ACTIVE Governance™

ACTIVE Policy Governor User's Guide

Software Version 7.0

LogicalApps®

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Chapter 1

Introducing ACTIVE Policy Governor

ACTIVE Governance both documents and enforces business controls, enabling users to demonstrate regulatory compliance and to promote operational efficiency. An ACTIVE Governance Platform fulfills the documentary purpose, maintaining a "control library" in which users describe and catalog controls as well as other items that establish the business context in which controls exist. The Platform also provides for the review of control-library items, and for reporting on their status.

Moreover, the Platform serves as a foundation for three modules that provide the capability to automate the enforcement of controls. One of these modules is ACTIVE Policy Governor, which enables users to create "control monitors," "workflow routings," and "workflow definitions":

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

  ACTIVE Policy Governor enables you to create control monitors one at a time or to import a set of "seeded" control monitors prepared by LogicalApps.

- A workflow routing selects a set of users, user groups, or both, and establishes a sequence in which they receive and answer requests to review suspect tasks.

- A workflow definition associates a given workflow routing with any number of controls. As a result, suspects generated by control monitors attached to those

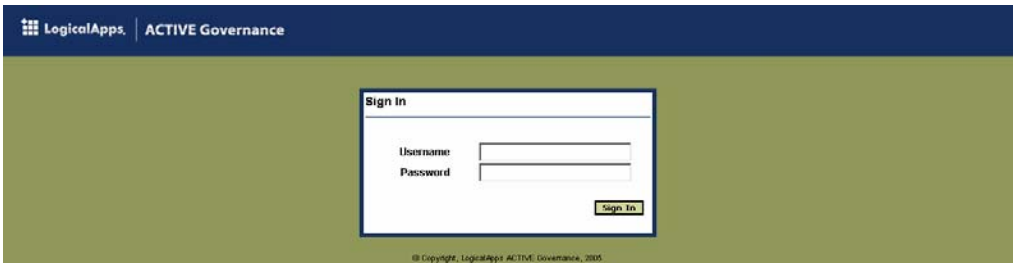
controls become subject to review by the users and groups specified in the workflow routing.

Note
Workflow routings and workflow definitions may also configure review processes for other items. These items include controls, as they are created or modified, as well as "hierarchy elements" that provide context for controls. They also include emergency-access requests made from ACTIVE Access Governor. This *ACTIVE Policy Governor User's Guide*, however, focuses on configuring workflow routings and workflow definitions for use in reviewing suspects generated by control monitors. For information on other workflow configurations, see the *ACTIVE Governance Platform User's Guide*.

Starting ACTIVE Policy Governor

ACTIVE Policy Governor is a web-based application designed to run in Microsoft Internet Explorer. (It may run in other browsers as well, but only Internet Explorer is supported.) To start ACTIVE Policy Governor:

1. Open Internet Explorer.
2. In the Address field, type the URL for your instance of the ACTIVE Governance Platform, and press the Enter key. (Using standard Windows procedures, you can, of course, save the URL as a favorite or create a desktop shortcut to the URL.)
3. A Sign In dialog box appears. Type your user name and password, and click on the Sign In button.



4. The ACTIVE Governance Platform opens. Click on its Control Automation tab.

Access to Features

Each user is assigned a role when his user account is created in the ACTIVE Governance Platform. Your access to features in ACTIVE Policy Governor depends on the role you have been assigned:

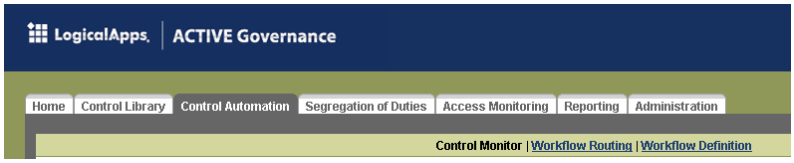
- If your user role is Author, Cleanup, Manager, or Rule Builder, you have edit access. You can not only view, but also create or modify control monitors, workflow routings, or workflow definitions.
- If your user role is Auditor, Executive, System Administrator, or User, you can view these items, but you cannot create or modify them.

Navigational Conventions

As you work with ACTIVE Policy Governor, you'll make repeated use of the following features.

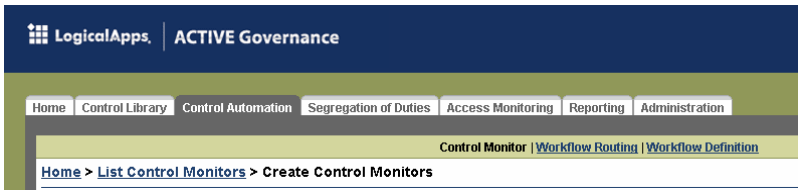
Library Navigator

When you click on the Control Automation tab, ACTIVE Policy Governor opens a panel that displays existing control monitors, enabling you to view them, edit them, or create new monitors. However, you also have access to related tasks — the configuration of workflow routings and workflow definitions. A "Library Navigator" — a horizontal string of links near the top of the Control Automation panel (beginning with the phrase *Control Monitor* in the figure below) — provides access to these related tasks. Click on any of the links to open screens that support those tasks.



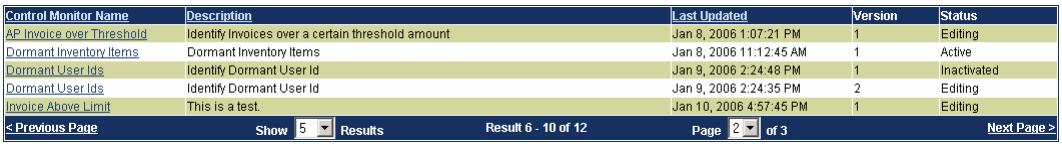
Breadcrumbs

Once you have selected a link in the Library Navigator and begun to select options within the panel it opens, ACTIVE Policy Governor leaves a trail of "breadcrumbs" — a string of links to each of the screens you have navigated to reach the screen you are using, culminating in the title of the current screen. (In the figure below, the breadcrumbs trail begins with the word *Home*.) To return to any of the earlier screens, click on its link.



Sorting and Selecting Items in Lists

Several panels in ACTIVE Policy Governor present lists of items — control monitors, workflow routings, or workflow definitions.



Control Monitor Name	Description	Last Updated	Version	Status
AP Invoice over Threshold	Identify Invoices over a certain threshold amount	Jan 8, 2006 1:07:21 PM	1	Editing
Dormant Inventory Items	Dormant Inventory Items	Jan 8, 2006 11:12:45 AM	1	Active
Dormant User Ids	Identify Dormant User Id	Jan 9, 2006 2:24:48 PM	1	Inactivated
Dormant User Ids	Identify Dormant User Id	Jan 9, 2006 2:24:35 PM	2	Editing
Invoice Above Limit	This is a test.	Jan 10, 2006 4:57:45 PM	1	Editing

< Previous Page Show 5 Results Result 6 - 10 of 12 Page 2 of 3 Next Page >

Each of these lists implements the following conventions:

- In the header row, some column headings are underlined. Each of these is a sort column. When you click on one of these headings, the contents of its column are

arranged in alphanumeric order; the values in other columns are arranged appropriately so that records remain intact.

- In the footer row, you can select a number in the Show Results list box to determine how many rows the list displays at once. The list entries are divided into pages, each of which consists of the number of rows you've chosen to display. To move to another page than the one currently displayed, click on its number in the Page list box. Or, click on the Next Page or Previous page link, each of which is present only if there is a next or previous page to go to.

