

Enterprise Transaction Controls Governor Implementation Guide 8.6.0

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Implementation Guide Use

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 *Upgrade 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.

Enterprise Transaction Controls Governor Setup

Overview

Oracle Enterprise Transaction Controls Governor (ETCG) is a transaction-authoring and -handling solution that works across heterogeneous platforms to detect issues that exist at the transaction level. It runs in a Governance, Risk and Compliance Controls (GRCC) platform, which it shares with another application called Application Access Controls Governor (AACG).

ETCG enables its users to create models and controls, each of which defines risk that transactions may present. A model specifies semantic business objects (BO), which supply transaction data to the model; 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, and so present potential risk to the organization. The results returned for a model are considered “temporary” because the suspect transactions are replaced each time the model is run, whereas control results — known as incidents — are “permanent” no matter how often the control is run.

Because ETCG was designed with rapid implementations in mind, a best-practice library (a set of delivered templates) may be used to deploy models for immediate transaction analysis. The best-practice library for the Oracle E-Business Suite (EBS) provides models that support rapid implementation of transaction analysis around common end-to-end business processes. These include 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.

Touch points of ETCG include several areas that span hardware, software, and network variables. Refer to the *Hardware Requirement* tab of the *Oracle Governance, Risk, and Compliance (GRC) Applications Support Matrix* for the recommended and supported hardware configurations.

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

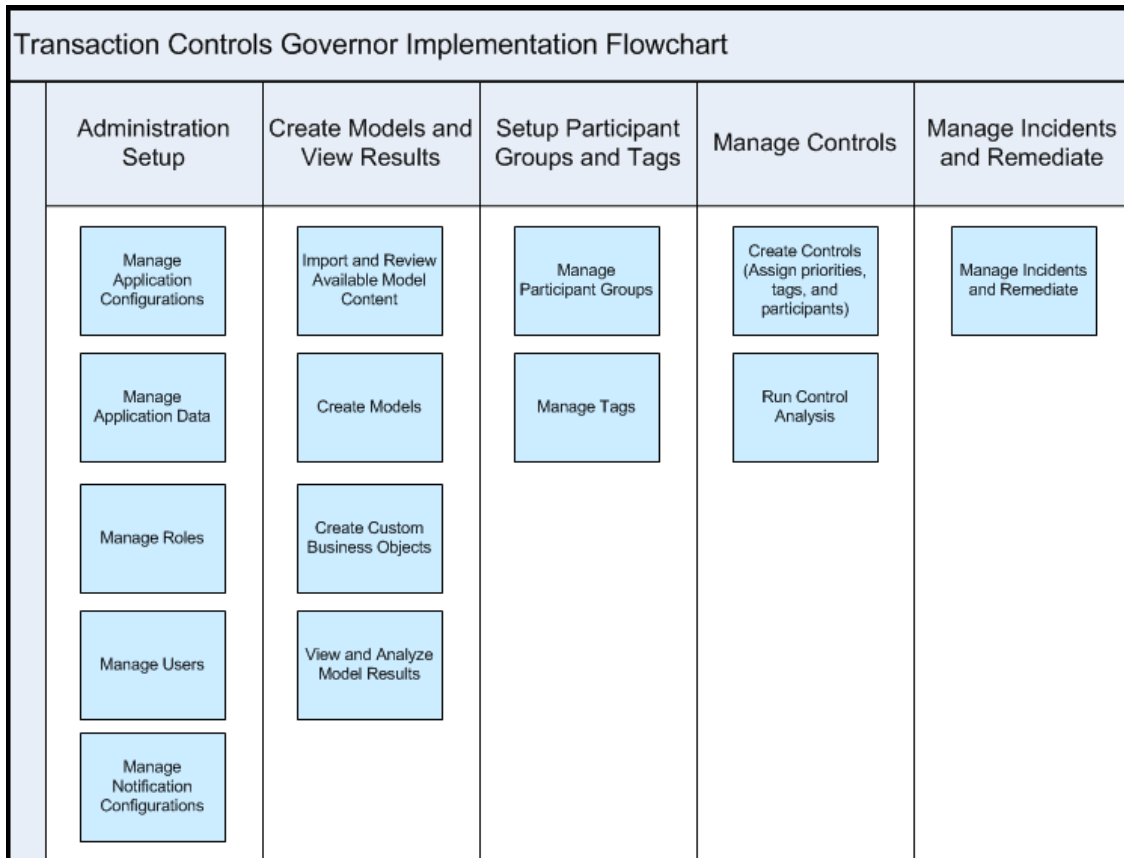
It is highly recommended during implementation planning that sufficient time be allocated for setting up, testing, and troubleshooting environment-specific issues that occur commonly with the many combinations of environments available.

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 GRCC 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 *Support Matrix* document for recommended and supported hardware configurations.
- 3 Look on My Oracle Support for known environment variable issues.
- 4 Follow the *GRCC Installation and Upgrade Guide* to install GRCC.
- 5 Verify that areas of the application are working (see the *Oracle Enterprise Transaction Controls Governor User Guide* or *Governance, Risk and Compliance Controls User Guide* for more information).
 - a Create a datasource (a connection to a database used by a business-management application over which ETCG is to exercise control). As part of working with a datasource, you may synchronize data — capture recent changes in the data stored on the datasource. However in ETCG (unlike AACG), synchronization will not run until at least one model is created and saved.
 - b Create a simple transaction model to test (for example, Supplier business object where the creation date is greater than *mm/dd/yyyy*).
 - c Synchronize data from your datasource and run View Results.
 - d View the transaction-analysis results.
- 6 Continue setups as recommended in this *Implementation Guide*.

Enterprise Transaction Controls Governor Setup Flowchart

Although you can set up Enterprise Transaction Controls Governor in many ways, we recommend that you follow the order suggested in the following flowchart. Some steps are required, and others are optional; you would perform the optional steps only if you are ready to use the features or business functions implemented by those steps.



