

IBM® Cognos® TM1 9.4 MR1

TM1

WORKFLOW ADMINISTRATOR'S GUIDE



Product Information

This document applies to IBM® Cognos® TM1 Version 9.4 MR1 and may also apply to subsequent releases. To check for newer versions of this document, visit the IBM Cognos Resource Center (http://www.ibm.com/software/data/support/cognos_crc.html).

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Introduction

The TM1 Workflow Administrator's Guide guide describes how to install, configure and customize IBM Cognos TM1 Workflow. TM1 Workflow integrates with your TM1 budgeting and planning application, and allows you to establish a workflow structure, security, and other organizational structures.

Business Performance Management is the continuous management and monitoring of Financial, Operational, Customer and Organizational performance across the enterprise. Business Performance Management solutions have the following capabilities to facilitate the proactive steering of business direction:

- Wide deployment
- Collaborative decision making
- Continuous and real-time review and refinement
- Monitoring of Key Performance Indicators

IBM Cognos TM1 integrates business planning, performance measurement and operational data to enable companies to optimize business effectiveness and customer interaction regardless of geography or structure. TM1 provides immediate visibility into data, accountability within a collaborative process and a consistent view of information, allowing managers to quickly stabilize operational fluctuations and take advantage of new opportunities.

Audience

This guide is intended for TM1 server administrators and anyone developing planning and budgeting applications with TM1.

Related Documentation

Our documentation includes user guides, getting started guides, new features guides, readmes, and other materials to meet the needs of our varied audience. The following documents contain related information and may be referred to in this document.

Note: For online users of this document, a Web page such as **The page cannot be found** may appear when clicking individual links in the following table. Documents are made available for your particular installation and translation configuration. If a link is unavailable, you can access the document on the IBM Cognos Resource Center (http://www.ibm.com/software/data/support/cognos_crc.html).

Document	Description
IBM Cognos TM1 AP1	Describes the functions and features of the IBM Cognos TM1 API. The API is intended to give complete access to all the features and functionality of the TM1 OLAP engine.

Document	Description
IBM Cognos TM1 Installation Guide	Describes how to install the IBM Cognos TM1 Software components on Windows and UNIX operating systems.
IBM Cognos TM1 Operations Guide	Provides a basic understanding of TM1 architecture, server operations, authentication, and component security.
IBM Cognos TM1 Reference Guide	A collection of reference materials that describes TM1 functions, variables, and other programming elements.
IBM Cognos TM1 Rules Guide	Describes how to use TM1 rules to build an application that reveals business data in sophisticated and useful ways based on simple raw data.
IBM Cognos TM1 TurboIntegrator Guide	Describes how to use TM1 TurboIntegrator to import data and metadata into TM1 from a variety of sources.
IBM Cognos TM1 Users Guide	Describes how to use the TM1 Windows clients: TM1 Architect, TM1 Perspectives, and TM1 Client. It also describes the Web-based client, TM1 Web.

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Product documentation is available in online help from the **Help** menu or button in IBM Cognos products.

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You can also read PDF versions of the product readme files and installation guides directly from IBM Cognos product CDs.

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Chapter 1: Getting Started with TM1 Workflow

IBM Cognos TM1 Workflow is a TM1 component that employs your existing TM1 data to design and implement a custom-built set of hierarchical workflow or budget tasks. As users update or monitor their TM1 data, Workflow offers the specific worksheets and data structures they need to accomplish their assigned responsibilities. TM1 Workflow updates the status of the process and deploys reports, attachments, and emails that drive the entire workflow process to completion.

TM1 Workflow can be designed as a simple task and completion reminder process or it can be customized to manage multiple users, multiple tasks, and many levels of notification and action dependencies. The ability to set security at all levels along the process tree results in a highly customizable task set tied directly to your organization's unique reporting chain.

TM1 Workflow is optimized for a budget process based around a scenario or version dimension, but any task-oriented procedure built can be managed with TM1 Workflow. TM1 Workflow does not change your existing data. Instead it adds a new workflow element to your current TM1 dimension.

Installing TM1 Workflow

Most workflows are built using your established scenario or version dimensions along with a department dimension that mirrors your work organizational structure. If you are new to TM1, see the *TM1 Installation Guide* and the *TM1 User's Guide* for information about how to install TM1, how to set up the dimensions you need, and how to install TM1 Workflow.

TM1 Workflow is shipped along with the standard TM1 software as an optional component that is installed separately after TM1 is installed.

TM1 Workflow Design

To create a TM1 Workflow:

Steps

1. **Identify the TM1 dimension to use.**

Typically this is your scenario or version dimension.

Once you have created your initial workflow, you can construct multiple processes or other workflows using this first workflow. See [Creating a TM1 Workflow](#).

2. **Construct the Task and Review Hierarchy.**

Use the TM1 dimension to build the list of users taking actions and the tasks each is asked to perform to complete the workflow process. See [Task and Review Hierarchy](#).

3. **Identify the location and security of the objects users need to complete their tasks.**

You can identify the worksheets, specific data ranges, URL's and other objects users need to complete their tasks. The TM1 Workflow Administrator ensures that users have the proper security and permissions to use the objects they need to complete their tasks. See [Workflow Security and Navigation](#).

