires an exact match.

The Expresses condition performs sentiment analysis, capturing instances of profanity, harassment, or other improper references in string attributes. It requires a custom object (which serves as the dictionary of improper usage). When Expresses is used, the “Similar to” or “Related to” condition is also used to establish a relationship between that custom object and another object (either custom or delivered) in which improper usage is being sought.

Use Case 6: Using the Inclusive Function

You may want to create a model to analyze your ERP datasource for expense reports that contain suspicious combinations for the same expense report ID and employee. In ETCG, you can create a model to perform an analysis against expense reports where the employee has reported expenses for taxi, car rental, and mileage all in the same report. This use case includes the Expense Report business object and demonstrates the use of the Inclusive function.

Start by creating a new model and assigning a unique name and description.

This model uses only one business object — Expense Report — and the delivered Oracle 12.1 datasource. Criteria to be configured in the Manage Datasource window include:

Business Object Name	Datasource Name	Datasource Type <display>	Version <display>	Default <display>
Expense Report	Name of EBS Datasource	EBS	12.1	true/false

Define a function filter grouped by Header ID (expense report ID in EBS). Use the Inclusive function to analyze expense reports that contain certain combinations. For example, you may want to identify expense reports that look suspect because they contain *taxi*, *car rental*, and *mileage* all in the same expense report. The Inclusive function identifies text strings you define, such as the value *car* to pick up items

described as car rental or rental car. For the value, enter all combinations that might cause a suspicious expense report, delimited by semicolons (;).

The function criteria include values shown in the following table:

No.	Field	Common
Filter	Object	Expense Report
	Attribute	Header ID
When	Function	Inclusive
	Object	Expense Report
	Attribute	Expense Type
	Condition	In (this is the only available condition)
	Value	taxi;car;mileage

Any time an expense report contains items that include a taxi, car rental, and recorded mileage, the report is included in the result set. Select enough attributes to assist in the evaluation of the data.

Note: Alternatively, the *Exclusive* function behaves differently. You list values that should be together but are not. For example, if you list taxi, hotel, and airfare together, only one of them need be defined in the report, and at least one or more are not. Only one must be listed in the value field to be picked up in result data.

Use Case 7: Using Successive Interval with Sum Function

This use case applies the “Over Interval” advanced option, which is available only to a function filter that groups values by date. The example uses a “Successive” setting for the option to group results into distinct date ranges, defines those ranges as three-month periods (i.e., quarters), and sums the payment amounts during each quarter.

Start by creating a new model and assigning a unique name and description.

Business objects for this model include Payment, using the delivered Oracle 12.1 datasource. Criteria to be configured in the Manage Datasource window include:

Business Object Name	Datasource Name	Datasource Type <display>	Version <display>	Default <display>
Payment	Name of EBS Datasource	EBS	12.1	true/false

Define a function whose Filter line groups by the Date attribute of the Payment object. (This attribute enables the use of the Over Interval advanced option.) The When line specifies the Sum function and the Payment Amount attribute of the Payment object. Finally the Over Interval advanced option is set to “Successive” (as opposed to “Overlap”); it defines distinct periods for which payment amounts are summed: three-month periods over a calendar year. (Expect to see four groups in your results — three-month units for the one-year period, each representing a quarter.)

The function criteria include values shown in the following table:

No.	Field	Common
Filter	Object	Payment
	Attribute	Date
When	Function	Sum
	Object	Payment
	Attribute	Payment Amount
	Condition	Greater than
	Value	0
<i>Advanced Options</i>	Over Interval	Checked
	Interval Type	Successive
	Interval	3
	Units	Months
	Start	01/01/12
	End	12/31/12

The advanced options establish the following date ranges, which are displayed in an Interval column of your results:

- 01/01/12–03/31/12
- 04/01/12–06/30/12
- 07/01/12–09/30/12
- 10/01/12–12/31/12.

A Sum column displays the aggregate amount for each date range. To analyze the data result set, select enough attributes to assist in the evaluation of the data, such as Supplier Name, Payment ID, Date, Payment Amount, and Currency.

Use Case 8: Matching (Equals) on the Same Attribute Value

This example demonstrates how an ETCG model identifies exact matches across records to create sets of records. A model filter states that an attribute of a business object equals itself, and return values consist of sets, in each of which that attribute equals the same value. In this example, a model locates records that have the same Invoice ID, Invoice Amount, and Supplier, but indicate different Operating Units.

Start by creating a new model and assigning a unique name and description.

Business objects for this model include Payables Invoice, using the delivered Oracle 12.1 datasource. Criteria to be configured in the Manage Datasource window include:

Business Object Name	Datasource Name	Datasource Type <display>	Version <display>	Default <display>
Payables Invoice	Name of EBS Datasource	EBS	12.1	true/false

Define four filters: 1) Invoice ID is the same, 2) invoice amount is the same, 3) supplier ID is the same, and 4) operating unit is different. This use case can identify invoices billed that are redundant between operating units. The first three filters apply an Equals condition between same attributes of business objects, creating a system-generated object. Within each set identified in the system-generated object, the last filter identifies data records that have different operating units. Filter criteria follow:

No.	Field	Common
Filter 1	Object	Payables Invoice
	Attribute	Invoice ID
	Condition	Equals
	Type	Object
	Object	Payables Invoice
Filter 2	Attribute	Invoice ID
	Object	Payables Invoice
	Attribute	Invoice Amount
	Condition	Equals
	Type	Object
Filter 3	Object	Payables Invoice
	Attribute	Supplier ID
	Condition	Equals
	Type	Object
	Object	Payables Invoice
Filter 4	Attribute	Supplier ID
	Object	Equals[Payables Invoice.Invoice ID AND Payables Invoice.Invoice Amount AND Payables Invoice.Supplier ID]
	Attribute	Operating Unit ID
	Condition	Does not equal*
	Type	Object
	Object	Equals[Payables Invoice.Invoice ID AND Payables Invoice.Invoice Amount AND Payables Invoice.Supplier ID]
	Attribute	Operating Unit ID

*To use the "Does not equal" condition between the same object and attribute, precede it with a filter that uses the Equals condition. The three sequential Equals filters create a system-generated object because they are for the same business object, and they form a sequential AND relationship. They would be separate grouping objects if Equals were separated by another standard or function filter, separated by an OR condition, or filters using different business objects with the Equals condition.

For data results, select attributes such as Supplier ID, Invoice Description, Invoice ID, Invoice Amount, Invoice Currency, Date, Payment Status, and Operating Unit ID.