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 of the optional steps 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 *GRCC User Guide*, in which you can find full information about the procedures for completing each step.

Administration Setup

- ☐ **1 Required:** Connect your instance of GRCC to its database. Typically, connectivity values are set during installation; you would update the values only if your configuration needs to change.

See “Setting Properties” in the Data and System Administration chapter of the *GRCC User Guide*.

- ☐ **2 Required:** Configure connections to datasources for instances of the business-management applications (such as Oracle EBS) that are to be subject to control by ETCG. Optionally, select a datasource to be used as the ETCG default.

See “Configuring a Datasource Connection” in the Data and System Administration chapter of the *GRCC User Guide*.

- 3 **Optional:** Define roles and permissions available to ETCG users. To create a role, you essentially give it a name and then select a set of properties for it. For ETCG, properties do the following:

- Grant update or view rights to the nodes you can select in the Tasks panel, generally following its hierarchy, and so assign privileges to work in the screens that can be opened from the Tasks panel.
- Grant access to business objects and datasources used to create models and analyze transaction data.

GRCC comes with two roles already defined — Basic provides access only to a Home page, and Admin provides access to all (AACG and ETCG) features, including all business objects. The permissions of the Admin role should not be updated, allowing access to all datasources, business objects, and pages.

Role creation is optional because you may use the existing Admin role to grant access to all the features you will need initially. But the datasources you define in your environment must be granted access in the Admin role, since datasource definitions are specific to your organization.

See “Creating a User Role” and “Creating a Group Role” in the User and Role Administration chapter of the *GRCC User Guide*.

- 4 **Required:** Define ETCG users and grant them roles. GRCC comes with one configured user, for which both the user name and password are *admin*. This user is assigned the Admin role and so has rights to all GRCC features. By logging on as the admin user, one can create other roles and users. However, it is imperative for proper security that an authoritative user modify the admin user’s password as soon after installation as that task can be completed.

It is recommended that at least one additional role with administrative capabilities be created. This role can be used if the original admin role becomes locked (which would occur if several unsuccessful login attempts are made on it.)

See “Creating User Accounts” in the User and Role Administration chapter of the *GRCC User Guide*.

- 5 **Optional:** Configure notifications. When a control generates incidents, ETCG may notify the participants via your company’s email system. For this to happen, establish a connection to the SMTP server your company uses for sending email, and schedule notifications to be sent. This may be done at any time during implementation, but keep in mind that during initial implementation there is usually a higher volume of incidents generated.

See “Configuring Notifications” in the Data and System Administration chapter of the *GRCC User Guide*.

Create Models and View Results

- 6 **Optional:** Load model content. AN ETCG import utility enables users to upload templates created by Oracle or by other users (and an export utility enables users to make their own models available to others as templates). Best-

practice transaction models (delivered templates) for E-Business Suite may be loaded to support rapid implementation of transaction analysis.

See “Exporting and Importing Models and Templates” in the Creating and Managing Models chapter of the *ETCG User Guide*.

- 7 **Required:** Define transaction models (or copy/edit those loaded in step 6). A transaction model may select business objects for review and define the conditions for that review. A single model may mix differing business objects. For example, it may include 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 separate Oracle E-Business Suite environments.

See “Using a Model or Template to Create a New Model” and “Creating a Transaction Model” in the Creating and Managing Models chapter of the *ETCG User Guide*.

- 8 **Optional:** Create custom business 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*.

- 9 **Required:** View and analyze results that your transaction models generate. A View Results program may be run immediately or in the background.

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

Set Up Participant Groups and Tags

- 10 **Optional:** Create participant groups. Easily manage and assign groups of GRCC users who are in charge of reviewing and acting on incidents that are generated from controls.

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

- 11 **Optional:** Define tags. A tag is a category of values. Its values may be assigned to controls and their incidents to facilitate user analysis and reporting during incident evaluation and remediation.

There are two seeded tags, Business Process and Risk. Evaluate how your organization wants to categorize and assign tags to your controls. You can define new tags and their values.

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

Manage Controls

- 12 **Required:** Create transaction controls. Deploy controls from models in order to generate permanent incidents 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 incidents 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 the higher areas of remediation via the Manage Incidents grid and reporting tools.
 - Selecting at least one datasource for a control is **required**.
 - Assign optional tags. Tags are used to categorize controls that facilitate analysis by sorting, filtering, and reporting during incident analysis and remediation.
 - Assign participants or participant groups. By default, the user creating the control is assigned as a participant. Assign additional participants or participant groups to the control. Each control must have at least one participant (individual or group), that resolves control incidents.
 - 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 Controls chapter of the *ETCG User Guide*.

- 13 **Required:** Run control analysis. By selecting the Run action the process identifies and creates incidents for your selected control(s). Alternatively, you can set up a schedule for the control to run on a regular basis 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.

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

Manage Incidents and Remediate

- 14 **Required:** Manage incidents and remediate. Incidents are automatically assigned to the appropriate participants, who analyze, report, and remediate incidents they have been assigned.

See “Managing Incidents” in the Resolving Incidents chapter of the *ETCG User Guide*.

Administration Setup

You need to create and set up one or more datasources in the GRCC Administration Management task, Manage Application Data page. The datasources you set up depend on various factors, such as your company's current mandates, risk tolerances, and compliance goals. Considerations include the need to connect to development instances and test instances, and to analyze data across multiple homogeneous instances and/or heterogeneous platforms. Below are instructions for the administration steps outlined in the "ETCG Flowchart" from above. (There are references to other sections of this guide for more detailed instructions.)

Use the *Governance, Risk and Compliance Controls User Guide* for help in completing setups.

Manage Application Data

Before you begin setting up your datasources, consider your environment and your goals. 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 create the necessary datasources so that when models are loaded or created, they will be able to run against the appropriate datasources.

See "Managing Application Data" in the Data and System Administration chapter of the *GRCC User Guide*.