4. **Specify the details of messages sent to users during the process.**

Emails, notes, and attachments can accompany processes and tasks to notify participants concerning progress and status of the workflow procedure. See [Workflow Messaging](#).

5. **Employ the TM1 Workflow Toolbar to identify and complete tasks.**

When users log in to TM1 Workflow, their Workflow Toolbar updates with their assigned tasks and processes. As users enter their TM1 data and identify tasks as complete, TM1 Workflow updates the process and notifies participants along the hierarchy of actions taken and of changes to the task's status. See [Using the Workflow Toolbar](#).

6. **Refine and track the workflow interactions.**

If you choose to, you can use the TM1 Workflow Definition to refine the behavior of actions that occur during the workflow process. You can also customize the process by changing many of the actions and statuses that occur as the process deploys. See [Workflow Definition](#), [Workflow Application Environment](#), and [Advanced Workflow Process Design](#).

Starting the TM1 Workflow Service

To begin using TM1 Workflow, you must first start the TM1 Workflow service that you need for your process.

Steps

1. Click the Connect  icon on the Workflow toolbar.

If you try to use any TM1 Workflow menu option before a service is running, the **Connect to TM1 Server** dialog box automatically displays so you can specify the server to use.

Enter the name of the server that contains your workflow dimension at the **Server ID**.

Note: The sample data supplied with TM1 the *plan_sample* service contains sample data optimized for TM1 Workflow.

2. Enter the username at **Client ID** and **Password** if that userid requires a password.

To have access to administrator capabilities of TM1 Workflow, such as the Admin console, your Client ID must be set as an administrator level userid.

TM1 Workflow employs the usergroup assignments made in TM1. These groups have an impact on security within a workflow process. See the IBM Cognos TM1 *User Guide* for information on defining usergroups in TM1.

3. Click **OK**.

A dialog box displays confirming the server and client you chose and the Connect icon  displays on your TM1 Workflow Toolbar.

Once you have connected to a service, to change to a different service disconnect using the Disconnect icon  on the TM1 Workflow Toolbar and re-start a new service.

For more information on the Toolbar, see [TM1 Workflow Toolbar](#).

See [Opening the Admin Console](#) for information about how to begin building your workflow process.

Chapter 2: Building a TM1 Workflow

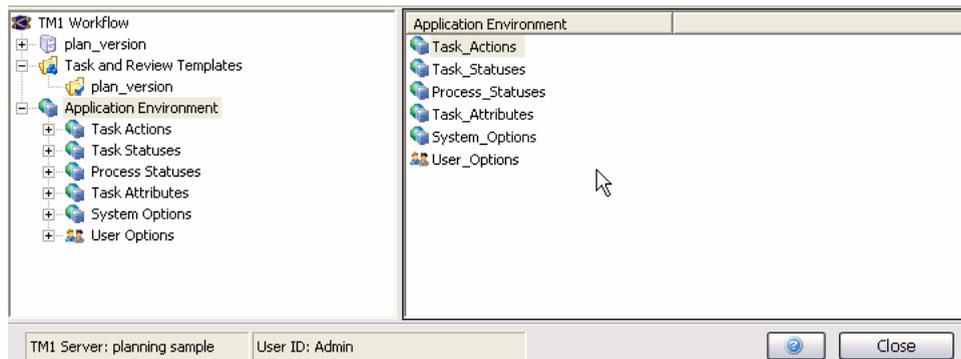
The first step with TM1 Workflow is to create the initial TM1 Workflow and link it to your scenario or version dimension. Once you have created your first TM1 Workflow, you can add different processes to it or create other workflows with their own processes. Each process contains a list of tasks, users and instructions on how to progress to the completion of the process.

A standard budget approval process is the kind of workflow that typically encompasses several individual processes. For example, you may create several versions of a budget during a budgeting cycle to drive budget planning for various business conditions. You may have one budget plan for Q4 2004 that assumes that Q3 sales were flat, while a second budget plan for the same period assumes that sales were up in Q3. TM1 Workflow enables you to design different processes within the same workflow structure to consider different objectives.

Opening the Admin Console

You must be a TM1 administrator to create a TM1 Workflow.

The TM1 Workflow Administrator has access to the design and operation of the workflow via the Administration (Admin) console. The Workflow Wizard offers the appropriate dialog boxes required to setup the initial workflow. After that, the TM1 Workflow Administrator uses **Admin** from the TM1 Workflow menu to work on the workflow processes and tasks. Only users with Administrative privileges have access to the Admin console.



Identifying the Workflow Dimension

To create a TM1 Workflow:

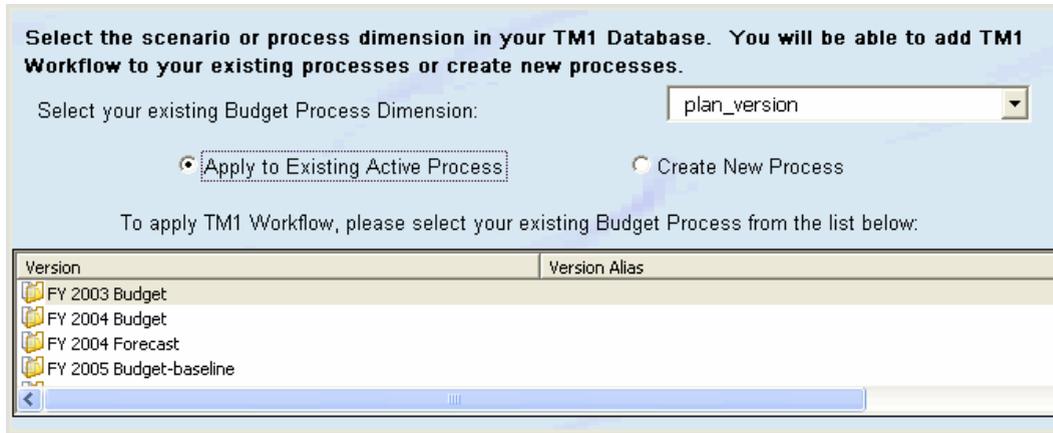
Steps

1. Run the service you need with the Admin user as described in [Starting the TM1 Workflow Service](#).
2. If this is the first time you have run TM1 Workflow, the **Create New Workflow** dialog box displays automatically when you select any option of the TM1 Workflow menu. For subsequent

logins, click **Add a Workflow** from the shortcut menu of the top-level workflow icon  in the Admin console.

3. Choose whether to use existing elements or to create new ones in your selected dimension:
 - To link your workflow to an existing TM1 dimension such as your scenario or version dimension, select the dimension name from the dimensions offered at the **Select your existing Budget Process Dimension:** menu and click **Apply to Existing Active Process**.

The window expands to display the currently available process elements. Select the elements to use for your workflow from this list.



- To insert a new element into the selected dimension, select **Create New Process**. Enter the name for your new workflow process element at **Process Element ID**.

Optionally, you can enter an alternate name for the new workflow process element in the **Alias** field.

4. Click **OK**.

Once the workflow is created:

- You can begin adding tasks. See [Task and Review Hierarchy](#).
- As soon as one task is assigned, you can save the workflow.
- Before users can execute the workflow, the administrator initializes it by assigning due dates and other criteria for deployment.

See [Saving the Workflow](#).

Saving the Workflow

Once you have completed at least one task in your workflow, you can indicate some initialization settings and save it. The status you set on the workflow indicates if it is ready to be deployed or still under construction.

Once these settings are made, you can review them for this specific workflow by double-clicking the workflow in the Admin console. Default workflow status settings are stored in **Application Environment, Process Status** on the Admin console.

Edit Your Process: (Q1_2005)

Process Status: In Progress

Process Notes:

Start Date for the Process: 11/ 4 /2008

Due Date for the Process: 11/ 5 /2008

Process Security Setting: None

Process hierarchy Visible to TM1 Admin Group

Allow Process Level Attachments: No Yes

Security and Navigation Edit Task Tree

Steps

1. If you have just finished assigning tasks or security/navigation, clicking the **Next** button advances to the Edit Process Details dialog box.

If you have previously saved your workflow, open the Apply/ Create Process dialog box by double-clicking on the workflow in the Admin console.

2. Determine the status of this workflow:
 - To allow the workflow to be available to other users, select **In Progress**.
 - To indicate that the workflow needs modification before it can be released to others, select **Under Development**.
 - To indicate that the workflow is available for viewing by other TM1 Workflow users, but it cannot be modified, select **Finished**. This selection is used for archived budget data.
 - To indicate that this workflow is not for public viewing, and may be discarded at some time in the future, perhaps after it is backed up, select **Inactive**.

To add a custom workflow status, see [Adding a New Workflow Status](#).

3. Enter any text notes to accompany this workflow in the **Process Notes** field.
4. Enter a date when this workflow should be deployed in the **Start Date For This Process** field. Click on the menu arrow to select from a calendar.
5. Enter a date when this workflow should stop running in the **Due Date for This Process** field. Click on the menu arrow to select from a calendar.
6. Select the level of security this workflow employs from the **Process Security Setting** menu:
 - If no additional security beyond your usual system security is used by this process, select **None**.
 - To add the additional security specified in your Security assignments for this process, select **Cell-Level**. See [Workflow Security](#) for more information.
7. Determine if Admin users can view all tasks:

- To allow any TM1 Admin user to view the entire task hierarchy for all users of this process when they press the All Tasks or Status button on the workflow Toolbar, select **Process Hierarchy Visible to TM1 Admin Group?**
 - To allow users in the Admin group to see only their own tasks when they press those buttons, clear this check box.
8. To prevent attachments from being included as part of this process, select **No** at **Allow Process Level Attachments**. If attachments are allowed to accompany the tasks in this process, select **Yes**.

Note: There are other system-level settings that must be set to enable attachments throughout the workflow environment. See [Attachments](#) for more information about attachments.

9. If you need to revisit and adjust any other aspect of this workflow, use the Security and Navigation or the Edit Task Tree buttons to return to those parts of the process.
10. If the workflow is complete and ready to be deployed, click **Next**.

The final screens display the current settings of the workflow and offer a last chance to edit it before deployment.

Examine the settings displayed in the **Verify Parameters** window. Use the scroll bar to see all the settings displayed. Use the **Back** button if you need to revisit any aspect of the process before completing it.

11. When it is correct, click **Finish**.

TM1 Workflow notifies you that the process setup is complete and prompts to ask if you want to notify users that the workflow process is available. See [Workflow Messaging](#) for information on how to construct these emails.