Use Case 9: User Defined Objects — Display Same Name Attribute Across Objects

Create a user defined object to consolidate data that may not be readily available in seeded business objects you want to use. For example, you may wish to create a model that finds invoices paid on terms that differ from terms defined in the supplier master. However, while the business objects appropriate for such a model contain payment-term ID values, they do not contain term names. You can create a user defined object to make those term names available for reporting in model results.

First, create the model to be turned into a control, which will in turn serve as the basis for a user defined object. Assign it a unique name and description.

This model uses the Payables Invoice, Supplier, Supplier Site Location, and Payables Payment Term business objects, and the delivered Oracle 12.1 datasource. Criteria to be configured in the Manage Datasource window include:

Business Object Name	Datasource Name	Datasource Type <display>	Version <display>	Default <display>
Payables Invoice	Name of EBS Datasource	EBS	12.1	true/false
Supplier	Name of EBS Datasource	EBS	12.1	true/false
Supplier Site Location	Name of EBS Datasource	EBS	12.1	true/false
Payables Payment Term	Name of EBS Datasource	EBS	12.1	true/false

Create filters that compile a set of invoices , each of which meet the following criteria: The invoice has been updated within 60 days of the moment you run the model; it is paid or partly paid; and it has a Terms ID value, and that value matches a Term ID value in the Payables Payment Term business object (from which the term name can be retrieved). A final filter identifies invoice records for which the payment-term ID does not match the default payment terms from the master object — Supplier Site Location.

No.	Field	Common
Filter 1	Object	Payables Invoice
	Attribute	Last Updated Date
	Condition	Greater Than
	Type	Relative Value
	Value and Units	60 days
Filter 2	Object	Payables Invoice
	Attribute	Payment Status
	Condition	In
	Value	P;Y
Filter 3	Object	Payables Invoice
	Attribute	Terms ID
	Condition	Is not blank

No.	Field	Common
Filter 4	Object	Payables Invoice
	Attribute	Terms ID
	Condition	Equals
	Type	Object
	Object	Payables Payment Term
	Attribute	Term ID
Filter 5	Object	Payables Invoice
	Attribute	Terms ID
	Condition	Does not equal
	Type	Object
	Object	Supplier Site Location
	Attribute	Payment Terms

For the result set, select attributes to be used in the model that cites the user defined object; in this case, Term ID from the Payables Payment Term object and Payment Terms from the Supplier Site Location object. Also select attributes that assist in data evaluation, such as Supplier ID and Name, Invoice Date, Invoice ID, Invoice Amount, Invoice Currency, Payment Status, Site Code, and Payables Payment Term Name.

Second, convert this model into a control. In the Result Type for the field, be sure to select the “Dataset” value. Run the control after submitting it.

Third, navigate to the Manage User Defined Objects page and use the control as the basis of a new user defined object. Add criteria such as name, description, domain, category, and status. See “Managing User Defined Objects” in the *ETCG User Guide*.

Fourth, create a new model that cites the user defined object as if it were a business object. In addition to the user defined object, this model cites the Payables Payment Term business object, and it uses the Grc and Oracle 12.1 datasources.

Business Object Name	Datasource Name	Datasource Type <display>	Version <display>	Default <display>
User Defined Object	Grc	Grc	8.x	true/false
Payables Payment Term	Name of EBS Datasource	EBS	12.1	true/false

A single filter in this model establishes relationships between an attribute of the user defined object and the attribute of the Payables Payment Term business object that supplies term names:

No.	Field	Common
Filter 1	Object	User Defined Object
	Attribute	Payment Terms
	Condition	Related to
	Object	Payables Payment Term
	Attribute	Term ID

For the data result set, include the Payables Payment Term Name in addition to all the attributes from the user defined object.

Use Case 10: User Defined Objects — Custom Attribute Calculations Across Objects

Create a user defined object that converts invoice amounts from any currency to US dollars. Use it to identify invoice amounts of greater value than 1,000 US dollars.

First, create the model to be turned into a control, which will in turn serve as the basis for a user defined object. Assign it a unique name and description. The model uses the Payables Invoice and General Ledger Daily Rates business objects against the delivered Oracle 12.1 datasource. Criteria to be configured in the Manage Datasource window include:

Business Object Name	Datasource Name	Datasource Type <display>	Version <display>	Default <display>
Payables Invoice	Name of EBS Datasource	EBS	12.1	true/false
General Ledger Daily Rates	Name of EBS Datasource	EBS	12.1	true/false

Create filters that select invoices created within the last 60 days, select Corporate conversion type (or another type that meets your organization's requirements, and selects US dollars as a "To Currency" value.

No.	Field	Common
Filter 1	Object	Payables Invoice
	Attribute	Invoice Date
	Condition	Greater Than
	Type	Relative Value
	Value and Unites	60 Days
Filter 2	Object	General Ledger Daily Rates
	Attribute	Conversion Type
	Condition	Equals
	Type	Value
	Value	Corporate
Filter 3	Object	General Ledger Daily Rates
	Attribute	To Currency
	Condition	Equals
	Type	Value
	Value	USD

Note: A relationship exists between the General Ledger Daily Rates and the Payables Invoice object. Two underlying joins include Payables Invoice.Invoice Date equals General Ledger Daily Rates.Conversion Date, and Payables Invoice.Invoice Currency equals General Ledger Daily Rates.From Currency. Because these relationships exist between the objects, you do not need to create filters to implement them.

However, these relationships may not apply to your organization. If so, you need to break them: Create a user defined object that compiles attributes you need from the General Ledger Daily Rates object. Then combine it with the Payables Invoice object in a model that includes the filter Payables Invoice.Created Date equals User Defined Daily Rates.Conversion Date.

For the data result set, select attributes to be used in the model that will cite the user defined object. From the Payables Invoice object, select Invoice Number, Invoice ID, Invoice Date, Invoice Amount, Invoice Currency, Supplier ID, and Operating Unit ID. From the General Ledger Daily Rates object, select Conversion Date, Conversion Rate, and Conversion Type.

Second, convert this model into a control. In the Result Type for the field, be sure to select the “Dataset” value. Run the control after submitting it.

Third, navigate to the Manage User Defined Objects page and use the control as the basis of a new user defined object. Add criteria such as name, description, domain, category, and status. For information on created a user defined object, see “Managing User Defined Objects” in the *ETCG User Guide*.

Fourth, create a new model that cites the user defined object as if it were a business object. In addition to the user defined object, this model will use the Supplier and Business (Operating) Unit objects against the Grc and Oracle 12.1 datasources.