Manage Application Configurations

Once you have identified your datasources, evaluate the amount of historical data you will require as part of your transaction analysis and determine how era-dating can be used in your organization, defined under the Manage Application Configuration page.

As part of defining properties (in the Manage Application Configuration page), it is recommended you set an analysis start date by enabling era-based ETL optimization for ETCG. This causes ETCG data synchronization to operate only on data that was last updated after the specified date (meaning that no data updated prior to the analysis start date is ETLed into GRCC). The date used here can have a direct impact on performance because it affects the amount of data synchronized.

There are some very important points you must consider as a part of your era-based setting:

- The analysis start date is a mechanism used for limiting the record set that is synchronized (such as for space limitations), and applies to all datasources and data 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 analysis start date in a test environment, to improve your ETCG testing experience. But eventually you should test the date itself to determine whether there is an analysis start date that works for your organization.
- The reason this analysis start date should be included as part of your test plans is because its setting can directly impact the transactions identified as potential suspects, in some cases ignoring them entirely when they should not be ignored. Below is a use-case example you should reference to evaluate and verify the impact the date will have on your model (and eventually control) results. Use dates and business objects that make sense to you.

1 Set Analysis Start Date to 1/1/2009.

2 Create a model using Supplier and Payables Standard Invoice business objects.

Most of the Supplier data has not been updated in the source ERP system in a long time because it does not change frequently. The Invoices are current in the last month because transactions are updated daily.

3 View results of the model. You find zero data rows are returned, but know there should have been at least a few suspects.

The limitation is the era-date feature, because it applies to all business objects — whether they are infrequently updated (like setup or operational information like supplier) or not (transaction data).

The supplier data for the related Invoice transactions in this use case was never ETLed over, because the last time suppliers were updated was before the analysis start date. The era date applies to both datasource records — supplier and invoice.

Note: *Era-based ETL does not apply to AACG.*

As you define application configurations, you may consider other questions, such as the following: Will you require various languages? Will you need to create additional reports leveraging the data staging area? 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 needs.

See “Configuring GRCC” in the Data and System Administration chapter of the *GRCC User Guide*.

Manage Roles

Before you begin setting up your roles, consider who will use ETCG (and GRCC), and for what purposes. 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 tags and participant groups, deploying controls and monitoring incident remediation, and running reports.
- System Administrator — May set up datasources, application configuration, notification configurations, and perform other administrative tasks.
- Remediation User — May analyze incidents and update status during remediation.

See the User and Role Administration chapter of the *GRCC User Guide*.

Manage Users

Before you begin creating users — during the role-creation process — you should have considered who will use ETCG (and GRCC), 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.

See the User and Role Administration chapter of the *GRCC User Guide*.

Manage Notification Configurations

Notification schedules determine how often users are notified when incidents are generated. For each control participant for whom notification is set to yes, a consolidated email message is generated, showing all controls violated, but not yet sent. Before creating a notification schedule, consider how often incidents will be generated, and how immediate is the need to review or fix those incidents.

See “Configuring Notifications” in the Data and System Administration chapter of the *GRCC User Guide*.

About ETL Synchronization

To maximize performance and handle cross-platform analysis, ETCG employs synchronization — it extracts transaction data from ERP systems and loads that data into its own database. For efficiency purposes, a synchronization operation collects transaction data that apply only to the business objects and datasources used by existing models. Therefore, synchronization can be run only after at least one model has been created and saved.

ETL synchronization may be run on demand, or it may be scheduled to run at regular intervals. Various factors dictate how often either on-demand or scheduled synchronization should occur.

In general, whenever data within ETCG is believed to have aged substantially beyond equivalent data in a datasource, ETL synchronization should occur before transaction analysis is run against that datasource. Transaction data changes daily, so a daily ETL synchronization is recommended if transaction analysis is also performed 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.

Keep in mind that you can always run an on-demand ETL synchronization if necessary. However, this must be completed before the transaction analysis is performed.

See “Synchronizing Data” in the Creating and Managing Models chapter of the *GRCC User Guide*.

Create Models (and Templates) and View Results

You may decide to load the best-practice transaction models delivered 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 (GRC). It will probably be necessary to use a combination of best-practice models and new models you create and edit.

During this phase of implementation, you must consider all available solutions in 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 or using a template to create a model is a required step.
- Models may be beneficial for your internal and external auditing requirements. Auditors can be granted access to the GRCC 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 will track permanent results (known as incidents) that cannot be deleted and require a more formal analysis and remediation process.
 - Controls contain additional criteria that models do not, such as status, tags, priority, participants, and comments.
 - Because models are used as part of control setup, or as an analysis tool by auditors and business owners, the models can be deleted by the user who created them, 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 template or 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 best-practice model library as templates.
- 3 Hold workshops with subject-matter experts (SMEs) to 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.

8 Convert models to templates for shared, global use if needed.

(There are references to other user guide sections in this document for more detailed instructions.)

Import Available Model Content (Templates)

Models are user-specific — each is visible only to the user who created it. Therefore it's best to save key models as templates, which may be reused by various groups and users within the organization. A template is a permanent record of a model that is viewable by all ETCG users — all users have access to templates.

When new models have been created ad hoc by users, and they have been validated (their results have proven they are effective), they should be converted to templates if they are to be shared with other users. This involves exporting models to a file as templates, and then importing the templates from the file; these operations are performed in the Manage Models page. When a template is imported, it appears in the Templates tab of Library in the Create Transaction Model or Edit Transaction Model page. (A template is a shell of the model from which it is created; it contains no name, description, or datasource. The user fills that information in, then saves it as a unique model.)

When you use this template feature, consider the following:

- User role security for business objects. A user must have access to business object used in the template; if not, the template will not be available to the user. The sensitivity of data may determine the demand to share models as templates within your organization.
- Requirements to share models. As part of your GRC goals and requirements, evaluate how many users build models and perform transaction analysis. Next, consider whether their models overlap very little or extensively. The volume of users may dictate how many templates you use, or how frequently you use this template feature.
- Testing environment versus production environment. When you are in your test environment, you are not as concerned with the number of templates created by all your users. Any user that has update access to the Manage Models page can import models as templates. But you need to carefully evaluate your requirements and processes in your production environment; once templates are imported they **cannot** be deleted. (There is no tool or action available to remove the template from the library in the Create Transaction Model page.)