- To send email notification to users that this process is ready to be deployed, click **Yes**.
 - To complete the process without notifying users, click **No**. The process is complete and available for use but no email is sent.
12. Once your workflow process is complete and deployed, users will see their processes and tasks display in their TM1 Workflow Toolbar. See [Workflow Toolbar](#) for information about how the execution of a workflow process unfolds.

Chapter 3: Task and Review Hierarchy

After you have created the workflow, you will set up the Task and Review Hierarchy.

The Task and Review Hierarchy is a list of TM1 users performing tasks and the tasks they are assigned within this process.



Typically the completed Task and Review Hierarchy reflects a stripped-down version of your organizational hierarchy. This hierarchy mirrors the flow of information through your organization during a workflow process, such as during your budget approval process.

For example, it may contain only those members of your staff involved in generating budgets. Budget numbers might be generated at the lowest levels of the hierarchy then submitted to a manager. The manager adjusts the budget numbers received from his staff, and submits a consolidated budget to the vice president. The vice president presents numbers from all his departments to the CFO. TM1 Workflow builds the Task and Review hierarchy based on your actual planning data.

Tasks

Tasks are the basis of all your workflow operation. Tasks are created using your TM1 dimensions, your user groups, and workflow's status and configuration settings.

Keep in mind the following task basics:

- **Single Task and Review Hierarchy**

There is a single Task and Review Hierarchy associated with each TM1 Workflow process. See [Creating a Task and Review Structure](#) for more information.

- **Dimensions**

Your Task and Review Hierarchy may exist in a single TM1 dimension or it may exist across several dimensions. See [Adding Tasks](#) for more information.

- **Responsibility for a Task**

Someone is responsible for all workflow tasks. Some tasks can also be sent on to another user or group for completion:

- *Owner*

All tasks have an owner. The owner can be a single user or usergroup. The owner is responsible for completing that task.

- *Delegator*

When a Delegator is responsible for a task, the task can be passed on to another user. A task's attributes indicate if Delegators are allowed on this task.

See [Assigning User Responsibility](#) for more information.

- **Task Actions**

Task actions are the actions you can take on a task, such as Approve. See [Task Actions](#) for more information.

- **Type of Tasks**

Tasks can be Simple or Delegated. The type of task determines the kind of action that can be taken on that task. For example, a Delegated task cannot have a status of "Complete" since only the owner of a task can complete it. See [Types of Tasks](#) for more information.

- **Task Statuses**

Task Status is the state a task can be in, for example "Approved." The status of a task changes in the workflow depending on the action that has been taken. See [Task Statuses](#) for more information.

- **Task Attributes**

Task attributes store the specific details of how a task operates within a workflow, for example the workbooks used to complete this task or details of how an email is constructed when this task has a status of Complete. In addition, you can set language values on the attribute names to display attributes in different languages. See [Task Attributes](#) for more information.

- **System-Wide Defaults**

The default behaviors of task actions are stored in **System Options** from the Admin console **Application Environment** menu. For example, you can specify that any workbooks opened are opened in ReadOnly mode. See [Making System-Wide Settings](#) for details.

- **User-Based**

To override the task action behavior for a specific user select **User Options** from the Admin console **Application Environment** menu. For these attributes, first select the username, then change the task's attributes for that user only.

- **Process Level Settings**

Many attributes can also be set at the process level. See [Workflow Status](#) for more information.

- **TM1 Workflow Definition**

The interaction of tasks and their status are stored and displayed in the [TM1 Workflow Definition](#) grid.

Creating a Task and Review Structure

During the creation of your workflow, the Create Task and Review Template dialog box lets you identify the elements to use to build your task structure. You drag and drop the elements from your specified dimension and assign users their tasks in the Task and Review window. You can create a new structure from scratch, or use an existing template as the starting point, or you can edit an existing task structure.

If this is the first workflow on your system, the Create Workflow Wizard will present the dialog boxes you need to create a new structure. If you have already created at least one workflow:

Steps

1. Right-click an existing workflow or process on the Admin console and select **Add a Process** from the shortcut menu.

The Create/Apply Process dialog box opens:

2. Determine how you want to construct your Task and Review Hierarchy:
 - Use a hierarchy *template*

If you have an existing hierarchy template in place, select **Create a New Process from a Template Task Structure**. When you use a template, only the basics of the hierarchy are used and you build on that design.
 - Use an existing *task structure*

To use the list of tasks in an existing hierarchy, select **Create a new Process from an Existing Task Structure**.
 - Create a new task and review hierarchy from scratch.

To build a brand new Task and Review Hierarchy, select **Build a new Process Task Structure**.
3. After you determine the basis of your task structure, determine how to identify the elements you need:
 - Use an existing process element

To use an element that already exists, select **Apply TM1 Workflow to an existing Process Element**.

Select the element to use from the list that opens.