Business Object Name	Datasource Name	Datasource Type <display>	Version <display>	Default <display>
User Defined Object	Grc	Grc	8.x	true/false
Supplier	Name of EBS Datasource	EBS	12.1	true/false
Business (Operating) Unit	Name of EBS Datasource	EBS	12.1	true/false

In the new model, add a custom attribute to convert invoice amounts into US dollars. Perform this step before defining model filters, since the custom attribute is required for filtering and data results. (For information on creating custom attributes, see the *ETG User Guide*.)

Custom Attribute Field	Value
Object	User Defined Object
Attribute Name	InvAmountUSD
Base Attribute	Invoice Amount
Modifier	*
Type	Object
Attribute	Conversation Rate

Create filters. The first uses the custom attribute to identify values greater than 1,000. Two others establish relationships between the user defined object and the Supplier and Business (Operating) Unit objects, enabling you to include names rather than IDs for supplier and operating unit in your results. (If you do not want

name values in your results, the Supplier and Business (Operating) Unit objects are unnecessary; thus their inclusion in the model is optional.)

No.	Field	Common
Filter 1	Object	User Defined Object
	Attribute	InvAmountUSD
	Condition	Greater Than
	Type	Value
	Value	1000
Filter 2	Object	User Defined Object
	Attribute	Supplier ID
	Condition	Related To
	Object	Supplier
	Attribute	Supplier ID
Filter 3	Object	User Defined Object
	Attribute	Operating Unit ID
	Condition	Related To
	Object	Business (Operating) Unit
	Attribute	Organization ID

For the result dataset, include payables-related attributes from the user defined object, including the new custom attribute (InvAmountUSD) and name attributes that correspond to Supplier ID (Supplier Name) and Operating Unit ID (Name).

Use Case 11: Using the Rank Function

An ETCG model may return records containing the highest or lowest values for a specified attribute, in rank order. This example will select invoices from a 90-day period, group them by currency, and for each currency list the 10 invoices with the highest amounts. Start by creating a new model and assigning it a unique name and description.

The model uses one business object — Payables Invoice — and the delivered Oracle 12.1 datasource. Criteria to be configured in the Manage Datasource window include:

Business Object Name	Datasource Name	Datasource Type <display>	Version <display>	Default <display>
Payables Invoice	Name of EBS Datasource	EBS	12.1	true/false

Create two filters. The first, a standard filter, selects invoices from the 90 days prior to the moment the model is run. The second, a function filter, groups invoices by currency, then uses the Rank function to select the 10 highest Invoice Amount values for each currency. The function requires you to select a condition and a value that determine which records are ranked. For example, “Equals 4” would cause one record to be returned for each group, containing the fourth-ranking value. Or, in this example, “Less than or equal to 10” returns 10 records for each currency, containing the first- through tenth-ranking values. You’ll also need to select a Display in Descend-

ing Order advanced option, as the default order is ascending. These values are shown in the following table.

No.	Field	Common
Filter 1		
	Object	Payables Invoice
	Attribute	Invoice Date
	Condition	Greater than or equal to
	Type	Relative Value
	Value and Units	90 days
Filter 2		
<i>Filter</i>	Object	Payables Invoice
	Attribute	Invoice Currency*
<i>When</i>	Function	Rank
	Object	Payables Invoice
	Attribute	Invoice Amount
	Condition	Less than or equal to
	Value	10
<i>Advanced Option</i>	Display in Descending Order	Checked

*The grouping attribute is set to enable the function to return the highest-valued invoices for each currency type. If you want to restrict the currencies to be analyzed, you can add a filter before the function that selects the currencies to be included in the results.

Select enough results attributes to assist in the evaluation of data.

Examples of Prebuilt Models

As a part of your implementation, evaluate some of the prebuilt models in your test environment. The .xml import file contains models that are part of the same/common business area, such as Order to Cash (OTC) and Procure to Pay (PTP).

The following is only an example of available prebuilt models that can serve as starting points for you to build out your own models and controls:

- Payments with Void Check Date
- Invoices without a Purchase Order
- Amount Paid Greater than Invoice Amount
- Payment Remit to Supplier — Configuration Override

Note: The delivered prebuilt models should be imported via the Manage Transaction Models page. You cannot import them as controls through Manage Controls. The prebuilt models are intended to be imported as models first so that you can review them, modify them if necessary, and test them before deploying them as controls in your environment.

Examples of Delivered Pattern Mapping

The following table displays a sampling of pattern mappings and the business objects and attributes they support. Values in the Attributes and Variance By columns vary across supported platforms.

Pattern	Business Object	Attribute	Variance By (Mean Only)
Mean	Payment	Cleared Amount Gross Paid Amount Late Charges Payment Amount Remit to Supplier ID	Business Unit Supplier Name Created Date Created By User Last Updated By User Last Updated Date
Mean	Payable Invoice	Invoice Amount Miscellaneous Operating Unit ID	Supplier ID Created Date Created By User Last Updated By User Last Updated Date
Mean	Purchase Order	Line: Price Line: Quantity Prepaid Amount	Status Supplier ID Created Date Created By User Last Updated By User Last Updated Date
Mean	Supplier	Invoice Limit Amount	Supplier Name Supplier ID Created Date Created By User Last Updated By User Last Updated Date
Benford	Payment	Cleared Amount Gross Paid Amount Late Charges Payment Amount Remit to Supplier ID	n/a
Benford	Purchase Order	Line: Price Line: Quantity Prepaid Amount	n/a
Benford	Supplier	Invoice Limit Amount	n/a

List of Delivered Business Objects

Tables on the following pages list all business objects available in the current release across platforms: Oracle E-Business Suite 12.1, Oracle E-Business Suite 11.5.10.2, and PeopleSoft Financials 9.1.

Note: Additional business objects may be added or modified as necessary by Oracle. Since business objects can be uploaded in GRC they are not dependent on a subsequent release of the product but rather can be “hot-deployed.”

Oracle E-Business Suite 12.1

The following is a table of delivered business objects for EBS 12.1.