See “Exporting and Importing Models and Templates” in the Creating and Managing Models chapter of the *ETCG User Guide*.

Create Models

As mentioned above, 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 delivered content models (or templates) 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 once the control is created, the model logic and display results (attributes) cannot be changed.

To create models efficiently, it's important to understand how GRCC synchronization (ETL) works. When a previously unused business object is added to a model, an ETL process runs automatically as part of the model-creation process, collecting data about the new business object. If you intend to use one or more new business objects as you create or edit any number of models, you should initiate the ETL process first. Do this in either of two ways:

- Create a “pseudo model” — one that contains the previously unused business objects, and at least one filter in the model logic (for example, for Supplier business object, Supplier ID is not blank). Saving this model initiates the synchronization process for the new business objects. You may choose to do this several days (or at least overnight) prior to building the models you really want to create.
- Build an actual model with all its business logic. Save this model and allow it to run in the background, so that other new models can be created. These models and related business object synchronization are queued in Manage Jobs (a page available under the Jobs and Scheduling task).

There are several key things to consider when defining models:

- Select all the necessary business objects.
- Use the right datasources.
- Attempt to “over-filter” at first.
- Select only the most important attributes. (An attribute is an individual piece of transaction data owned by a business object — for example Supplier Name in the Supplier business object.) Selecting only necessary attributes directly impacts the amount of suspect data rows that might be returned. For example, if you select the Invoice ID attribute from the Payables Standard Invoice business object, far fewer results are returned for analysis, because the suspect data is aggregated to the header level — Invoice ID — instead of the individual line/detail rows that make up the invoice.

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. If selected objects are logically unrelated, a warning message will indicate 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 using the Payables Standard Invoice business object, include the Supplier business object to use the Supplier Name attribute.
- When you use the Payment business object in a model, it already contains the Supplier Name attribute and does not require the additional Supplier business object.

Datasources

In general (excluding any customizations), the current release of ETCG uses three data-source “types.” These include:

- Oracle R12.1, which is the current delivered integration (adapter and metadata).
- GRCC, which is used in conjunction with the “User” and “Access Entitlement” business objects. (The datasource basically points to itself to leverage access-oriented object information stored in GRCC.)
- 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 GRCC or XLS datasource under the Data Administration page. These are delivered datasources that appear as options in your Create Transaction Model or Edit Transaction Model page.

Model Logic

As you create an ETCG model, you define “filters,” each of which defines 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. At a high level, there are three filter types: general, function, and pattern.

As part of the general and function filter types, there is an Advanced Options expandable region. Depending upon the condition being used, the options include:

- Include all distinct rows for the similar condition, which is used in conjunction with the Similar and Similar to conditions.
- Apply condition across the same data row, which applies when the same business object is used on both sides of the condition.
- Over interval, which applies only to the function filter.
- Exclude, which applies to both filters.

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, Is not related to, Similar, and Similar to. Except for the Is blank and Is not blank conditions, additional criteria are required, such as value or an object and its attribute.
- Examples of their usage might include:
 - Use “Greater than” with two attributes like Amount Paid and Invoice Amount (such as Amount Paid Greater than Invoice Amount).
 - Use the “Contains” condition in conjunction with text attributes. As an example, define the filter for a Description attribute that includes value *Miscellaneous*. This value is not case sensitive.

- Use “Similar” to analyze and group similar data rows across a single attribute, based on a percent similar, which only considers data groups that have more than one similar value when the “Include all distinct rows for the similar condition” is *unchecked*. For example, use “Similar” on Supplier or Customer Name to identify duplicates or names that are similar.

Use “Similar to” to analyze and group similar data rows across two attributes, in the same or a different business object, based on a percent similar, and with the “Include all distinct rows for the similar condition” *unchecked* to consider groups that have more than one similar value. (In most cases, 80 percent similar or higher should be used to avoid a lot of false positives for the “Similar” and “Similar to” conditions.)

- Another way to use “Similar to” is to create a link between two objects and attributes that may not currently be related. This is especially true when analyzing custom business objects created from external data. (To review and example, see the Use Case 5 in the Appendix of this document.)
- Use one of the three available functions such as Average, Count, and Sum. For example, use “Sum” to add together Invoice Amounts and define a business object/attribute filter to indicate how data is aggregated (such as aggregating invoices by Supplier Name from the Supplier business object).

When more than one filter is added, an AND relationship is the default. For the general and function filters, you can drag a filter along side another to create an OR relationship.

Pattern filters are statistical algorithms applied to identify baselines and anomalies in data. Two delivered patterns are currently available: Mean and Benford. Only one pattern filter is allowed per model, and 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.

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

Result Display

In the Result Display region of the Create Transaction Model page, select attributes you want to include as part of your result set. Keep in mind the number of attributes selected can affect the performance of generating the list of suspect transactions, and the number of rows created.

If you are eventually going to deploy this model as a control, it is important to assign a key or important attribute as the first in the list. This value will appear in an Incident Information field of the Manage Issues page to facilitate analysis, sorting, filtering and reporting of generated incidents.

Create Custom Business Objects

At times, you may want to use data from sources other than those registered within GRCC. To a limited extent, you can do this by utilizing the custom business object capabilities within the Create Transaction Model page.

In brief, you would create an object in the .xml file format 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 due diligence must be taken in making sure the data type is properly defined in the column header and that all formatting must be removed from the document before converting to .xml.

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

View and Analyze Model Results

Use the model results as an opportunity to perform any auditing analysis of transaction data, identify potential risk and fraud to make corrections if possible, and 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 finding, 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. If you intend to deploy a model as a control in order to track permanent incidents, continue to the next step of setting up participant groups and tags.