Chapter 2

Monitors and Workflows in Principle

A control monitor is one of several elements that may enforce a control defined in the ACTIVE Governance Platform. (Other items that may enforce controls include segregation-of-duties rules created in ACTIVE Access Governor, or form, flow, or change-control rules created in ACTIVE Data Governor. Or, control enforcement may be manual.) When used, a control monitor is attached directly to the control it enforces.

A workflow routing may be linked directly to one or more control monitors, and so its members would review suspects generated by those monitors. Alternatively, a workflow routing may be associated indirectly with any number of controls (and so with suspects generated by monitors attached to those controls). In this case, a workflow definition serves as the intermediary, by specifying events, dimension/attribute conditions, data conditions, and a priority:

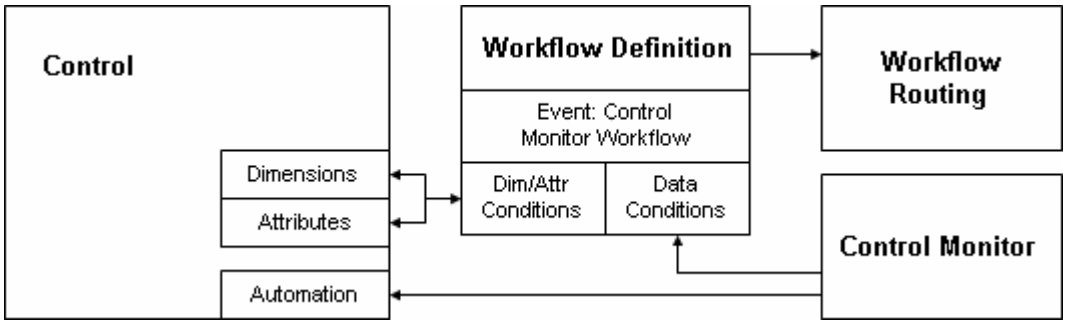
- An event is the circumstance that triggers the distribution of notifications to users or groups named in the workflow routing. Although there are many events, only one — "Control Monitor Workflow" — triggers the review of suspects generated by control monitors. (The other events apply to the review of controls and related items as they are created or modified in the ACTIVE Governance Platform, or of requests for emergency access as they are generated in ACTIVE Access Governor.)
- Dimension/attribute conditions enumerate a set of dimension and attribute values. Each control is configured to have dimensions (segments of your business environment in which a control is used) and attributes (values that may describe

the qualities or nature of a control). So dimension/attribute conditions select the controls to which the workflow routing applies — those configured with a corresponding set of dimension and attribute values.

- Data conditions filter the suspects returned by a control monitor. Each specifies a value that may be held in a column of a suspect record, so that only suspects with the specified values are selected.
- The priority determines which workflow routing is used when more than one might otherwise apply to a suspect. (See "Combining Priorities and Conditions in Workflow Definitions," below.)

A Simple Workflow Example

The following figure illustrates how a control, control monitor, workflow routing, and workflow definition may work together to distribute suspect tasks for review:



In this example:

- The control monitor generates suspect tasks. It's attached to the control as an "automation."
- The control specifies a set of dimensions and attributes.
- The workflow definition specifies a matching set of dimension/attribute conditions. It also has the Control Monitor Workflow event. So it can forward suspect tasks generated by the control monitor to the workflow routing.
- The workflow definition also specifies data conditions. Thus, of all suspect tasks generated by the control monitor, only those with data values matching the data conditions are forwarded to the workflow routing.

Combining Priorities and Conditions in Workflow Definitions

More than one workflow definition (and so more than one routing) may apply to suspects returned by a control monitor attached to a control. Any definition may apply if it specifies the appropriate event — Control Monitor Workflow — and if a control and suspect satisfy every one of its conditions.

For example, a control with an attached monitor may be assigned two dimensions and one attribute — d1, d2, and a1. A workflow definition with d1, d2, and a1 as

dimension/attribute conditions (for the moment, assume it has no data conditions) might apply to suspect records returned for the control. But so might definitions that set any combination of the three as conditions, such as d1 and d2, or d1 and a1, or d2 alone, or none at all.

To resolve contention among workflow definitions, you assign each a priority. The value *1* indicates highest priority, and precedence declines as number values increase. When several workflow definitions might apply to a suspect, the highest-priority definition among them is the one to be used.

More specifically, assume that a control monitor has generated a set of suspect tasks. Moreover, several workflow definitions are configured to have the Control Monitor Workflow event; any of them may apply to each of the suspect tasks. The ACTIVE Governance engine selects one suspect and determines whether it meets all the conditions specified for the highest-ranking workflow definition. Does the suspect-task record contain all values specified by data conditions? The control monitor is attached to a control; does the control have all the dimensions and attributes specified as dimension/attribute conditions for the definition?

If the answer to these questions is yes, the mapped workflow routing is applied to that suspect. If the answer is no, the engine compares the record with the second-highest-priority Enforcement workflow definition. Again, if the record satisfies all conditions set by the definition, the mapped workflow is used; if not, the engine moves to the next-highest-priority workflow definition. It continues until it finds a match.

Then the engine moves to the next suspect-task record and repeats the process, continuing until all suspect-task records have been matched to workflow routings.

Therefore priority is the first factor in determining which among competing workflow definitions (and so routings) is used; precision of the match between workflow definition conditions and the dimension, attribute, and data values contained in a suspect record comes second. In the example of the control with dimensions d1 and d2 and attribute a1, a definition that sets these values as conditions might be considered to be more closely matched than one that sets only a data condition. Even so, if that second definition has the higher priority, it would be used whenever the data condition evaluates to true.

You can use this to your advantage. You might want suspects who meet the d1-d2-a1 definition generally to be reviewed by the members of an "everyday" workflow routing. You might also identify some emergency circumstance that requires review by another set of approvers, and so create a higher-priority workflow definition that includes only a data condition to define the emergency. The emergency workflow would be used for appropriate suspects, but other suspects would fall through to the everyday workflow.

There is a danger, however, of configuring a workflow definition with a highly specific set of conditions, and have it never be used because a more general definition has a higher priority. (Any suspect that would qualify for the d1-d2-a1 definition would, for example, be captured first by a higher-priority definition that specifies any one of these as its only condition.)

As a result, it is generally advisable that as the conditions configured for a workflow definition become more specific, the definition should receive a higher priority. Moreover, a definition with no conditions and the lowest priority serves as a "catch-all," implementing a workflow routing for any control whose dimension and attribute assignments do not match up with the conditions of any higher-priority workflow definitions. LogicalApps provides a "Default Workflow" that serves precisely this purpose. It routes requests to a System Administrator user, and its definition has priority number 1000, has no dimension or data conditions, and calls all possible events.

If priority is the first factor in resolving contention among workflow definitions, however, precision still matters. You may, for example, design a control that requires review of invoices valued higher than a certain amount. The control may have, let's say, a Region dimension with two values — East and West. Suspects for each region are to be reviewed by approvers from that region, so you intend to map two workflow routings to the control. But a single table contains invoice records for both regions; fortunately, it contains a column (called, let's say, REGN) that stores the region for each record, and this column is included among the values returned with each suspect.

To direct suspects to appropriate reviewers, each workflow definition would set a dimension/attribute condition (Region equals either East or West) as well as a data condition (REGN equals either East or West). As the ACTIVE Governance engine evaluates an individual suspect record (let's say one for the eastern region) it would necessarily consider the higher-priority definition first. If that were the Eastern definition, it would (appropriately) evaluate to true without the other definition being considered. Or, if the Western definition had the higher priority, the engine would evaluate it first, get a false result, and move on to the Eastern definition and a true result. So priority, while implemented, would become irrelevant.