Business Object Name	Type	Category
Access Entitlements	Segregation of Duties	Access
Access Grants	System Configuration	Access
Access Point	Segregation of Duties	Access
Access Set	Financials	Configuration (Setup)
Account Derivation Rules	Financials	Configuration (Setup)
Accounting Attribute Assignments	Financials	Configuration (Setup)
Accounting Calendar	Financials	Configuration (Setup)
Accounting Event Class Options	Financials	Configuration (Setup)
Accounting Events	Financials	Transaction
Accounting Flexfield Definition	Financials	Configuration (Setup)
Accounting Flexfield Qualifier	System Configuration	Configuration (Setup)
Accounting Flexfield Segments	Financials	Configuration (Setup)
Accounting Periods	Financials	Configuration (Setup)
Acknowledgment	Financials	Transaction
Application	Human Capital Management	Configuration (Setup)
Application Accounting Definition	Financials	Configuration (Setup)
Application Data Group	Human Capital Management	Configuration (Setup)
Application Request Group	Human Capital Management	Configuration (Setup)
Application User	Human Capital Management	Configuration (Setup)
Asset Book Controls	Financials	Configuration (Setup)
Asset Calendars	Financials	Configuration (Setup)
Asset Categories	Financials	Configuration (Setup)

Business Object Name	Type	Category
Asset Ceilings	Financials	Configuration (Setup)
Asset Distribution Sets	Financials	Configuration (Setup)
Asset Fiscal Years	Financials	Configuration (Setup)
Asset Insurance Policy Details	Financials	Transaction
Asset Lease Details	Financials	Configuration (Setup)
Asset Lease Payments	Financials	Configuration (Setup)
Asset Locations	Financials	Configuration (Setup)
Asset Maintenance Details	Financials	Transaction
Asset Mass Changes	Financials	Transaction
Asset Mass Reclassifications	Financials	Transaction
Asset Mass Retirements	Financials	Transaction
Asset Mass Revaluations	Financials	Transaction
Asset Mass Transfer	Financials	Transaction
Asset Physical Inventory	Financials	Transaction
Asset Price Indexes	Financials	Configuration (Setup)
Asset Retirements	Financials	Transaction
Asset Schedule Maintenance Events	Financials	Transaction
Asset System Controls	Financials	Configuration (Setup)
Assets Workbench	Financials	Transaction
Audit Group Data	System Configuration	Configuration (Setup)
Automatic Payment Programs	Financials	Configuration (Setup)
Auto-Post Criteria Set	Financials	Configuration (Setup)
Bank	Financials	Configuration (Setup)
Bank Account	Financials	Configuration (Setup)
Bank Account Transfer	Financials	Transaction
Bank Branch	Financials	Configuration (Setup)
Bank Statement	Financials	Transaction
Bills Of Material	Financials	Transaction
Bills of Material Parameters	Financials	Configuration (Setup)
Bonus Depreciation Rules	Financials	Configuration (Setup)
Business (Operating) Unit	Financials	Configuration (Setup)
Business Group	Financials	Configuration (Setup)
Buyer	Procurement	Configuration (Setup)
Cash Transaction Subtype	Financials	Configuration (Setup)

Business Object Name	Type	Category
Catalog Server	Procurement	Configuration (Setup)
Charge Schedule	Financials	Configuration (Setup)
Chart Of Accounts	Financials	Configuration (Setup)
Columns	System Configuration	Configuration (Setup)
Common Lookups	System Configuration	Configuration (Setup)
Concurrent Requests	System Configuration	Configuration (Setup)
Conversion Rate Types	Financials	Configuration (Setup)
Cross Validation Rules	Financials	Configuration (Setup)
Currencies	Financials	Configuration (Setup)
Currency Rate Types	Financials	Configuration (Setup)
Customer	Financials	Operational (Master Data)
Customer Account (Site) Contact	Customer Relationship Management	Operational (Master Data)
Customer Account Sites	Customer Relationship Management	Operational (Master Data)
Customer Accounts	Customer Relationship Management	Operational (Master Data)
Customer Payment Methods	Customer Relationship Management	Operational (Master Data)
Cycle Count	Supply Chain Management	Transaction
Depreciation Methods	Financials	Configuration (Setup)
Discrete Jobs	Financials	Transaction
Document Actions History	Procurement	Transaction
Document Attachment Functions	Financials	Configuration (Setup)
Document Entities	System Configuration	Configuration (Setup)
Document Sequence	System Configuration	Configuration (Setup)
Document Sequence Assignment	System Configuration	Configuration
Document Styles	Procurement	Configuration (Setup)
Documents	Financials	Configuration (Setup)
EBS Access Condition	Segregation of Duties	Access
EBS Function	Authorization	Configuration (Setup)
EBS Menu	Authorization	Configuration (Setup)
EBS Responsibility	Authorization	Configuration (Setup)
EBS Role	Authorization	Configuration (Setup)
Employee Job Assignment	Human Capital Management	Configuration (Setup)
Expense Location	Financials	Configuration (Setup)
Expense Policy	Financials	Configuration (Setup)
Expense Report	Financials	Transaction

Business Object Name	Type	Category
Expense Report Attendees	Financials	Transaction
Expense Report Credit Card Transactions	Financials	Transaction
Expense Report Credit Cards	Financials	Transaction
Expense Report Policy Violations	Financials	Transaction
Expense Report Template	Financials	Configuration (Setup)
Expense Setup: General	Financials	Configuration (Setup)
External Bank Account	Financials	Configuration (Setup)
External Payee	Financials	Configuration (Setup)
Financial Items	Supply Chain Management	Transaction
Flexfield Security Rules	System Configuration	Configuration (Setup)
Flexfield Segment Values	System Configuration	Configuration (Setup)
Form Custom Property List	System Configuration	Configuration (Setup)
Form Custom Property Value	System Configuration	Configuration (Setup)
Form Functions	System Configuration	Configuration (Setup)
Form Personalizations	System Configuration	Configuration (Setup)
Forms	System Configuration	Configuration (Setup)
General Ledger	Financials	Configuration (Setup)
General Ledger Accounts	Financials	Configuration (Setup)
General Ledger Daily Rates	Financials	Configuration (Setup)
General Ledger Data Access Sets	Financials	Configuration (Setup)
General Ledger Relationships	Financials	Configuration (Setup)
Human Resources Organization	Human Capital Management	Configuration (Setup)
Incentive Compensation Transaction	Financials	Transaction
Information Types Security	Human Capital Management	Configuration (Setup)
Installation Data	System Configuration	Configuration (Setup)
Intercompany Accounts	Financials	Configuration (Setup)
Internal Payer	Financials	Configuration (Setup)
Inventory Accounting Periods	Supply Chain Management	Configuration (Setup)