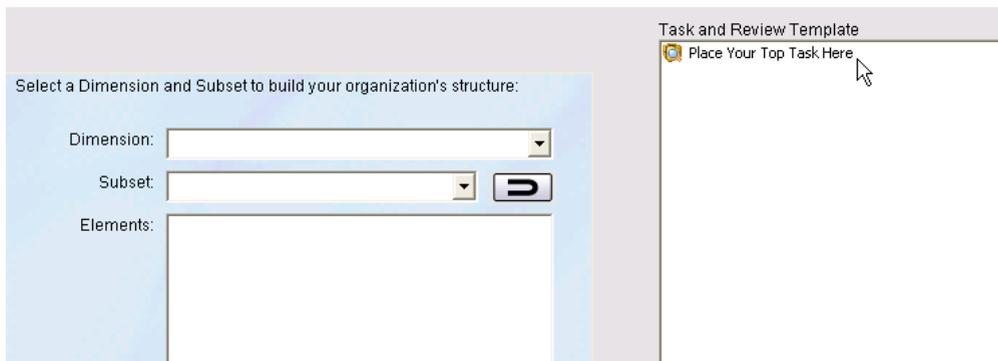
If you have chosen to build a template, you are offered a list of templates to base this new structure on. If you have chosen to build a new structure, you are offered a list of processes to use as the basis.

- Create a new, undefined process element

To construct a new element, select **Create a New Process Element ID** and enter the name for the new element. Optionally, you can add an **Alias** for this new element.

4. Use the **Dimension** menu to select the dimension to use to build this Task and Review structure. If there is a subset available for this dimension you can use the **Subset** menu to select the subset of that dimension to use.

The dimension elements then display in the Elements pane.



Adding Tasks

To add a task to your workflow:

Steps

1. Select the element to use from the Elements pane and drag that element into the Task and Review Template pane.

The cursor changes to a "not permitted" symbol  until you hover over the Elements pane.

Then it switches to an "insert task" symbol  .

2. "Drop" the element based on where you want that task to appear in the hierarchy of tasks:
 - You can select an entire hierarchy and drag it to the task pane to bring the entire structure and elements into the new hierarchy.
 - When you drag a consolidated element, the element and all of its children are moved to the Task and Review pane.
 - When you drag an element to a higher level, the element becomes a parent of the task.
 - When you drop the element into a lower level, that element becomes a child of its upper element.

- When you add an element to an existing element, the Parent element name and the dragged object name are concatenated.

For example, if you have a parent element called

US

and a child element called

Marketing

when you drag the "Marketing" element and drop it into the "US" task, the newly created task is now called

US Marketing

This helps to keep the node names in the hierarchy unique.

When a task is first created no users own the task and no security has been assigned to it so in the Task and Review pane the task displays as

(unassigned, no security group).

These designations will change later in the process as you assign ownership to the task and indicate the level of security required for this task.

There are important implications to assigning groups and users. See [Workflow Security](#) concerning user groups and object permissions.

Adding Child, Parent, and Sibling Tasks

Once you have your basic tasks established you can expand on the task tree structure to mirror your organizational hierarchy.

To add a child, parent, or sibling task:

Steps

1. Right-click on the task in the **Task and Review** pane and select **Insert** from the shortcut menu.
2. Determine the relationship of this task:
 - To insert a task at a higher level than the current task, select **Parent**.
 - To insert a task at a lower level than the current task, select **Child**.
 - To insert a task at the same level as the current task but earlier in the task sequence, select **Sibling Above**.
 - To place the task at the same level as the current task but later in the tree sequence, select **Sibling Below**.

Managing Tasks

Use the shortcut menu on tasks to perform the following actions on a task:

Steps

1. To move tasks around the task tree you can simply drag tasks to their new locations. Or, use the **Delete**, **Cut**, **Copy**, and **Rename** commands to perform those actions.
2. Decide how to display and assign the owners of the task in the hierarchy:
 - To display the users who have ownership of a task, select **Show Owners** . Clear this check box to get a less cluttered view of the tasks without their assignments.
 - To remove the current owners of a task, select the task and check **Deassign Owners**.
 - To assign an owner to all tasks beneath a parent task, select the parent task and check **Set Default Owners**.

Assigning User Responsibility

Each node in your task and review structure must be assigned a user who is responsible for completing that portion of the process. This user is called the task owner. In addition, if you have turned on cell-level security, each node in the task and review structure must be assigned a security group.

Since all security in TM1 is controlled through TM1 groups, only members of the assigned security group have access rights to the task's data. So it is important that the TM1 Workflow administrator ensure that the users are put into the appropriate TM1 security groups for the tasks they will be assigned. See [Workflow Security](#) for more information.

To assign a user to a task:

Steps

1. Select the **Task Responsibility** tab from the **Create Task and Review Template** dialog box.

The **TM1 Groups and Users** pane displays all the users in your system organized by groups. You can expand a user group to display each individual user in that group. If the user has an email established, that email displays. Otherwise the user is identified as *(No email assigned)*.

2. To assign a user to a task, drag the username into the **Task and Review** pane and "drop" it into the task.

The task will change color and the *(unassigned, no security group)* changes to include the name of that user.

Black letters indicate that the task has all the required assignments. Blue letters indicate that additional assignments are required.

Depending on the type of entity you drag, you can have a different effect in the Task Tree Structure. You can drag a TM1 group, a TM1 user, or a TM1 user from within a TM1 group:

- To set the task's owner, drag a user.
- To set the task's security group, drag a TM1 group.

- If you open a TM1 group, and drag a user from within that group, the user becomes the task's owner, and the user's group becomes the task's security group.

When cell-level security is turned on and you assign an owner and a security group to a task, but the owner is **not** a member of the security group, the owner may not be able to access the task's data. To avoid this problem, you should add owners from *within* a security group. This way, the owner always has access to the task's data.