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

Set Up Participant Groups and Tags

Before deploying any model as a control, you should evaluate your participant groups and tag requirements. Think about who will be involved in the review process when incidents are generated and how to categorize your controls. (There are references to other user guide sections in this document for more detailed instructions.)

Manage Participant Groups

You can apply participant groups to each control. You may have an Internal Controls group in charge of reviewing overall controls, but you may also want to define groups by business area that will be focused on certain controls. For example, create three unique participant groups for users working with Expense, Payables, and Procurement transactions.

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

Manage Tags

Tags assigned to your controls will allow users to filter on those controls (and any incidents generated by those controls) by the tag values you define. For instance, if you have controls handled by regions in your company, it may make sense to create a new tag called Region. In that tag 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 reviewing incidents for the violations that happen in the North American region than you do in the South American region. Since transaction controls can focus on a specific business process area, you might find you want to update the delivered Business Process tag to represent your organization. The other delivered tag includes Risk.

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

Manage Controls

A transaction control specifies circumstances under which transactions entail risk and so require review. When the control is run, it generates incidents for the transactions that exceed the defined risk and are considered permanent. As mentioned earlier, you use a valid model as the foundation to create your transaction control. (There are references to other user guide sections in this document for more detailed instructions.)

Create Controls

Select models that have been tested and refined before using 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. All the model components are copied into the control (name, description, objects, logic, and attributes) as the first step, but then the control captures additional information such as priority, status, datasource, related controls, tags, participants and/or participant groups, and the ability to add any comments to the control. Once a control is created, updated, and analysis run, permanent incidents are then created.

After the control is run, you can update the control elements as necessary — such as priorities, tags, comments, and participants — one control at a time or en masse.

You can create a control from a defined or pattern model. Note, however, that a pattern model generates graphic results, but when a control is generated from the model, the graph is **unavailable**. It is advised that you use caution in using a pattern model deployed as a control unless you have done some extensive analysis working 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, and 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 Controls chapter of the *ETCG User Guide*.

Assign Priorities

In the required Priority field, you enter a value (number) that expresses the importance of the control and related incidents. As mentioned earlier, you should establish a set of priority values and enforce consistent usage within your organization.

Select Datasources

It is required that you select one or more valid datasources for the controls you are creating.

Assign Tags

Tags represent categories of values. Even though they are optional, they can be very beneficial while analyzing and remediating incidents. For example, one can use these values as part of sorting, filtering, and reporting.

Assign Participants

Each control must have at least one participant assigned to it. The user who creates the control is automatically assigned as a participant. Do not overlook adding additional participants that may be required.

Other Control Considerations

A control's status is either Active or Inactive; by default it is set to Active. If a control with incidents tied to it is set to the Inactive status, its incidents are set to a system-defined status of Control Inactive.

Other optional control elements include related controls and 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 be assigned as a participant to see the incidents in your Manage Incident grid.
- In this Manage Incident grid, there are some attributes from the transaction control logic that will assist you during analysis and reporting for remediation. They include:
 - Incident Information. This value is the first selected attribute in the Result Display region when you built the model. Since it is key and can be used for sorting, filtering, and reporting, choose a meaningful attribute as the first in list.
 - Grouping. This identifies a grouping filter and attribute defined as a filter in the Model Logic region when the model was defined. This would include Function filters, and filters that use the conditions of Similar and Similar to. (For example, a control has a filter that locates supplier names that are 80% similar. This field would show the condition and its related business object and attribute.)
 - Grouping Value. For ETCG, if you have grouping information you may also have a grouping value. The value represents the criteria that caused the record to be generated group of incidents to be identified.

See “Running Controls” in the Creating and Managing 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 with transaction analysis is not the same as with other types of violations, such as 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 adjusting transactions and modifying previously submitted reports.

Although there are various ways to approach remediation, outlined below are some approaches to facilitate analysis and remediation based on the transaction task you are currently working with. It may need to be adjusted based on your company's goals for governance, risk, and compliance.

See “Managing Incidents” in the Resolving Incidents chapter of the *ETCG User Guide*.

Remediation Flowchart

An overview of the transaction lifecycle and remediation steps is provided in the flowchart below. There are four high level phases or processes identified in the flowchart, representing 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

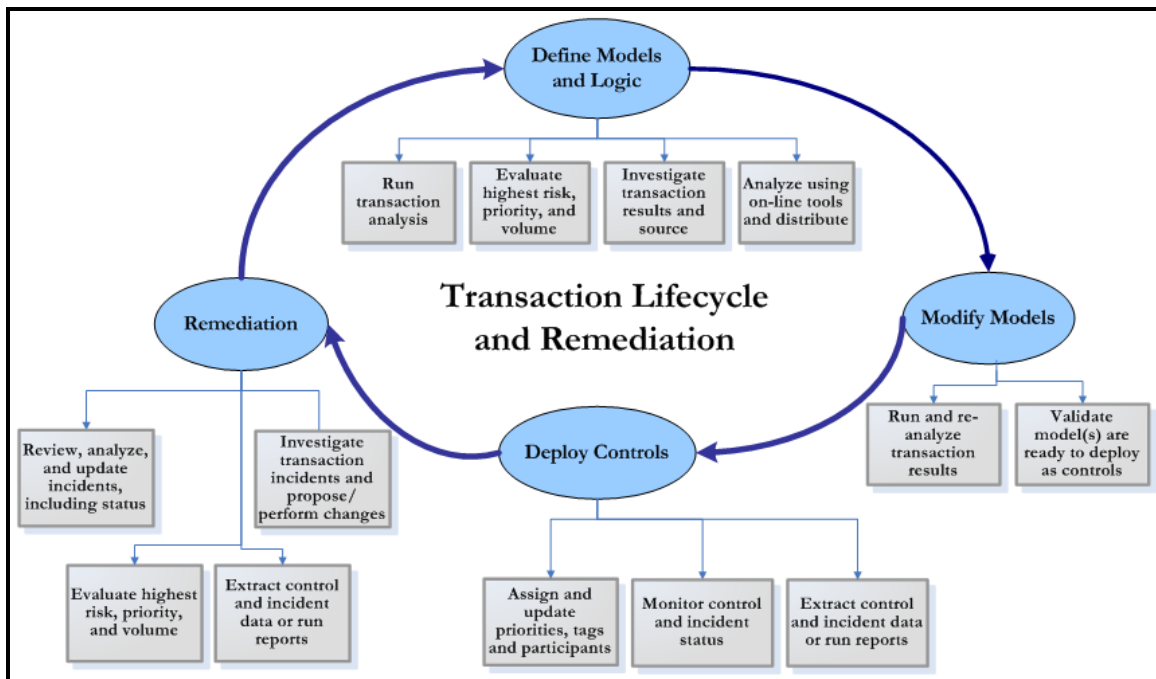
During this modify-model phase, edit your models in preparation of creating controls. You would want to probably re-run a model and analyze the data results to validate, and perform any final logic changes or remediation prior to signing off with users and deploying as a control to track permanent incidents.