Business Object Name	Type	Category
Inventory Transactions	Supply Chain Management	Transaction
Item	Supply Chain Management	Operational (Master Data)
Item Additional Information Template	Procurement	Configuration (Setup)
Item Category	Supply Chain Management	Configuration (Setup)
Item Category Set	Supply Chain Management	Configuration (Setup)
Item Cost	Supply Chain Management	Configuration (Setup)
Item Revision History	Supply Chain Management	Transaction
Item Status	Supply Chain Management	Configuration (Setup)
Item Supplier	Supply Chain Management	Configuration (Setup)
Item Supplier Site	Supply Chain Management	Configuration (Setup)
Job	Human Capital Management	Configuration (Setup)
Job Category Association	Human Capital Management	Configuration (Setup)
Job Group	Human Capital Management	Configuration (Setup)
Journal Authorization Limits	Financials	Configuration (Setup)
Journal Auto-Reversal	Financials	Configuration (Setup)
Journal Encumbrance Types	Financials	Configuration (Setup)
Journal Entry	Financials	Transaction
Journal Entry Category Definition	Financials	Configuration (Setup)
Journal Entry Source Definition	Financials	Configuration (Setup)
Journal Import References	Financials	Transaction
Journal Inclusion Rules	Financials	Configuration (Setup)
Journal Mass Allocation	Financials	Transaction
Language	System Configuration	Configuration (Setup)
Ledger Balancing Segment Values	Financials	Configuration (Setup)
Ledger Set	Financials	Configuration (Setup)
Ledger Setup: General	Financials	Configuration (Setup)

Business Object Name	Type	Category
Ledger Steps Details	Financials	Configuration (Setup)
Legal Entity	Financials	Configuration (Setup)
Legal Entity Configurator	Financials	Configuration (Setup)
Lockbox Transmission File	Financials	Configuration (Setup)
Manufacturing Items	Supply Chain Management	Transaction
Menus	System Configuration	Configuration (Setup)
Move Orders	Supply Chain Management	Transaction
Objects	System Configuration	Configuration (Setup)
Oracle User Data	System Configuration	Configuration (Setup)
Order Line Sets	Customer Relationship Management	Transaction
Order Management Credit Check Rules	Financials	Configuration (Setup)
Order Management Credit Profiles	Financials	Configuration (Setup)
Order Management Customer Profile Classes	Financials	Operational (Master Data)
Order Management Document Categories	Financials	Configuration (Setup)
Order Management Document Datatypes	Financials	Configuration (Setup)
Order Management Holds	Financials	Configuration (Setup)
Order Management Import Sources	Financials	Configuration (Setup)
Order Management Payment Types	Financials	Configuration (Setup)
Order Management Security Processing Constraints	Financials	Configuration (Setup)
Order Management Shipping Tolerances	Financials	Configuration (Setup)
Order Management System Parameters	Financials	Configuration (Setup)
Order Management Transaction Type	Customer Relationship Management	Configuration (Setup)
Organization Information	Supply Chain Management	Configuration (Setup)
Organization Location	Human Capital Management	Configuration (Setup)
Organization Parameters	Supply Chain Management	Configuration (Setup)
Payables Aging Period	Financials	Configuration (Setup)

Business Object Name	Type	Category
Payables Employee Signing Limits	Financials	Configuration (Setup)
Payables Invoice	Financials	Transaction
Payables Invoice Approval History	Financials	Transaction
Payables Invoice Batches	Financials	Transaction
Payables Invoice Detail	Financials	Transaction
Payables Invoice Hold	Financials	Transaction
Payables Invoice Hold Codes	Financials	Configuration (Setup)
Payables Invoice Line Allocations	Financials	Transaction
Payables Invoice Tolerance Set	Financials	Configuration (Setup)
Payables Payment Administrator	Financials	Configuration (Setup)
Payables Payment Schedule	Financials	Transaction
Payables Payment Term	Financials	Configuration (Setup)
Payables Procurement Card	Financials	Configuration (Setup)
Payables Procurement Card Code For Exception Use	Financials	Configuration (Setup)
Payables Setup: General	Financials	Configuration (Setup)
Payables Setup: Invoice	Financials	Configuration (Setup)
Payables Setup: Payments	Financials	Configuration (Setup)
Payables Setup: Tax	Financials	Configuration (Setup)
Payables System Setup	Financials	Configuration (Setup)
Payment	Financials	Transaction
Payment Card	Financials	Configuration (Setup)
Payment Code: Bank Instruction Code	Financials	Configuration (Setup)
Payment Code: Delivery Channel Code	Financials	Configuration (Setup)
Payment Code: Payment Reason Code	Financials	Configuration (Setup)
Payment Disbursement	Financials	Transaction
Payment Formats	Financials	Configuration (Setup)
Payment Instruments	Financials	Configuration (Setup)
Payment Interest Rates	Financials	Configuration (Setup)
Payment Method	Financials	Configuration (Setup)

Business Object Name	Type	Category
Payroll Definition	Human Capital Management	Configuration (Setup)
Payroll Element	Human Capital Management	Configuration (Setup)
Payroll Element Entries	Human Capital Management	Configuration (Setup)
Payroll Element Link	Human Capital Management	Configuration (Setup)
Payroll Payment Method	Human Capital Management	Configuration (Setup)
PCG Audit	Financials	Operational (Master Data)
Period Types	Financials	Configuration (Setup)
Periodic Alerts	System Configuration	Configuration (Setup)
Person	Human Capital Management	Operational (Master Data)
Person External Account Details	Human Capital Management	Operational (Master Data)
Person Payment Method	Human Capital Management	Operational (Master Data)
Personal Profile Values	System Configuration	Configuration (Setup)
Physical Inventory Item	Supply Chain Management	Transaction
Position	Human Capital Management	Configuration (Setup)
Position Hierarchy	Human Capital Management	Configuration (Setup)
Post Accounting Programs	Financials	Configuration (Setup)
Price List and Modifiers	Supply Chain Management	Operational (Master Data)
Pricing Agreements	Supply Chain Management	Configuration (Setup)
Procurement Card Statement	Financials	Transaction
Purchase Order	Procurement	Transaction
Purchase Order Line Location	Procurement	Transaction
Purchase Order Releases	Procurement	Transaction
Purchase Order Revision History	Procurement	Transaction
Purchasing Approval Assignments	Procurement	Configuration (Setup)
Purchasing Approval Group	Procurement	Configuration (Setup)