Note that in a case like this one, it is theoretically possible not to use data conditions, but instead to add a WHERE condition to the SQL statement run by the control monitor that produces suspects, so that it would return values only for the East or only for the West. This, however, is not recommended. First, it's less efficient (rather than one control for both regions, it would require two controls, one for each region).

Perhaps more important, the SQL queries included in control monitors are commonly very complex, and the attempt to edit one (particularly by a person who did not write it originally) risks distorting its logic. So that data conditions can be written, SQL queries should include all return columns they might use; queries written for controls seeded by LogicalApps do so.

SQL Queries in Control Monitors

You are assumed to know how to write a SQL query. (If not, please consult a SQL reference.) However, writing a query for use in a control monitor involves a few special considerations.

When a control monitor runs a SQL query, the return values are incorporated into notification messages displayed at the Task Inbox of the ACTIVE Governance Platform. Therefore each SQL query must return values for columns with the following aliases:

- suspectName: Although not displayed at the Task Inbox, this value is required in the SQL query. It can be any label that applies to values returned by the query.
- suspectDesc: This column provides an encapsulation of the issue involved in each record retuned by the SQL query, for display in a Task Description field. It may incorporate text and return values, for a maximum length of 255 characters.
- suspectInfo: This column provides a more thorough account of the issue involved in each record returned by the SQL query, for display in a Suspect Details field. It may incorporate text and return values, for a length of up to 4,000 characters.

As noted earlier, a query should also include any columns that might return data useful for a data condition in a workflow definition.

Moreover, a SQL query may make use of these items:

- Parameters for which a user supplies values at run time. Within a query, each parameter ID is preceded by an ampersand (&).
- Statements in the WHERE clause that compare a table column with a dimension name. In such a case, the ACTIVE Governance engine limits return values to records in which the column value matches the first value configured for the dimension. Within the query, the dimension name is preceded by a dollar sign ($). For example, if a CorpDivision dimension is configured to have *Manufacturing* as its first (or only) value, then the statement *where InventoryOrg = $CorpDivision* would return records for which a table column called InventoryOrg contains the value *Manufacturing*.

  Typically, a dimension intended for this purpose would have only one value configured for it. Its use would enable end users to reset the value by reconfiguring the dimension, rather than having to rewrite SQL code.
- A constant, called last_run_date, which stores the last date upon which the query has been evaluated; if so, it may compare a date stored within records to return those with a defined relationship to the last_run_date. For instance, *record_date* > *last_run_date* might return values generated since the last run date.

For example, the following query is directed at a table (ap_invoices_all) that stores invoice data; it returns a record for each invoice with a value greater than a threshold amount. That threshold is represented by a parameter (ThresholdParm), so that a user can set an appropriate amount as he runs the workflow. Moreover, the query returns values from two table columns, invoice_num and invoice_amount:

```
select 'Invoice amount too great' suspectName,
  'Invoice '||invoice_num||' may exceed acceptable value' suspectDesc,
  'The invoice '||invoice_num||' is valued at $'||invoice_amount||
    ' but the value threshold has been set at $'||&ThresholdParm||
    '. Please review.' suspectInfo
from ap_invoices_all
where invoice_amount > &ThresholdParm
```

Imagine that a user sets the threshold at $5000; one invoice in the ap_invoices_all table has a greater invoice_amount value ($5001); and the identifying number for that invoice (its invoice_num value) is 98765:

- The suspectName return value is "Invoice amount too great" (as it would be for any other record returned by this query, as it's configured to be static text).
- The suspectDesc return value is "Invoice 98765 may exceed acceptable value," because the text configured for suspectDesc is concatenated with the value of invoice_num.
- The suspectInfo return value is "The invoice 98765 is valued at $5001 but the value threshold has been set at $5000. Please review," because the text configured for suspectInfo is concatenated with the values of invoice_num, invoice_amount, and the ThresholdParm parameter.

Statuses and Versions

For either a control monitor or a workflow routing, there may be any number of versions, and each version exists at one or more of four statuses: Editing, Active, Pending Inactivation, and Inactivated.

- A control monitor or workflow routing at the Editing status is in development. Editing is the default status for a newly created version of a monitor or workflow, and only a version at the Editing status can be modified.
- An Active control monitor or workflow routing is actually used; it identifies suspects or generates approval requests. Only one version of a control monitor or workflow routing can be Active at a time.
- When a control monitor or workflow routing is promoted from Editing to Active, the version that had been Active should be made inactive. At that moment, however, any number of approval requests or suspect tasks may have been initiated but not completed under the terms of the earlier Active version. If so, status for that earlier version is set automatically to Pending Inactivation; it remains at that status until all of its outstanding issues are resolved.
- An Inactivated control monitor or workflow routing is no longer used. A version may reach this status either from Active (when a subsequent version is promoted from Editing and replaces it as Active) or from Pending Inactivation (upon resolution of issues that were outstanding when it was replaced as the Active version). You can assign Inactive status to a version manually. Or, when you promote a version to Active status, ACTIVE Governance inactivates the version (if any) that had previously been active.

Chapter 3

Configuring Monitors and Workflows

To work with a control monitor or a workflow routing, you first create the item (in effect, give it a name and describe it). Then you edit it, either to configure its first version (set the values that initially define it) or to configure later versions (modify existing values). You follow virtually identical processes for creating each of these items and for selecting versions of them for editing, although of course the values you supply as you edit each (and the procedures for supplying them) are very different.

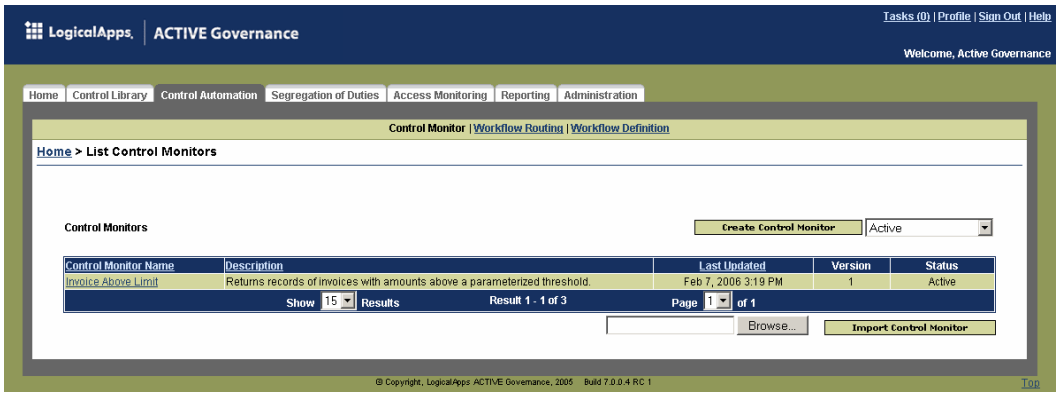
You can configure workflow definitions only for workflow routings that exist at the Active status. As a result, you don't create workflow definitions; instead, you select them for editing from an automatically generated list of active workflow routings.

Note
To create or edit control monitors, you must select the Control Automation tab in the ACTIVE Governance Platform. To create or edit workflow routings and workflow definitions, you can select either the Control Automation tab or the Administration tab, from which identical sets of features are available. Although this manual, by convention, directs you to select the Control Automation tab, be aware that you can select the Administration tab instead if you are configuring workflow routings and definitions.