You can add tasks with the same name to the hierarchy; however, to avoid confusion when viewed from Microsoft Excel, it is helpful to have tasks with unique names.

If you drag a item into the Task and Review structure from the Elements list, the name of the new task is the combined parent and child name. If you create a task by right-clicking in the Task and Review structure, or dragging elements from one part of the Task and Review structure to another, the names are not modified. In this case, you should edit the task name to be sure it is unique.

3. To drag more than one element from the Elements list to the Task and Review hierarchy, select **Allow Multiple Assignments**.

When this option is selected, large check boxes display before the elements. Select the check box for the element you want to add in the Elements pane, then select the box for the task where that group should go in the Tasks and Review pane. When you click the large center arrow, the element group is added to all the tasks.

Task Actions

Task actions are the way a user can have an effect on the workflow, such as Approve, Submit, Revoke. When a user has a task available, the task name, action, and icon display in the Workflow Toolbar.

Task actions behave in a specific way. There are many different ways to control how any task action in a TM1 Workflow operates, as well as creating your own custom task actions. You can define the way a task action behaves on a system-wide basis for all users or you can define specific behavior when a particular user employs that task action. For example, for most users a general purpose email can be sent when they perform a Submit task action. In addition, you can design a different email for a specific user that is CC'd to that user's boss as well.

By default, tasks can take the following actions:

-  Delegate

To pass the task to an owner for completion, select Delegate.

-  Approve

To indicate that this task is finished, select Approve. Tasks that have an Approve action taken on them require no further action by the owner.

-  Start

To indicate the you are just starting work on a task, select Start.

-  Submit

To return a completed task to the delegator for review, select Submit.

-  Complete

To indicate that this task is finished.

-  Reject

To indicate that further action by the owner is required, select Reject. When a task delegator rejects a submitted task, the task returns to the owner.

-  Revoke

Revoke is essentially an 'undo' function. To change the current status of the task to its previous state, select Revoke.

You can also create custom tasks. See [Adding a Custom Task Action](#) for more information.

Types of Tasks

There are two types of tasks:

- *Simple*

Simple tasks cannot be passed to other users. They must be completed by the assigned user or group. Simple tasks have no delegators assigned in their Task Attributes.

Simple tasks have only two actions: Complete and Revoke.

- *Delegate*

Delegated tasks are passed down the hierarchy. When the owner of the task completes work on it, they submit the task back to the delegator. The Task Attributes identify a task as able to be delegated and the Workflow Definition grid lists those tasks as Delegator instead of Owner. See [Workflow Definition](#) for more information.

By default, delegated tasks can have the following actions:

- *Delegate*
- *Start*
- *Submit*
- *Revoke*
- *Reject*
- *Approve*

Prompting for Comments in a Task Action

Users who perform a task action, such as submitting a budget proposal, can be given the opportunity to include comments on this action or to attach files and URLs that may be pertinent to this action. Comments are stored in the workflow database and can be reviewed at a later date.

Another way to get feedback on a task is to set up email messages to accompany task actions. See [Workflow Messaging](#) for more information.

To design a task to prompt for comments:

Steps

1. Select the action from the **Admin** console, **Application Environment**, **Task Actions** menu.
Or, select the action and select **Add/Edit** from the shortcut menu.
2. The **Task Properties** dialog box displays.

Attribute	Value
Action_English	Approve
Action_Japanese	<input type="checkbox"/>
Action_Chinese	<input type="checkbox"/>
Action_German	Genehmigen
Action_French	Approbation
DisplayConfirmMessage	N
Subject	
Action	Approve

Add

3. Set **DisplayConfirmMessage** to **Y**.
4. Click **Apply**.
5. Click **OK**.

Adding a Custom Task Action

You can add your own task actions to TM1 Workflow. For example, to add an action called **Execute**:

Steps

1. Select any existing task action from the **Admin** console, **Application Environment**, **Task Actions** menu.
2. Select **Insert New Task Action** from the shortcut menu.
The **Add Task Action** dialog box displays.

3. Enter the name of the new task action.

In this example, the new task action is called **Execute**.

4. Click **OK**.
5. The **Task Action** dialog box redisplay with the name you entered as the starting value for the fields.

Change the behavior and attribute values for this new action as needed by setting the appropriate values here.

6. Click **OK**.

The new task action displays in the task action list and is available for use in your processes.

See [Attributes Added for Custom Actions](#) for the list of task attributes that become available when you add a custom action.

Task Statuses

Every task has a task status that defines its current state, such as In Progress, Approved, or Rejected. The icons display in the toolbar when a task is in that state.

Depending on the action taken on it, a task can have the following status:

-  Not Started
This task has not yet begun to be used.
-  In Progress
This task is being worked on.
-  Approved
This task has been reviewed and approved.
-  Rejected
This submitted task has been sent back to be reworked.
-  Not Delegated
This task has not been sent on to a different owner.
-  Submitted
This task has been sent to the next approving owner.
-  Pending
This task is being held awaiting next step in the process.
-  Completed
This task is finished.

You can also create custom statuses. See [Adding Custom Task Statuses](#) for more information.