Business Object Name	Type	Category
Purchasing Approved Supplier	Procurement	Operational (Master Data)
Purchasing Approved Supplier List Statuses	Procurement	Configuration (Setup)
Purchasing Change Order Tolerances	Procurement	Configuration (Setup)
Purchasing Contract Revision History	Procurement	Transaction
Purchasing Contracts	Procurement	Transaction
Purchasing Cost Factors	Procurement	Configuration (Setup)
Purchasing Document Types	Procurement	Configuration (Setup)
Purchasing Expense Account Rules	Procurement	Configuration (Setup)
Purchasing Hazard Class	Procurement	Configuration (Setup)
Purchasing Line Type	Procurement	Configuration (Setup)
Purchasing Notification Controls	Procurement	Configuration (Setup)
Purchasing Quotations	Procurement	Transaction
Purchasing Receiving Options	Procurement	Configuration (Setup)
Purchasing Request for Quotation	Procurement	Transaction
Purchasing Setup: General	Financials	Configuration (Setup)
Purchasing UN (United Nations) Number	Procurement	Configuration (Setup)
Quality Inspection Codes	Procurement	Configuration (Setup)
Receipt	Procurement	Transaction
Receivables Accounting Rules	Financials	Configuration (Setup)
Receivables Activities	Financials	Configuration (Setup)
Receivables Activity Applications	Financials	Transaction
Receivables Adjustments	Financials	Transaction
Receivables Aging Buckets	Financials	Configuration (Setup)
Receivables Application Rule Set	Financials	Configuration (Setup)
Receivables Approval Limits	Financials	Configuration (Setup)
Receivables Auto-Cash Rule Set	Financials	Configuration (Setup)
Receivables Batch Source	Financials	Configuration (Setup)

Business Object Name	Type	Category
Receivables Collectors	Financials	Configuration (Setup)
Receivables Grouping Rules	Financials	Configuration (Setup)
Receivables Invoice	Financials	Transaction
Receivables Location	Financials	Configuration (Setup)
Receivables Lockbox	Financials	Configuration (Setup)
Receivables Payment Schedule	Financials	Transaction
Receivables Payment Term	Financials	Configuration (Setup)
Receivables Receipt Batch	Financials	Transaction
Receivables Receipt Class	Financials	Configuration (Setup)
Receivables Receipt Method	Financials	Configuration (Setup)
Receivables Receipt Remittance Batch	Financials	Transaction
Receivables Receipt Source	Financials	Configuration (Setup)
Receivables Standard Receipt	Financials	Transaction
Receivables System Option	Financials	Configuration (Setup)
Receivables Transaction Type	Financials	Configuration (Setup)
Recurring Journals	Financials	Transaction
Register Supplier User	Procurement	Configuration (Setup)
Reporting Entity	Financials	Configuration (Setup)
Request Sets	System Configuration	Configuration (Setup)
Requisition	Procurement	Transaction
Requisition Template	Procurement	Configuration (Setup)
Resource Groups	Customer Relationship Management	Configuration (Setup)
Resource Roles	Customer Relationship Management	Configuration (Setup)
Resource Teams	Customer Relationship Management	Configuration (Setup)
Resources	Customer Relationship Management	Configuration (Setup)
Responsibility	System Configuration	Configuration (Setup)
Role Hierarchy	System Configuration	Configuration (Setup)
Roles	System Configuration	Configuration (Setup)

Business Object Name	Type	Category
Sales Agreement	Customer Relationship Management	Configuration (Setup)
Sales Credit Type	Customer Relationship Management	Configuration (Setup)
Sales Order	Customer Relationship Management	Transaction
Sales Order Payment	Customer Relationship Management	Transaction
Security Groups	System Configuration	Configuration (Setup)
Security Profile Assignment	Human Capital Management	Configuration (Setup)
Security Profile Organization	Human Capital Management	Configuration (Setup)
Security Profile Organization List	Human Capital Management	Configuration (Setup)
Security Profiles	Human Capital Management	Configuration (Setup)
Server Group	Customer Relationship Management	Configuration (Setup)
Ship Customer Goods	Financials	Transaction
Shipping Deliveries	Financials	Transaction
Special Calendar	Financials	Configuration (Setup)
Subledger Accounting Methods	Financials	Configuration (Setup)
Subledger Accounting Source	Financials	Configuration (Setup)
Subledger Accounting: Custom Source	Financials	Configuration (Setup)
Subledger Application	Financials	Configuration (Setup)
Subledger Event Entity	Financials	Configuration (Setup)
Subledger Event Model	Financials	Configuration (Setup)
Subledger Journal Entry	Financials	Transaction
Subledger Journal Entry Descriptions	Financials	Configuration (Setup)
Subledger Journal Line Types	Financials	Configuration (Setup)
Subledger Journal Lines Definitions	Financials	Configuration (Setup)
Supplier	Financials	Operational (Master Data)
Supplier Bank Account Change Request	Procurement	Operational (Master Data)
Supplier Contacts	Financials	Operational (Master Data)
Supplier Lists	Procurement	Configuration (Setup)

Business Object Name	Type	Category
Supplier Onboard Configuration	Procurement	Configuration (Setup)
Supplier Purchase Order Change Request	Procurement	Transaction
Supplier Site Location	Financials	Operational (Master Data)
Supply Chain Items	Supply Chain Management	Transaction
Suspense Account	Financials	Configuration (Setup)
System Profile Options	System Configuration	Configuration (Setup)
System Profile Values	System Configuration	Configuration (Setup)
Tables	System Configuration	Configuration (Setup)
Tax Details	Financials	Transaction
Tax Jurisdictions	Financials	Configuration (Setup)
Tax Options	Financials	Configuration (Setup)
Tax Rates	Financials	Configuration (Setup)
Tax Recovery Rates	Financials	Configuration (Setup)
Tax Registration: First Party Legal Establishment	Financials	Configuration (Setup)
Taxes	Financials	Configuration (Setup)
Territory	Customer Relationship Management	Configuration (Setup)
Transaction Account Definition	Financials	Configuration (Setup)
Transaction Account Types	Financials	Configuration (Setup)
Transaction Calendar	Financials	Configuration (Setup)
Transaction Reason	Supply Chain Management	Configuration (Setup)
User	Authorization	Configuration (Setup)
User Operating Unit Preferences	System Configuration	Configuration (Setup)
User Role Assignments	System Configuration	Configuration (Setup)
Warehouse Management Global Parameters	Financials	Configuration (Setup)
Warehouse Management Pick Slip Grouping Rules	Financials	Configuration (Setup)
Warehouse Management Release Sequence Rules	Financials	Configuration (Setup)
Warehouse Management Report Sets	Financials	Configuration (Setup)
Warehouse Management Ship Confirm Rules	Financials	Configuration (Setup)

Business Object Name	Type	Category
Warehouse Management Shipping Parameters	Financials	Configuration (Setup)
Withholding Tax Certificates	Financials	Configuration (Setup)
Withholding Tax Group	Financials	Configuration (Setup)
Workflow Activity	Customer Relationship Management	Configuration (Setup)

Oracle E-Business Suite 11.5.10.2

The following is a table of delivered business objects for EBS 11.5.10.2.