Displaying Control Monitors or Workflow Routings

To view, create, or modify a control monitor or workflow routing, ensure that the Control Automation tab is selected in the ACTIVE Governance Platform. Then

select either the Control Monitor link (the default) or the Workflow Routing link in the Library Navigator. A List panel then lists active control monitors or workflow routings (according to your selection in the Library Navigator), and presents information about them — name, description, date last modified, version number, and status:

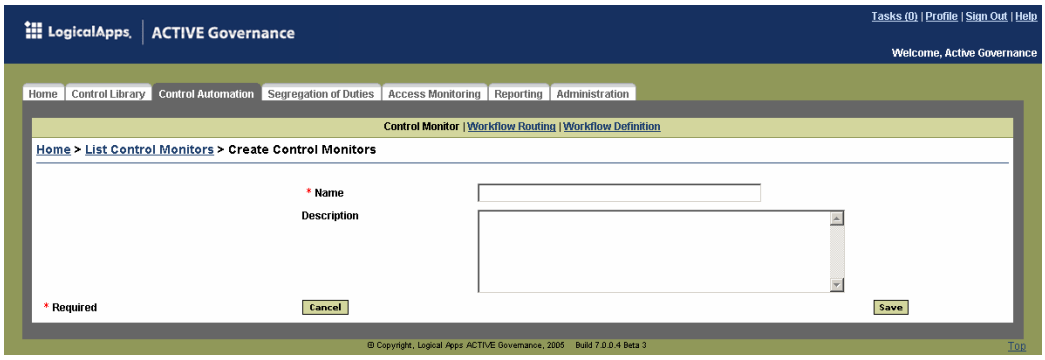


To view entries for monitors or workflows at a specific status, use the Status list box (it's unlabeled, but is located above the list of control monitors or workflow routings, along the right side). You can select All or any of the individual statuses — Active, Editing, Pending Inactivation, or Inactivated.

Adding a Control Monitor or Workflow Routing

To create a new control monitor or workflow routing:

1. Depending on your selection in the Library Navigator, the List panel displays a button labeled either Create Control Monitor or Create Workflow Routing. Click on the button, and a new panel appears, labeled either Create Control Monitors or Create Workflow Routings. (Except for the label, these two panels are alike.)



2. In the Name field, type a name for the control monitor or workflow routing.
3. In the Description field, type a brief explanation of how the monitor or routing is to be used.
4. Click on the Save button.

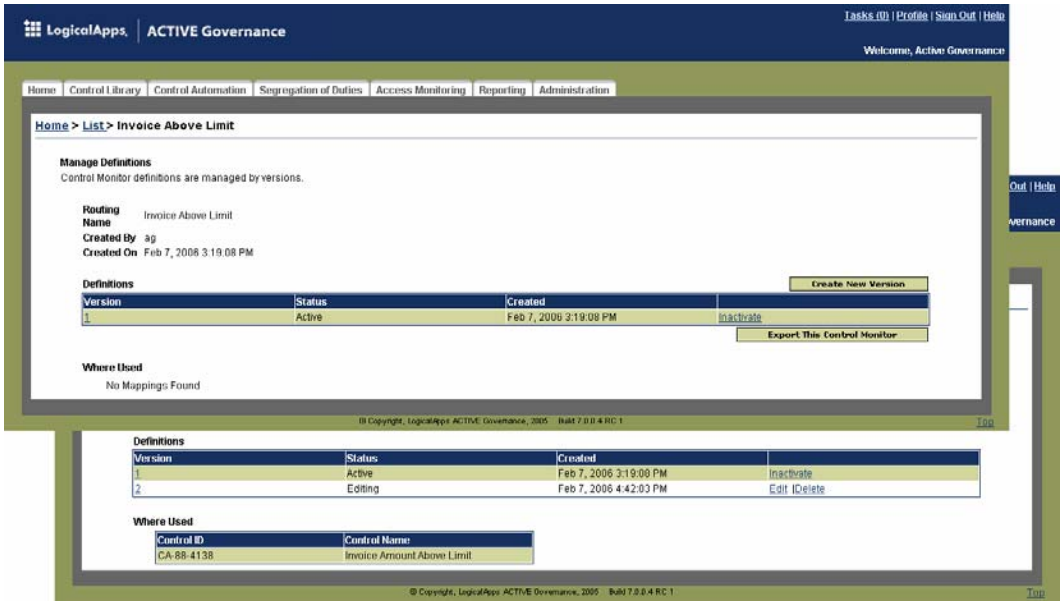
A newly created control monitor or workflow routing appears in its List panel if the Status filter is set to All or Editing. To define what the monitor or routing does, select it in its list and edit it.

Editing a Control Monitor or Workflow Routing

As you edit a control monitor or workflow routing, you either select values for a newly added one or modify values for an existing one. In either case, a version of the item must exist at the Editing status.

A newly added control monitor or workflow routing necessarily exists only at the Editing status (and only in its first version). For an existing item, an Editing version may or may not already have been created. In any case, open a panel that lists the existing versions of the item you want to change:

1. Open the List panel for control monitors or workflow routings.
2. In the List panel, set the Status filter to Editing if you know that an Editing version exists; to Active, Pending Inactivation, or Inactivated (as appropriate) if you know that no Editing version yet exists; or All if you are uncertain.
3. The List panel presents a filtered list of control monitors or workflow routings. Click on the name of the one you want to change. This produces a new panel that lists all existing versions of the item you've selected.
   - If no Editing version yet exists, the panel displays a Create New Version button (as shown in the top instance of the panel in the following illustration).
   - If an Editing version already exists, the panel displays a row for it (row 2 in the bottom instance of the panel in the following illustration).



From this panel, you can:

- Click on the Create New Version button to add an Editing version — a copy of the most recent (typically Active) version — to the list.
- Open the Editing version for modification by clicking on its version number or on its Edit link.
- Delete the Editing version by clicking on its Delete link.

- Open any past version for viewing by clicking on its version number. You cannot, however, change any information for a version at any status other than Editing.
- Retire the Active version by clicking on its Inactivate link.

Note
If you have linked a version of a control monitor or workflow routing to one or more controls, and you select that version in the Definitions list on this panel, a Where Used grid shows the ID and name of each linked control.

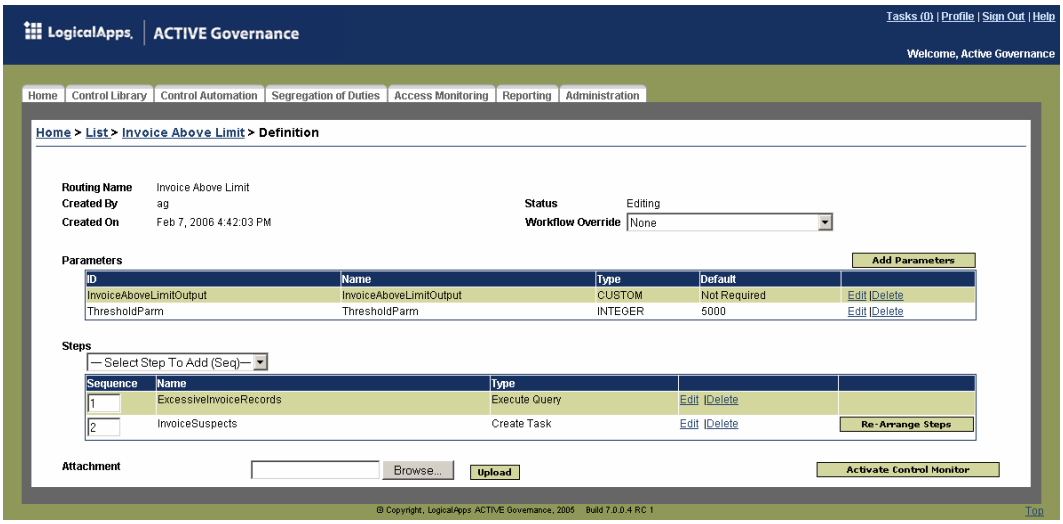
Configuring a Control Monitor

A control monitor implements a series of steps. At least two steps — one each of two types — are required. A third type of step is optional.