Deploy Controls

When creating and running controls, be sure to assign priorities that might designate higher-risk areas to focus on. Include participants who can review and remediate any incidents generated by transaction control.

Remediation

The more formal remediation process is performed under Incident Management — Manage Incidents. By sorting and filtering in the online grid, and generating necessary reports to assist in the analysis, users can take action against the incidents 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 Oracle Enterprise Transaction Controls Governor 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. (There are references to other user guide sections in this document for more detailed instructions.)

Define Models and Logic

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

Loading all the seeded 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 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, tags and participants.

Assign the appropriate participant or participant groups who are involved in the remediation process. Assigning standard priorities and relevant tag values will help facilitate users' remediation of incidents when the control is created and run.

See "Creating Transaction Controls" in the Creating and Managing Controls chapter of the *ETCG User Guide*.

- 8 Monitor control and incident status.

User various online tools to monitor the remediation process of your controls:

- 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 and sort, filter, and report.
- Use the Manage Incidents grid and sort, filter, and report.

See 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 GRCC:

- Control Detail Extract Report
- Incident by Control Summary Extract Report
- Incident Summary Extract Report
- Transaction Incident Details Extract Report

These reports are also available via Reports Management.

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

Remediate

- 10 Review, analyze, and update incidents, including status.

Use the grid under Manage Incidents task to perform some initial online analysis such as sorting, filtering, and reporting. Update one or many incidents at the same time with any status changes, participants, tag changes, or add comments.

The following are the status options:

- Assigned (Pending State). This is auto assigned for further review when control incident is created.

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

See 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 Incident Dashboard tab under Manage Incidents task. The dashboard contains graphs to help you make these decisions.

See “Reviewing Summary Graphs” in the Resolving Incidents chapter of the *ETCG User Guide*.

☐ **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 Reporting chapter of the *ETCG 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. Any incidents that do not require further investigation should be set to Accepted status. When the Manage Incidents grid is refreshed, only pending incidents (Assigned and Remediate) are displayed, to minimize the amount of data you work with in the grid. You can still access Accepted or Resolved incidents by selecting the desired status in the filter above that column and selecting a View button. Any transaction incidents that are suspect and require further investigation should be set to Remediate.

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

Appendix

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

Troubleshooting Custom Objects (xml)

When on the Create Transaction Model page, you can import your custom object via an .xml file. If your custom object import is failing, consider the following:

- Refer to the *ETCG User Guide* under “Adding Custom Objects to the Library” and use the formatting conventions as a checklist. For example, check the first row header since it is used to identify each attribute for the object.
- 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 MS Word Format Painter to apply that format to the other date cells.

Use Case 1: Customer Name Maintenance

Your ERP datasource may have rules to validate and verify that supplier or customer naming conventions do not permit duplications or similarities. In ETCG, you can also create a model to perform this type of maintenance across one or two attributes you select. This use case includes the Customer business object to demonstrate maintenance across customer names.

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

This model uses only one business object — Customer, in the delivered Oracle R12.1 datasource. Criteria to be configured in the Manage Datasource window include:

Business Object (Type)	Datasource Name	Application Type <display>	Version <display>	Default <display>
Customer	Name of EBS datasource	Oracle	R12.1	true/false

Define a filter that uses the Similar condition to analyze a single attribute, Name. If you use a higher Percent Similar value, you reduce the number of data rows returned, but require a closer name match. By default the “Include all distinct rows for the similar condition” field is *unchecked*, indicating a match is required to bring in the customer name. Checking it would return every customer name, even if it did not have a similar match.

The filter criteria include:

No.	Field	Common
Filter 1	Object	Customer
	Attribute	Name
	Condition	Similar
	Percent Similar	90%
	Advanced Options: Include all distinct rows for the similar condition	<unchecked>

For the data result set, select enough attributes to assist in evaluation of the data. In this example of the customer maintenance use case, you may only require attributes like Customer Name, Number, Created On/By, Last Updated On/By, and Type.

Note: When you include the Created By or the Last Updated By attribute from a business object as part of your data result set, you will get an additional column that includes the Created By Name or Last Updated By Name, respectively.

Use Case 2: Sensitive Access Model

The intent of sensitive access models (SAM) is to provide visibility of the transactions that certain users have based on the access that has been granted them through specific access points. For example, an organization may want to track what supplier or payment transactions have been impacted by users who have been granted a specified super user role.

Sensitive access models are special cases of ETCG models. They automatically relate the access-oriented objects defined in the model with the included transaction objects. Sensitive access models have certain requirements in the construct of the model to achieve the desired results (an example here may be helpful).

Prerequisite: Under the Manage Application Data page, Datasources tab, the access synchronization must have been performed from your ERP datasource(s). The sensitive access model type leverages 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.