A task changes its status when an action, such as Start, Approve, or Reject is performed on the task. For example, if you are a task owner, and the status of a task is Not Started, and you start the task, the status changes to In Progress. At different points in the workflow process, a particular task might have a number of different statuses, such as In Progress, Submitted, or Revoked.

The Task Status fields define the behavior for each available task status. For example, the values set for the In Progress task status define how a task in the In Progress stage behaves. Task Statuses also have fields that define how these statuses display when running TM1 Workflow in a language other than English.

The [Workflow Definition](#) grid shows how the different conditions and users performing actions changes the status of a task as the process unfolds.

The Task Status menu in the **Admin** console **Application Environment** menu stores the default behavior for all the task statuses defined for your system.

In addition to the default task statuses, you can create custom task statuses, such as **Waiting**.

Defining Task Statuses

You can define how a task status operates within the workflow.

The setting for the default action depends on two factors:

- Whether the Workflow user is an owner or a delegator of the task.
- Whether the task is a delegated task or a simple task.

To define the behavior of a task status:

Steps

1. Select the status, such as **In Progress**, from the **Admin** console, **Application Environment**, **Task Statuses** menu.
2. Select **Add/Edit** from the shortcut menu.

The Task Status dialog box opens.

The following values can be set for each task status:

Field	Description
Status_English	Name of the status in English, such as In Progress .
Status_German	Name of the status in German, such as In Bearbeitung .
Status_French	Name of the status in French, such as En cours .
Display In Toolbar	Set this to Y to display the status in the Workflow Toolbar .
Default for Owner Complete	If you are looking at a simple task, and you are the owner of that task, the default task action is set to the value of this field.

Field	Description
Delegator Security	<p>If you are a member of the delegator group for any task to which this status is applied, the cell-level security privilege specified in this field is applied to the task. For example, a delegator of a task with a status of In Progress might be assigned cell-level security of READ.</p> <p>Note that this field only affects your data if the Security Setting for this process is set to Cell-Level, and the Workflow Status Apply Cell-level Security option is set to Y.</p> <p>If you change the value of this field, you must save the value, then re-open and save the process to which you want to apply the new security setting. To re-save the process, select the process in the Admin console, select Edit from the shortcut menu, click Next, then click Finish.</p>
Owner Security	<p>If you are a member of the owner group for any task to which this status is applied, the cell-level security privilege specified in this field is applied to the task.</p> <p>For example, an owner of a task with a status of In Progress might be assigned cell-level security of WRITE.</p> <p>Note that this field only affects your data if the Security Setting for this process is set to Cell-Level, and the Workflow Status Apply Cell-level Security option is set to Y.</p> <p>If you change the value of this field, you must save the value, then re-open and save the process to which you want to apply the new security setting. To re-save the process, select the process in the Admin console, select Edit from the shortcut menu, click Next, then click Finish.</p>
Default for Delegator	<p>The value in this field is used as the default task action when a delegator performs the task and when the task is a delegator-type task.</p>
Default for Owner	<p>The value in this field is used as the default task action when an owner of the task performs this task and the task is a simple type task.</p>

Field	Description
Status	The display string for the task status. In English installations, this string should be the same as the Status_English field. In German installations, this string should be the same as the Status_German field. In French installations, this string should be the same as the Status_French field, etc.

Adding Custom Task Statuses

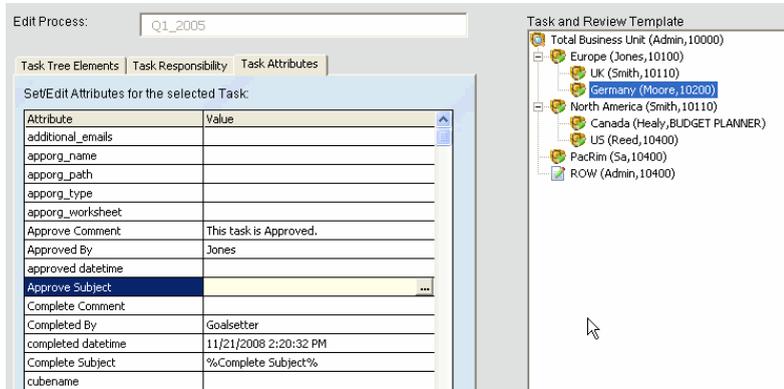
You can also add your own custom task status, for example *Executed*.

Steps

1. Select any existing task status from the **Admin** console, **Application Environment**, **Task Actions** menu.
2. Select **Insert New Task Status** from the shortcut menu.
The Add Task Status dialog box displays.
3. Enter the name of the new task status.
In this example, the new task action is called **Executed**.
4. Click **OK**.
5. The Task Status dialog box re-displays with the task status name filled in for the values already there, for example, *Status_English*, *Status_Chinese*, *Status_French*, and *Status_German*, etc. You can change those values here if needed.
6. Click **OK**.
The new task status displays in the task status list and can be used in a workflow process.
7. To update any existing process so it can use the new status:
 - Select each process from the **Admin** console.
 - Select **Edit** from the shortcut menu.
 - Select **Next** on the Edit Parameters dialog box.
 - Select **Finish** on the Verify Parameters dialog box.
 - Repeat for any existing processes you want to have access to this status.

Task Attributes

When you create a task using the Create Task and Review Template dialog box, you can select the Task Attributes tab to display a list of attribute settings that can apply to tasks. You can use this dialog box to edit the task's attributes.