- An Execute Query step defines a SQL query and designates a parameter that stores results returned by the query. This is one of the required steps.
- A Create Task step converts each of the stored records returned by a SQL query into a "suspect task." This is the second of the required steps.
- An Update Parameter step alters the value of a parameter to the value of another parameter, to a fixed value, or to a calculated value. This is the optional step.

Thus configuring a control monitor involves creating a parameter to store values returned by each SQL query, creating other parameters for use within queries, writing the SQL queries themselves, and incorporating queries and parameters in steps. Optionally, you can designate a workflow routing whose members always review suspects generated by the control monitor; this removes the control monitor from review cycles implemented by workflow definitions. You can also attach a document that explains how the control monitor is to be used.

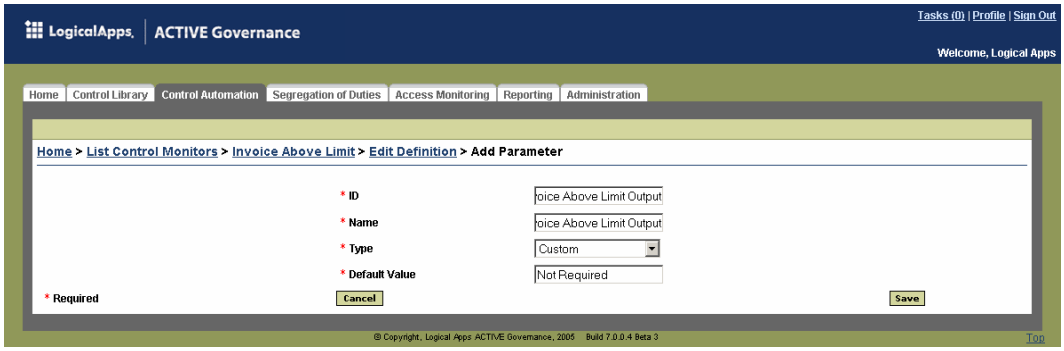
To begin, open the control monitor for editing (see "Editing a Control Monitor or Workflow Routing" on page 13). A Definition form appears, displaying prompts to create new parameters and steps. If parameters and steps have been created, the panel also lists them, with prompts to edit them.



Configuring Parameters

To create or modify parameters the workflow is to use:

1. In the Definition panel, click on the Add Parameters button to create a new parameter. Or, to modify an existing parameter, click on the Edit link in its listing. A panel, labeled Add Parameter or Edit Parameter, appears:



2. In the ID field, type an identifier for the parameter; this is the label by which you must call a parameter when you use it in a SQL query. In the Name field, type a name for the parameter; this is the label you use to select a parameter that holds values returned by a SQL query.

3. In the Type field, select a type for the parameter:

   - For a parameter that is to hold the values returned by a SQL query, you must select *Custom*. One Custom parameter is required for each Execute Query step you intend to create.
   - For a parameter cited within a SQL query, select one of the other two values, depending on the type of data the parameter represents: *Numeric* for a number or *Character* for text.

4. In the Default field, set a value to be used in place of the parameter if a user does not set a value while running the control monitor. The value depends on parameter type:

   - For a Custom parameter, which has no default value, select *Not Required*.
   - For a Numeric parameter, type a number.
   - For a Character parameter, type a string of text.

5. Click on the Save button. The parameter appears in the list on the Definition panel and displays the values you selected for it.

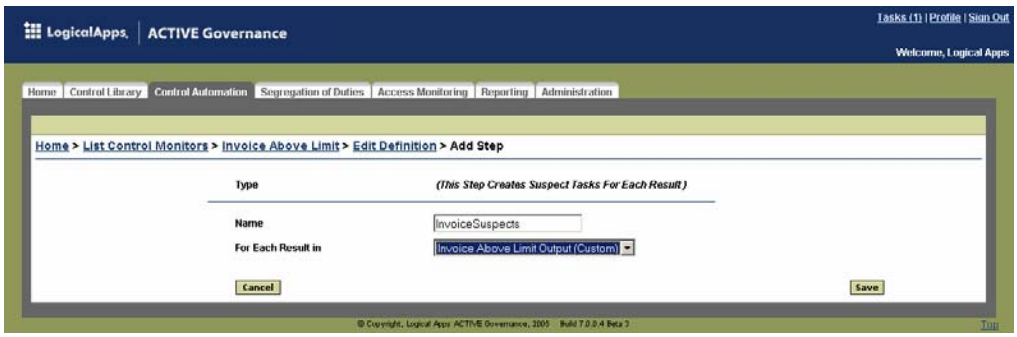
Configuring Steps

To create or modify the steps the workflow is to follow, click on the Select Step to Add list box in the Definition panel. Then click on one of the three step types: Execute Query, Create Task, or Update Parameter. Or, click on the Edit button in the listing for an existing step.

If you choose an Execute Query step (at least one is required), the following form opens:

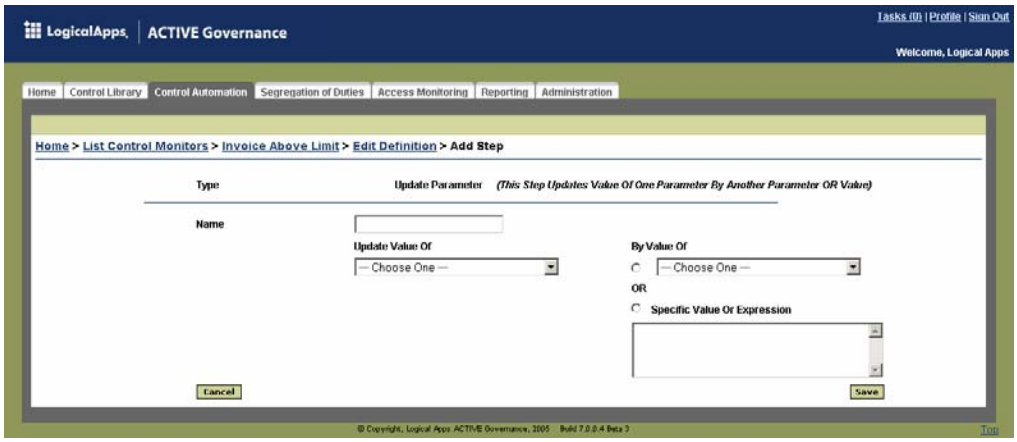
1. In the Name field, type a name for the step.
2. In the SQL box, type the SQL query. If you include Numeric or Character parameters in the query, use their ID values (not their names) to identify them, and precede each ID with an ampersand (&). If you include dimension names in the WHERE clause, precede each with a dollar sign ($). You may wish to review "SQL Queries in Control Monitors" on page 8.
3. The Save To list box presents the names (not IDs) of Custom parameters you've defined for the control monitor you are creating. Select one of them.
4. The DB Instance list box presents the names of database instances to which ACTIVE Governance is configured to connect. Select the one at which you want to direct your query.
5. Click on the Verify button. A message appears near the top middle of this panel to inform you that the SQL either is or is not correctly parsed.
6. After the SQL is verified, a link labeled Show Generated Sql appears next to the Verify button. You may click it to see a text box that displays the generated SQL (with, for example, parameter IDs replaced by default values for the parameters).
7. Click on the Save button. The focus returns to the Definition panel, which now displays a row for the step.