- 1 Add the appropriate authorization business object type to the model canvas. This should be the access point that's assigned directly to the user for the application. For example, in EBS R12.1, this would be the EBS Responsibility business object.
- 2 Add the User business object to the model canvas.
- 3 Add a transaction business object to the model canvas. For example, if you want to see what users with the PO Superuser responsibility have been creating or editing suppliers, you would add the Supplier business object to the model canvas.
- 4 Manage the business object datasources.
 - a Assign the access-related business object (User) to the GRCC datasource. (*Note: The GRCC 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 authorization and transaction related business objects to the respective target datasource.

- 5 Create necessary filters. At least one must identify the specific access values to be considered. For example, base the analysis on the PO Superuser responsibility.

Edit Transaction Model

* Name: SAM - Tracking Superuser for Supplier Datasource: **GRCC EBS R12.1** * Indicates required field

Description: Supplier Superuser Tracking

Model Objects

- EBS Responsibility**
 - Access Type ID
 - Description
 - Display Name
 - Effective Date
 - Locale Key
 - Locale Key Description
- Supplier**
 - Address Book: City
 - Address Book: Country
 - Address Book: County
 - Address Book: Language
 - Address Book: Line 1
 - Address Book: Line 2
- User**
 - Datasource ID
 - Email Address
 - First Name
 - Global User ID
 - Global User Name
 - Last Name

Model Logic

Filter on PO Superuser

Object	Attribute	Condition	Type	Value
EBS Responsibility	Name	Equals	Value	PO Super

Advanced Options

Use Case 3: Segregation of Duties

This segregation of duties (SOD) 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.

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

Business objects for this model include Supplier and Payment, in the delivered Oracle R12.1 datasource. Criteria to be configured in the Manage Datasource window include:

Business Object (Type)	Datasource Name	Application Type <display>	Version <display>	Default <display>
Payment	Name of EBS datasource	Oracle	R12.1	true/false
Supplier	Name of EBS datasource	Oracle	R12.1	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 second filter recommends using a date greater than some recent date defined by the user. The filter criteria include:

No.	Field	Common
Filter 1	Object	Supplier
	Attribute	Created by
	Condition	Equals
	Type	Object
	Object	Payment
	Attribute	Created by

No.	Field	Common
Filter 2	Object	Supplier
	Attribute	Created On
	Condition	Greater than
	Type	Fixed value*
	Value	<recent mm/dd/yyyy date>

* You might consider using a relative value for the date instead of fixed, especially if you plan to use and run the model or control in production on a regular basis, like monthly. Using a relative value for date allows you to define a value in units as it relates to the system date; for example in this case 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 On/By for both business objects, Last Updated On/By for both business objects, Payment Date, Payment Amount and Currency, and a Payment identifier like Check Number.

Use Case 4: Combine SOD with Sensitive Access

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

Start from Manage Model and duplicate the SOD 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 EBS Responsibility. For the User object, the datasource points to GRCC. (The User is an SOD type and stores global users of all source systems; the data for the model comes from within the GRCC application you are working in.) The datasource criteria would include:

Business Object (Type)	Datasource Name	Application Type <display>	Version <display>	Default <display>
User	GRCC datasource	GRCC	8.x	false
EBS responsibility	Name of EBS datasource	Oracle	R12.1	true/false

Define an additional filter to select a specific responsibility that exists within your organization that might apply. The filter criteria include:

No.	Field	Common
Filter 3	Object	EBS responsibility
	Attribute	Display name
	Condition	Equals
	Type	Value
	Value	<e.g., Financial Manager>

For the data result set, optionally include Display Name from EBS Responsibility and any name attribute from User business object.

Use Case 5: Custom Object with Delivered Business Object

A user can import a spreadsheet (.xml file) to use as a custom business object for analysis purposes. These custom objects can be used by themselves, but they can also be used with a delivered business object, where you can establish a relationship between two attributes using the “Similar to” condition. In this use-case example, the custom object primarily represents a list of suppliers the company wishes to no longer do business with, and this 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. 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 using this object and the delivered Payment business object. In this case, use the Manage Datasource window to associate the delivered Oracle R12.1 datasource with the Payment business object, but associate XLS Datasource to the custom object. The datasource criteria include:

Business Object (Type)	Datasource Name	Application Type <display>	Version <display>	Default <display>
Suppliers—Do Not Contact	XLS datasource	XLS	XLS	false
Payment	Name of EBS datasource	Oracle	R12.1	true/false

Define a filter using the Similar to condition to establish a relationship between two attributes in the two business objects: the Name attribute in the Suppliers—Do Not Contact custom object, and the Remit to Supplier Name attribute in the Payment object. For Percent Similar, a higher value will reduce the number of data rows returned, but require a closer name match. The “Include all distinct rows for the similar condition” field is *unchecked*, indicating a match is required to bring in the name. Checking it would return every name, even if it did not have a similar to match. The 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 all distinct rows for the similar condition	<unchecked>

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

Examples of Delivered Templates

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

Even though they are designated as model “templates,” you can import them as models. This provides the ability for you to map your datasource and test as a personal user before providing templates globally via the Templates Library option.

The following is only an example of available model templates:

- Payments with Void Check Date
- Invoices with 'Misc' Description
- Amount Paid Greater than Invoice Amount
- Receivables Invoices - Amount Remaining

List of Delivered Business Objects

The following table provides a list of all 131 business objects by type that are available in the current release. Note: Additional business objects may be added or modified as necessary by Oracle. Since business objects can be uploaded in GRCC they are not dependent on a subsequent release of the product but rather can be “hot-deployed.”