Business Object Name	Type	Category
Access Entitlements	Segregation of Duties	Access
Access Point	Segregation of Duties	Access
Accounting Events	Financials	Transaction
Accounting Flexfield Definition	Financials	Configuration (Setup)
Application	Human Capital Management	Configuration (Setup)
Application Data Group	Human Capital Management	Configuration (Setup)
Application Request Group	Human Capital Management	Configuration (Setup)
Application User	Human Capital Management	Configuration (Setup)
Bank Account	Financials	Configuration (Setup)
Bank Branch	Financials	Configuration (Setup)
Bank Charges	Financials	Configuration (Setup)
Bank Statement	Financials	Transaction
Business (Operating) Unit	Financials	Configuration (Setup)
Business Group	Financials	Configuration (Setup)
Buyer	Procurement	Configuration (Setup)
Customer	Financials	Operational (Master Data)
Customer Account (Site) Contact	Customer Relationship Management	Operational (Master Data)
Customer Account Sites	Customer Relationship Management	Operational (Master Data)
Customer Accounts	Customer Relationship Management	Operational (Master Data)
Document Sequence	System Configuration	Configuration (Setup)
EBS Access Condition	Segregation of Duties	Access
EBS Function	Authorization	Configuration (Setup)

Business Object Name	Type	Category
EBS Menu	Authorization	Configuration (Setup)
EBS Responsibility	Authorization	Configuration (Setup)
EBS Role	Authorization	Configuration (Setup)
Expense Location	Financials	Configuration (Setup)
Expense Policy	Financials	Configuration (Setup)
Expense Report	Financials	Transaction
Expense Report Attendees	Financials	Transaction
Expense Report Template	Financials	Configuration (Setup)
Expense Setup: General	Financials	Configuration (Setup)
Flexfield Segment Values	System Configuration	Configuration (Setup)
General Ledger	Financials	Configuration (Setup)
General Ledger Accounts	Financials	Configuration (Setup)
Human Resources Organization	Human Capital Management	Configuration (Setup)
Item	Supply Chain Management	Operational (Master Data)
Item Category	Supply Chain Management	Configuration (Setup)
Item Category Set	Supply Chain Management	Configuration (Setup)
Item Cost	Supply Chain Management	Configuration (Setup)
Item Status	Supply Chain Management	Configuration (Setup)
Journal Entry	Financials	Transaction
Journal Entry Category Definition	Financials	Configuration (Setup)
Journal Entry Source Definition	Financials	Configuration (Setup)
Ledger Setup: General	Financials	Configuration (Setup)
Ledger Steps Details	Financials	Configuration (Setup)
Legal Entity	Financials	Configuration (Setup)
Lockbox Transmission File	Financials	Configuration (Setup)
Order Line Sets	Customer Relationship Management	Transaction
Order Management Transaction Type	Customer Relationship Management	Configuration (Setup)
Organization Location	Human Capital Management	Configuration (Setup)
Organization Parameters	Supply Chain Management	Configuration (Setup)

Business Object Name	Type	Category
Payables Aging Period	Financials	Configuration (Setup)
Payables Invoice	Financials	Transaction
Payables Invoice Approval History	Financials	Transaction
Payables Invoice Batches	Financials	Transaction
Payables Invoice Detail	Financials	Transaction
Payables Invoice Hold	Financials	Transaction
Payables Invoice Tolerance Set	Financials	Configuration (Setup)
Payables Payment Term	Financials	Configuration (Setup)
Payables Procurement Card	Financials	Configuration (Setup)
Payables Procurement Card Code For Exception Use	Financials	Configuration (Setup)
Payables Setup: General	Financials	Configuration (Setup)
Payables Setup: Invoice	Financials	Configuration (Setup)
Payables Setup: Payments	Financials	Configuration (Setup)
Payables Setup: Tax	Financials	Configuration (Setup)
Payment	Financials	Transaction
Person	Human Capital Management	Operational (Master Data)
Price List and Modifiers	Supply Chain Management	Operational (Master Data)
Pricing Agreements	Supply Chain Management	Configuration (Setup)
Procurement Card Statement	Financials	Transaction
Procurement Setup: Accounting	Financials	Configuration (Setup)
Purchase Order	Procurement	Transaction
Purchase Order Line Location	Procurement	Transaction
Purchase Order Releases	Procurement	Transaction
Purchase Order Revision History	Procurement	Transaction
Purchasing Approved Supplier	Procurement	Operational (Master Data)
Purchasing Contract Revision History	Procurement	Transaction
Purchasing Contracts	Procurement	Transaction
Purchasing Hazard Class	Procurement	Configuration (Setup)
Purchasing Line Type	Procurement	Configuration (Setup)

Business Object Name	Type	Category
Purchasing Setup: General	Financials	Configuration (Setup)
Purchasing UN (United Nations) Number	Procurement	Configuration (Setup)
Receipt	Procurement	Transaction
Receivables Activities	Financials	Configuration (Setup)
Receivables Application Rule Set	Financials	Configuration (Setup)
Receivables Auto-Cash Rule Set	Financials	Configuration (Setup)
Receivables Batch Source	Financials	Configuration (Setup)
Receivables Grouping Rules	Financials	Configuration (Setup)
Receivables Invoice	Financials	Transaction
Receivables Location	Financials	Configuration (Setup)
Receivables Lockbox	Financials	Configuration (Setup)
Receivables Payment Schedule	Financials	Transaction
Receivables Payment Term	Financials	Configuration (Setup)
Receivables Receipt Batch	Financials	Transaction
Receivables Receipt Class	Financials	Configuration (Setup)
Receivables Receipt Method	Financials	Configuration (Setup)
Receivables Receipt Remittance Batch	Financials	Transaction
Receivables Receipt Source	Financials	Configuration (Setup)
Receivables Standard Receipt	Financials	Transaction
Receivables System Option	Financials	Configuration (Setup)
Receivables Transaction Type	Financials	Configuration (Setup)
Requisition	Procurement	Transaction
Resources	Customer Relationship Management	Configuration (Setup)
Sales Credit Type	Customer Relationship Management	Configuration (Setup)
Sales Order	Customer Relationship Management	Transaction

Business Object Name	Type	Category
Server Group	Customer Relationship Management	Configuration (Setup)
Special Calendar	Financials	Configuration (Setup)
Subledger Event Model	Financials	Configuration (Setup)
Subledger Journal Entry	Financials	Transaction
Supplier	Financials	Operational (Master Data)
Supplier Bank Account Change Request	Procurement	Operational (Master Data)
Supplier Contacts	Financials	Operational (Master Data)
Supplier Purchase Order Change Request	Procurement	Transaction
Supplier Site Location	Financials	Operational (Master Data)
Territory	Customer Relationship Management	Configuration (Setup)
Transaction Reason	Supply Chain Management	Configuration (Setup)
User	Authorization	Configuration (Setup)
Withholding Tax Group	Financials	Configuration (Setup)

PeopleSoft Enterprise Financials 9.1

The following is a table of delivered business objects for PeopleSoft 9.1.