If you choose a Create Task step (at least one is required), the following form opens:



1. In the Name field, type a name for the step.
2. The For Each Result In list box presents the names of Custom parameters defined for this control monitor. Select one that is also named in an Execute Query step and so holds values returned by a SQL query.
3. Click on the Save button. The focus returns to the Definition panel, which now displays a row for the step.

If you choose an Update Parameter step (which is optional), the following form opens:



1. In the Name field, type a name for the step.
2. The Update Value Of list box presents a list of parameters defined on your system. Select one whose value you want to reset.
3. Choose the value to which that parameter is to be reset. Do one of the following:
   - Click on the By Value Of radio button. In the associated list box, choose the name of a parameter that is to supply the new value. This parameter must be the same type as the parameter selected in the Update Value Of list box.
   - Click on the Specific Value or Expression radio button. Then, in the associated text box, enter either a fixed value or an expression that may include a parameter or a SQL statement.
4. Click on the Save button. The focus returns to the Definition panel, which now displays a row for the step.

Selecting a Workflow Override

Optionally, you can designate a workflow routing whose members have the exclusive ability to review suspect tasks generated by the control monitor you are configuring. If you make such a selection, this control monitor bypasses the ordinary workflow system, by which workflow definitions select workflow routings to be applied to suspects (as described in "Combining Priorities and Conditions in Workflow Definitions" on page 6).

To do this, simply select the workflow routing you want from a Workflow Override list box located in the Definition panel. If you select *None* (the default setting), you allow the control monitor to remain subject to the ordinary workflow system.

Completing the Configuration

When you complete each configuration task, the control monitor is saved in its Editing status (because you have saved its individual components as you created or edited them). At this point, you can perform these additional actions:

- Delete an individual parameter or step by clicking on the Delete link in its entry on the Definition panel.
- Rearrange the order in which steps are to be completed: In the Sequence column of the Steps listing on the Definition panel, renumber the steps to reflect the sequence you want, and then click on the Rearrange Steps button.
- Promote the control monitor from Editing to Active status by clicking on the Activate Control Monitor button. At this point the version of the control monitor that had been Active (if any) moves to the Inactivated status. (Note that the Active version of a control monitor can be run only if it is attached to a control as an "automation.")

Importing and Exporting Control Monitors

You can export any Active control monitor to a file, in XML format. You can also import Editing versions of control monitors, once again from an XML file — either monitors you have exported from another instance or "seeded" control monitors provided by LogicalApps.

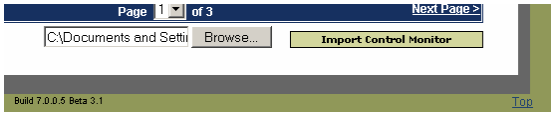
To export a control monitor to an XML file:

1. Navigate to the panel that displays existing versions of the control monitor you want to export.
2. If an Active version exists for that control monitor, an Export This Control Monitor button appears near the lower right corner of the panel. Click on the button.
3. A File Download dialog presents you with options:
   - Open: Click on this button to display a rendering of the control monitor in XML format. You can use the File/Save option in your web browser to save the file after you review it.
   - Save: Click on this button to produce a Windows Save dialog. Using standard Windows procedures, navigate to the folder in which you want to save the XML file. By default, the file name is the same as the control monitor name; change it if you wish. Click on the Save button.
4. Click on the Close button in the File Download dialog.

To import control monitors from an XML file:

1. Navigate to the List Control Monitors panel.
2. Click on the Browse button, which located near the lower right corner of the panel.
3. A Choose File dialog opens. Using standard Windows procedures, navigate to the file you want, click on its name, and then click on the Open button.

4 Click on the Import Control Monitor button, which is located next to the Browse button.



A message informs you if the import operation has been successful, and entries for the imported control monitors appear in the List Control Monitors panel, at the Editing status.

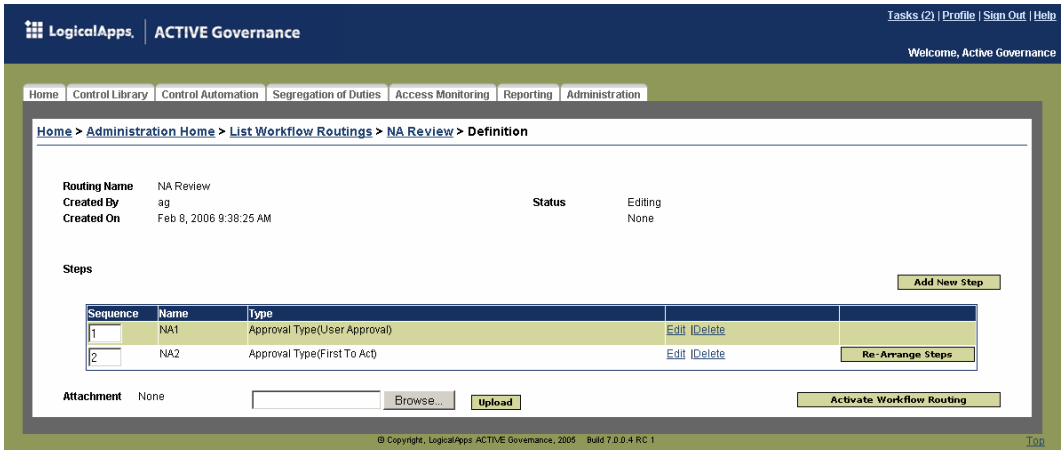
Configuring a Workflow Routing

A workflow routing also implements a series of steps, each of which selects either a user or a group charged with reviewing suspects generated by control monitors. A suspect must be approved at one step before it proceeds to the next. If it is rejected at any step, then the workflow ends; reviewers identified by subsequent steps are not sent notifications, and the suspect is rejected.

Moreover, at each step you can select one of three reviewer types:

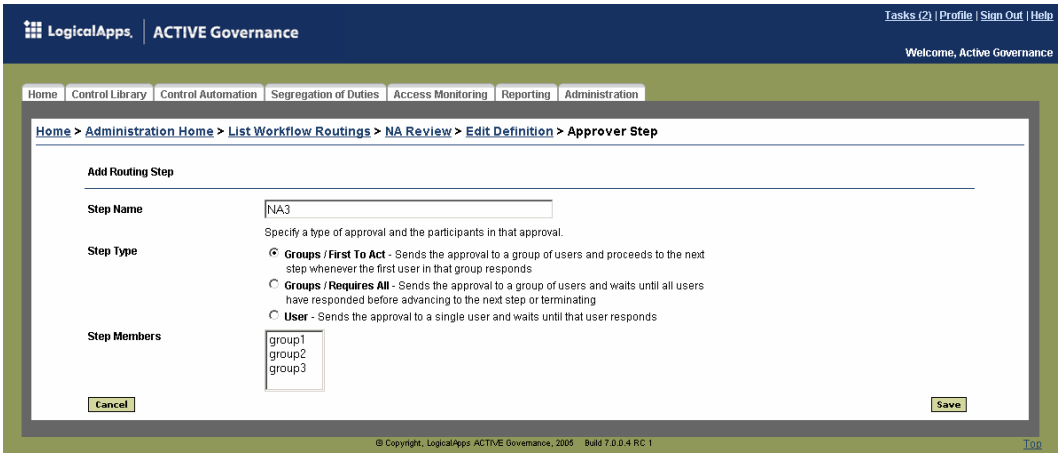
- Groups/First to Act: All members of a group receive notification that an item is to be reviewed, but the first member to respond either approves or rejects for the entire group. After the first response, other group members can no longer respond.
- Groups/Requires All: All members of a group receive notification that an item is to be reviewed. For the item to be approved, all group members must approve it. A single rejection causes the item to be rejected.
- User: A single user receives notification that an item is to be reviewed, and either accepts or rejects it.