#	Business Object Name	Type
1	EBS Function	Authorization
2	EBS Menu	Authorization
3	EBS Responsibility	Authorization
4	EBS Role	Authorization
5	PeopleSoft Menu	Authorization
6	PeopleSoft Page	Authorization
7	PeopleSoft Permission List	Authorization
8	PeopleSoft Role	Authorization
9	User	Authorization
10	Payment Configurations	Configuration
11	Customer Account Site	Customer Relationship Management
12	Customer Accounts	Customer Relationship Management
13	Order Line Sets	Customer Relationship Management
14	Order Management Transaction Type	Customer Relationship Management
15	Sales Credit Type	Customer Relationship Management
16	Sales Order	Customer Relationship Management
17	Sales Person	Customer Relationship Management
18	Server Group	Customer Relationship Management

(Table continues on the next page.)

#	Business Object Name	Type
19	Territory	Customer Relationship Management
20	Accounting Flexfield Definition	Financials
21	Acknowledgment	Financials
22	Actual Balance	Financials
23	Application Accounting Definition	Financials
24	Bank	Financials
25	Bank Account	Financials
26	Bank Account Transfer	Financials
27	Bank Branch	Financials
28	Bank Statement	Financials
29	Cash Transaction Subtype	Financials
30	Control Payables Periods	Financials
31	Customer	Financials
32	Disbursement	Financials
33	Expense Location	Financials
34	Expense Policy	Financials
35	Expense Report	Financials
36	Expense Report Template	Financials
37	External Bank Account	Financials
38	External Payee	Financials
39	General Ledger Accounts	Financials
40	General Ledgers	Financials
41	Internal Payer	Financials
42	Journal Entry	Financials
43	Journal Entry Category Definition	Financials
44	Journal Entry Source Definition	Financials
45	Ledger Steps Details	Financials
46	Legal Entity	Financials
47	Location	Financials
48	Lockbox Transmission File	Financials
49	Payables Aging Period	Financials
50	Payables Credit Memo	Financials
51	Payables Financial Options	Financials
52	Payables Invoice Hold	Financials
53	Payables Invoice Tolerance Set	Financials
54	Payables Payment Term	Financials
55	Payables Prepayment	Financials
56	Payables Procurement Card	Financials

(Table continues on the next page.)

#	Business Object Name	Type
57	Payables Procurement Card Code for Exception Use	Financials
58	Payables Procurement Card Statement	Financials
59	Payables Refund	Financials
60	Payables Standard Invoice	Financials
61	Payables System Option	Financials
62	Payment	Financials
63	Payment Card	Financials
64	Payment Code: Bank Instruction Code	Financials
65	Payment Code: Delivery Channel Code	Financials
66	Payment Code: Payment Reason Code	Financials
67	Payment Method	Financials
68	Receivables Activities	Financials
69	Receivables Application Rule Set	Financials
70	Receivables Autocash Rule Set	Financials
71	Receivables Batch Source	Financials
72	Receivables Credit Memo	Financials
73	Receivables Debit Memo	Financials
74	Receivables Grouping Rules	Financials
75	Receivables Invoice	Financials
76	Receivables Lockbox	Financials
77	Receivables Payment Schedule	Financials
78	Receivables Payment Term	Financials
79	Receivables Receipt Batch	Financials
80	Receivables Receipt Class	Financials
81	Receivables Receipt Method	Financials
82	Receivables Receipt Remittance Batch	Financials
83	Receivables Receipt Source	Financials
84	Receivables Standard Receipt	Financials
85	Receivables System Option	Financials
86	Receivables Transaction Type	Financials
87	Subledger Accounting Source	Financials
88	Subledger Application	Financials
89	Subledger Event Model	Financials
90	Subledger Journal Entry	Financials
91	Supplier	Financials
92	Supplier Contacts	Financials
93	Withholding Tax Group	Financials
94	Application	Human Capital Management

(Table continues on the next page.)

#	Business Object Name	Type
95	Application Data Group	Human Capital Management
96	Application Request Group	Human Capital Management
97	Application User	Human Capital Management
98	Business Group	Human Capital Management
99	Document Sequence	Human Capital Management
100	Human Resource Location	Human Capital Management
101	Human Resources Organization	Human Capital Management
102	Operating Unit	Human Capital Management
103	Person	Human Capital Management
104	Value Set	Human Capital Management
105	Buyer	Procurement
106	Purchase Order	Procurement
107	Purchase Order Change Order	Procurement
108	Purchase Order Line Location	Procurement
109	Purchasing Agreement	Procurement
110	Purchasing Blanket Agreement	Procurement
111	Purchasing Blanket Agreement Change Order	Procurement
112	Purchasing Hazard Class	Procurement
113	Purchasing Line Type	Procurement
114	Purchasing UN Number	Procurement
115	Receipt	Procurement
116	Requisition	Procurement
117	Supplier Bank Account Change Request	Procurement
118	Supplier Order Modifier Change Request	Procurement
119	Access Entitlements	Segregation of Duties
120	Access Point	Segregation of Duties
121	EBS Access Condition	Segregation of Duties
122	PeopleSoft Access Condition	Segregation of Duties
123	Category	Supply Chain Management
124	Inventory Item	Supply Chain Management
125	Item Status	Supply Chain Management
126	Item Supplier	Supply Chain Management
127	Item Supplier Site	Supply Chain Management
128	Organization Parameters	Supply Chain Management
129	Price List	Supply Chain Management
130	Pricing Agreements	Supply Chain Management
131	Transaction Reason	Supply Chain Management

Examples of Delivered Pattern Mapping

The following is a sampling of supported business object and attribute pattern mappings.

Pattern	Business Object	Attribute	Variance By (Mean Only)
Mean	Payment	Payment Amount	Created On Created By Last Updated By Last Updated On
Mean	Payable Standard Invoice	Invoice Amount Amount Paid	Created On Created By Last Updated By Last Updated On
Mean	Purchase Order	Line: Price Line: Quantity	Created On Created By Last Updated By Last Updated On
Mean	Supplier	n/a	Supplier Name Supplier ID Created On Created By Last Updated By Last Updated On
Benford	Payment	Payment Amount	n/a
Benford	Payable Standard Invoice	Invoice Amount Amount Paid	n/a
Benford	Purchase Order	Line: Price Line: Quantity	n/a