Note: For the PeopleSoft 9.1 adapter and metadata, the area of delivered content focuses on the procure-to-pay, expenses, and financial setup objects.

Business Object Name	Type	Category
Access Entitlements	Segregation of Duties	Access
Access Point	Segregation of Duties	Access
Accounting Periods	Financials	Configuration (Setup)
Alternate Account	Financials	Configuration (Setup)
Bank	Financials	Configuration (Setup)
Bank Account	Financials	Configuration (Setup)
Bank Account Transfer	Financials	Transaction
Bank Branch	Financials	Configuration (Setup)
Bank Statement	Financials	Transaction
Bank Transfer Charge Code	Financials	Configuration (Setup)
Budget Reference	Financials	Configuration (Setup)
Business (Operating) Unit	Financials	Configuration (Setup)
Buyer	Procurement	Configuration (Setup)
Class	Financials	Configuration (Setup)

Business Object Name	Type	Category
Department	Financials	Configuration (Setup)
Employee Expense Profile	Financials	Configuration (Setup)
Expense Approval Assignments	Financials	Configuration (Setup)
Expense Approval Routing List	Financials	Configuration (Setup)
Expense Approver Profile	Financials	Configuration (Setup)
Expense Cash Advance	Financials	Transaction
Expense Cash Advance Payment	Financials	Transaction
Expense Location	Financials	Configuration (Setup)
Expense Location Amount	Financials	Configuration (Setup)
Expense Location Group	Financials	Configuration (Setup)
Expense My Wallet	Financials	Transaction
Expense Options	Financials	Configuration (Setup)
Expense Policy	Financials	Configuration (Setup)
Expense Refinement Template	Financials	Configuration (Setup)
Expense Report	Financials	Transaction
Expense Report Payment	Financials	Transaction
Expense Risk Template	Financials	Configuration (Setup)
Expense Risk Template Criteria	Financials	Configuration (Setup)
Expense Setup: General	Financials	Configuration (Setup)
Expense Transaction Definition	Financials	Configuration (Setup)
Expense Travel Authorization	Financials	Transaction
Expense Types	Financials	Configuration (Setup)
External Bank Account	Financials	Configuration (Setup)
Fund Code	Financials	Configuration (Setup)
General Ledger	Financials	Configuration (Setup)
General Ledger Accounts	Financials	Configuration (Setup)
Item	Supply Chain Management	Operational (Master Data)
Item Category	Supply Chain Management	Configuration (Setup)
Item Cost	Supply Chain Management	Configuration (Setup)
Journal Entry	Financials	Transaction
Journal Entry Source Definition	Financials	Configuration (Setup)

Business Object Name	Type	Category
Ledgers For A Unit	Financials	Configuration (Setup)
Lockbox Transmission File	Financials	Configuration (Setup)
Order Management Transaction Type	Customer Relationship Management	Configuration (Setup)
Organization Location	Human Capital Management	Configuration (Setup)
Page Access Configurations	Segregation of Duties	Access
Payables Aging Period	Financials	Configuration (Setup)
Payables Invoice	Financials	Transaction
Payables Invoice Detail	Financials	Transaction
Payables Invoice Tolerance Set	Financials	Configuration (Setup)
Payables Payment Term	Financials	Configuration (Setup)
Payables Procurement Card	Financials	Configuration (Setup)
Payables Setup: General	Financials	Configuration (Setup)
Payables Setup: Invoice	Financials	Configuration (Setup)
Payables Setup: Payments	Financials	Configuration (Setup)
Payables Setup: Tax	Financials	Configuration (Setup)
Payment	Financials	Transaction
Payment Code: Payment Reason Code	Financials	Configuration (Setup)
PeopleSoft Access Condition	Segregation of Duties	Access
PeopleSoft Menu	Authorization	Configuration (Setup)
PeopleSoft Page	Authorization	Configuration (Setup)
PeopleSoft Permission List	Authorization	Configuration (Setup)
PeopleSoft Role	Authorization	Configuration (Setup)
Price List and Modifiers	Supply Chain Management	Operational (Master Data)
Pricing Agreements	Supply Chain Management	Configuration (Setup)
Procurement Card Statement	Financials	Transaction
Procurement Setup: Accounting	Financials	Configuration (Setup)
Procurement Setup: Tax Accounting	Financials	Configuration (Setup)
Product	Financials	Configuration (Setup)
Program Code	Financials	Configuration (Setup)

Business Object Name	Type	Category
Project	Financials	Configuration (Setup)
Purchase Order	Procurement	Transaction
Purchase Order Change History	Procurement	Transaction
Purchase Order Line Location	Procurement	Transaction
Purchasing Approved Supplier	Procurement	Operational (Master Data)
Purchasing Contract Change History	Procurement	Transaction
Purchasing Contracts	Procurement	Transaction
Purchasing Hazard Class	Procurement	Configuration (Setup)
Purchasing Setup: General	Financials	Configuration (Setup)
Receipt	Procurement	Transaction
Receivables Invoice	Financials	Transaction
Receivables Location	Financials	Configuration (Setup)
Receivables Lockbox	Financials	Configuration (Setup)
Receivables Payment Schedule	Financials	Transaction
Receivables Payment Term	Financials	Configuration (Setup)
Receivables Payment Terms Timing	Financials	Configuration (Setup)
Receivables Receipt Batch	Financials	Transaction
Receivables Standard Receipt	Financials	Transaction
Receivables System Option	Financials	Configuration (Setup)
Requisition	Procurement	Transaction
Requisition Change Order	Procurement	Transaction
Requisition Distribution	Procurement	Transaction
Sales Order	Customer Relationship Management	Transaction
Scenario	Financials	Configuration (Setup)
Set ID	Financials	Configuration (Setup)
Statistics Code	Financials	Configuration (Setup)
Subledger Journal Entry: Accounts Payable	Financials	Transaction
Subledger Journal Entry: Accounts Receivable	Financials	Transaction

Business Object Name	Type	Category
Subledger Journal Entry: Expenses	Financials	Transaction
Supplier	Financials	Operational (Master Data)
Supplier Address	Financials	Operational (Master Data)
Supplier Contacts	Financials	Operational (Master Data)
Supplier Duplicate Invoice Settings	Financials	Operational (Master Data)
Supplier Site Location	Financials	Operational (Master Data)
Supplier Withholding Details	Financials	Operational (Master Data)
User	Authorization	Configuration (Setup)
Withholding Tax Group	Financials	Configuration (Setup)