Before you can create a workflow routing, the groups or users it is to call must already have been created. Once this is done, open the workflow routing for editing (see "Editing a Control Monitor or Workflow Routing," page 13). A Definition form appears. It displays a prompt to create new steps. If steps have already been created, the panel also lists them, with prompts to edit them:



To create or modify steps that designate reviewers:

1 Click on the Add New Step button to create a new step, or click on the Edit button in the listing for an existing step to modify it. The following form opens:



2 In the Name field, type a name for the step.

3 Click on one of the Type radio buttons to determine the reviewer type.

4 A list of values appears next to the Members label; depending on the type selection you made, it displays either groups or users. Click on the one you want.

5 Click on the Save button. The focus returns to the Definition panel, which now displays a row for the step.

When you finish creating steps, the workflow routing is saved in its Editing status (because you have saved its individual steps as you created or edited them). At this point, you can perform these additional actions:

- Delete a step by clicking on the Delete link in its entry on the Definition panel.
- Rearrange the order in which steps are to be completed: In the Sequence column of the Steps listing on the Definition panel, renumber the steps to reflect the sequence you want, and then click on the Rearrange Steps button.
- Promote the workflow routing from Editing to Active status by clicking on the Activate Workflow Routing button. If a prior version was already Active, it moves to the Inactivated status.

  If an earlier Active version was linked to a workflow definition, and you promote a new version to Active, the existing workflow definition *does not* apply to the newly Active routing. You must create a new workflow definition for it.

Attaching a Document

Optionally, you can attach a file to either a control monitor or a workflow routing, and then display the contents of the file. Typically, such a file would document what the control monitor or workflow routing does and how it is to be used. First, use a text editor, word processor, or similar application to prepare the file.

Then complete the following steps:

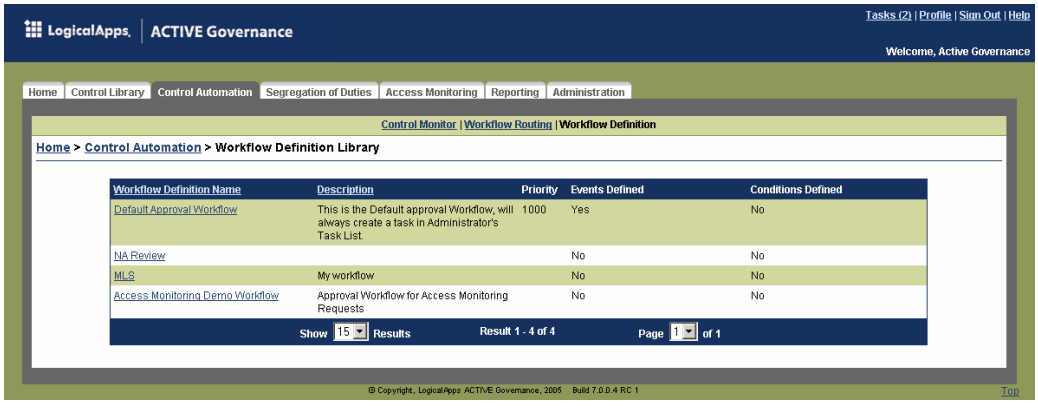
1. Navigate to the Definition panel for the control monitor or workflow routing to which you want to attach a file.
2. Click on the Browse button in the Attachment area, near the lower left of the panel.
3. A Choose File dialog opens. Using standard Windows procedures, navigate to the file you want, click on its name, and then click on the Open button.
4. The path to the file appears in the text box next to the Browse button on the Definition panel. Click on the Upload button.
5. A link to the file appears next to the Attachment label. Click on it to view the file.

You can detach the document by clicking on the Upload button while no path is displayed in the Browse text box.

Configuring a Workflow Definition

Each time you promote a workflow routing to Active status, you should immediately configure its workflow definition, which associates the routing with controls and so applies it to suspects generated by control monitors attached to those controls.

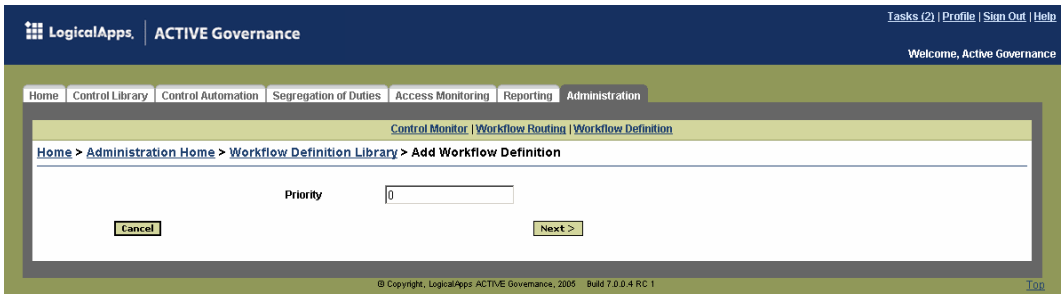
Click on the Control Automation tab and then on the Workflow Definitions link in the Library Navigator. A Workflow Definition Library panel displays a list of definitions; each corresponds to a workflow routing with an Active version. Each entry in the list shows the state of a definition — the name and description of the corresponding workflow routing, the priority number (if one has been assigned), and whether events and conditions have been assigned.



Selecting a Priority and Events

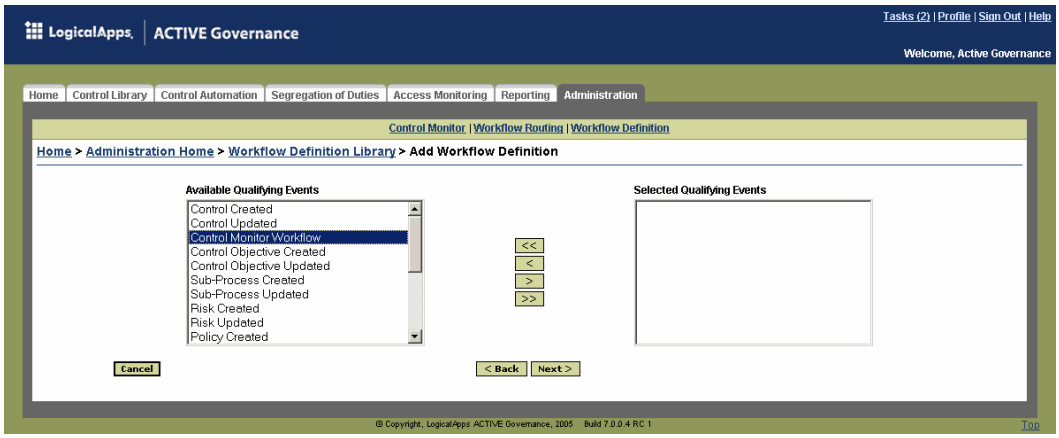
If you have selected a workflow routing for which a workflow definition already exists, a Workflow Definition panel displays the values selected in the definition, including priority and events. You can click on an Edit link next to the priority number, and an Edit Workflow Definition panel prompts for a new priority value.

If you have selected a workflow routing with no definition, the Workflow Definition panel is bypassed, and an Add Workflow Definition panel prompts for the priority value. Except for the name, it's identical to the Edit Workflow Definition panel.



To use either panel to set a priority and then select events:

1. Type a priority number in the priority field. Do *not* select 0 as a priority. (You may wish to review "Combining Priorities and Conditions in Workflow Definitions," page 6.)
2. Click on the Next button. The Add (or Edit) Workflow Routing panel displays fields in which you can select one or more events. (For suspect review, choose Control Monitor Workflow; you can combine this event with others in a single workflow definition.)

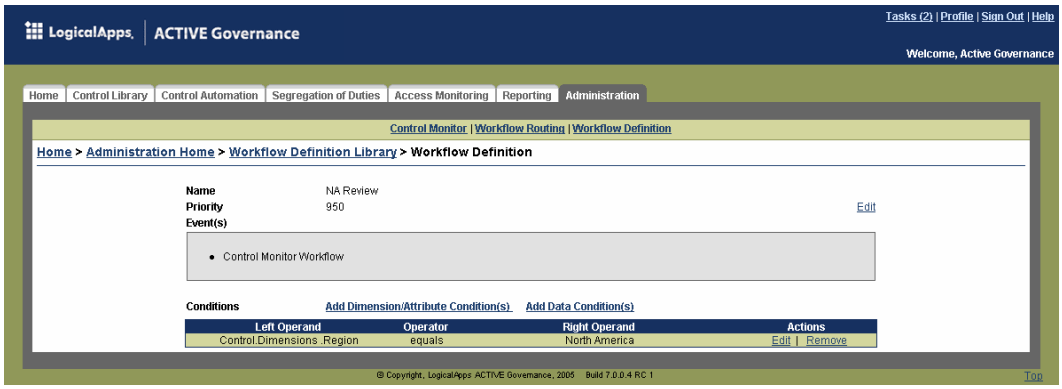


3. To add events, move them from the Available Qualifying Events field to the Selected Qualifying Events field. To remove them, move them from the Selected field to the Available field:
   - In either field, click on an event to select it. To select a continuous group of events, click on the first one, hold down the Shift key, and click on the last one. To select a discontinuous group, hold the Ctrl key as you click on events.
   - Click on the > button to send selected values from the Available field to the Current field. Or, click on the >> button to send all values displayed in the Available field to the Current field.
   - Click on the < button to send selected values from the Current field to the Available field. Or, click on the << button to send all values displayed in the Current field to the Available field.

4 Click on the Next button. The Add (or Edit) Workflow Routing panel now summarizes the selections you've made. If you are dissatisfied with any of them, click on the Back button until you reach the panel in which that selection is made, change it, and then click on the Next button until you return to this summary panel. When you are satisfied with your selections, click on the Finish button to complete the configuration of the priority and events

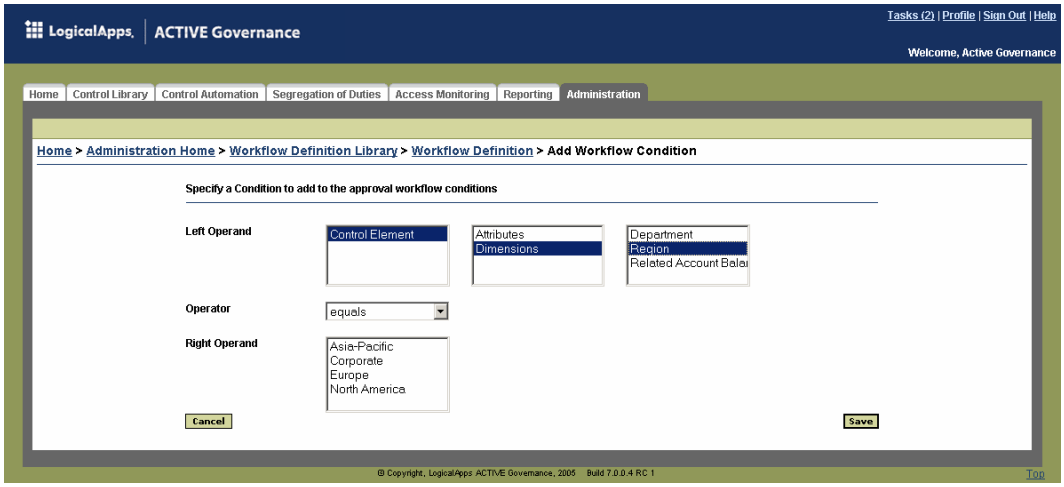
Selecting Conditions

When you finish configuring priority and events, or when you open a workflow for which a definition already exists, the Workflow Definition panel displays the values selected for the definition



From this panel, you can select dimension/attribute conditions. Each condition states that a dimension or attribute equals a particular value; the workflow may map to a control assigned a dimension or attribute with the same value. However, conditions are joined by an AND connector and so apply only if all are true; that is, a workflow applies to a control only if every value configured as a mapping condition is also a dimension or attribute value assigned to the control. To select dimension/attribute conditions:

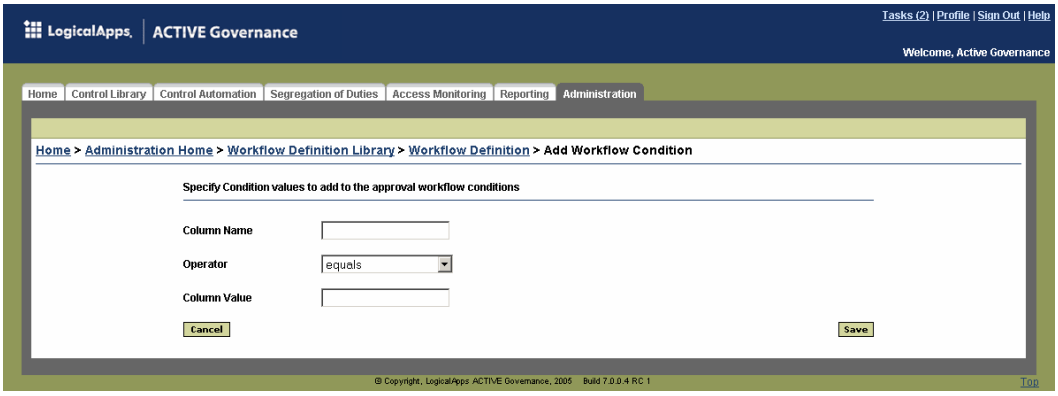
1 Click on the Add Dimension/Attribute Conditions link, or click on the Edit link for an existing dimension/attribute condition. An Add (or Edit) Workflow Condition panel appears:



2. As a Left Operand, select a dimension or attribute. The leftmost box always reads Control Element; click on either Dimension or Attribute in the middle box. According to your selection, the rightmost box displays either the dimensions or attributes configured on your system; click on one of them.
3. Accept the default, Equals, as the Operator value. (You cannot change it.)
4. The Right Operand box displays the values for the dimension or attribute you selected as a left operand; click on one of them.
5. Click on the Save button. The focus returns to the Workflow Definition panel, with the new condition added to the list.

To filter the suspects returned by a control monitor, you can also add data conditions. Each specifies a value that can be held in one of the columns returned by a SQL query in the control monitor. The workflow routing sends notifications to reviewers only for returned suspects containing that value in that column. To add a data condition:

1. Click on the Add Data Conditions link, or click on the Edit link for an existing data condition. Another Add (or Edit) Workflow Condition panel appears:



2. In the Column Name field, type the name of a column that returns values in the SQL query for a control monitor. (Ensure that the control monitor is attached as an "automation" to controls to which this workflow definition applies.)
3. Accept the default, Equals, as the Operator value. (You cannot change it.)
4. In the Column Value field, type the filtering value.
5. Click on the Save button. The focus returns to the Workflow Definition panel, with the new condition added to the list. Again, conditions have an AND relationship.

Because you have saved individual elements of the workflow definition as you created or edited them, the definition itself requires no further saving; it is ready to be used.