To control how these attributes are displayed when your installation uses a language other than English, see [Setting Attribute Languages](#).

Task attributes are divided into two groups:

- [Design Time Attributes](#)

Design time attributes can be set on a task by the Workflow Administrator.

- [Run Time Attributes](#)

Run time attributes are set by Workflow. You cannot change these settings via the Admin console, but you can display them there to see what their current values.

Setting Task Attributes

To set an attribute on a task:

Steps

1. Select the process that contains the task from the **Admin** console.

Select **Edit** from the shortcut menu.

Or, double-click on the process name in the **Admin** console.

The Edit Process dialog box displays.

2. Select **Edit Task Tree**.

The Create Task and Review dialog box displays.

3. Select the **Task Attributes** tab in the left pane.

4. Select the task in the right pane.

Note: If you are working on a template instead of a process, double-clicking the template from the **Admin** console, **Task and Review Templates** menu brings you directly to the **Task Attributes** tab.

5. Use the scroll button in the left pane to scroll to the attribute you want to set.

Depending on the type of attribute, you may be offered some set values or you may be able to enter a text field. For example, in the **Approved by** attribute a list of users is available.

You can click in a blank field to determine if the field offers input values such as a calendar or ellipses buttons that open the Email Setup Template.

6. When you have defined the task attributes as you want them to operate in the task, click **OK**.

Design Time Attributes

Design time attributes can be set by the Administrator on a specific task. The following design time attributes ship with TM1 Workflow:

General

These attributes define general attributes of a task.

Field	Description
Type	Tasks are either simple (must be completed by the owner) or delegatable (may be passed on to another user to complete).
Name	Name of the task, such as Total Business Unit.
Owner	The owner of a task is the person responsible for completing the task. Only an owner will be able to select a task from the Workflow menu.
Owner Group	This is the TM1 group through which security is controlled. This group is assigned when you add the task to the task and review structure for the workflow.
Image Name	Image used to identify this workflow or user.
Task	A unique task id. This is a TM1 alias for the element identified by the Name field. This is generated by Workflow when you create the task.
Source_Type web_type	Defines source of a navigation object in the Web Objects or Workbooks tabs.

Email

These attributes define emails sent when a user performs each action. Workflow uses your default mail client to send these emails. See [Workflow Messaging](#) for more information.

Field	Description
Approve To, Approve CC, Approve BCC, Approve Subject, Approve Message	When a user Approves this task, the email sent uses these To, CC, BCC, Subject, and Message fields.
Complete To, Complete CC, Complete BCC, Complete Subject, Complete Message	When a user Completes this simple task, the email sent uses these To, CC, BCC, Subject, and Message fields.
Delegate To, Delegate CC, Delegate BCC, Delegate Subject, Delegate Message	When a user Delegates this task, the email message sent to the users participating in the completion of the task uses these To, CC, BCC, Subject, and Message fields.
Reject To, Reject CC, Reject BCC, Reject Message, Reject Subject	When a user Rejects this task, the email sent uses these To, CC, BCC, Subject, and Message fields.
Revoke To, Revoke CC, Revoke BCC, Revoke Message, Revoke Subject	When a user Revokes this task, the email sent uses these To, CC, BCC, Subject, and Message fields.
Start To, Start CC, Start BCC, Start Message, Start Subject	When a user Starts this task, the email sent uses these To, CC, BCC, Subject, and Message fields.
Submit To, Submit CC, Submit BCC, Submit Subject, Submit Message	When a user Submits this task, the email sent uses these To, CC, BCC, Subject, and Message fields.
additional_emails	Indicates if additional emails were sent.

Dimensions

These attributes define the dimension used by the workflow.

Fields	Description
Source Element, Source Alias Name, Source Dimension	Defines the dimension elements used by the task.

Workbooks

These attributes define when a workbook is associated with a task:

Fields	Description
Workbook, Workbook Path, Worksheet	Specifies the workbook, the path to the workbook file, and the sheet within the workbook for this task.

TI Process

These attributes define a TurboIntegrator process associated with this task:

Fields	Description
pre_TI, pre_TI_return, post_TI, post_TI_return	Defines the TurboIntegrator process that happens before this task action, after the task action, and how to react when it returns.

URL Objects

These attributes define a URL associated with this task:

Fields	Description
url, url_name	Navigation required for url objects associated with this task action.

Cube and View Objects

These attributes define cubes or views associated with this task:

Fields	Description
cubename, viewname	Cube name or View name associated with this task action.

Application Organizer Objects

These attributes define an Application Organizer object associated with this task action:

Field	Description
apporg_type, apporg_path, apporg_name, apporg_worksheet	Define the type, path, name, or worksheet for objects stored in the TM1 Application Organizer that are identified for navigation in Workflow.

Run Time Attributes

Task run time attributes are updated automatically by workflow. Although you cannot set their values, you can define the language attributes for these items.

Field	Description
Status	Contains the current status of the task.
<action> Datetime fields	These record the date and time that the specified action was performed on the task. For example, Submitted Datetime records the date and time that the task was submitted.
<action> by fields	These fields record the TM1 user ID that last performed the specified action. For example Submitted By records the name of the user that last submitted the task.
Due Date	The ending date on which the task must be completed.
Complete Comment	A comment provided by the user that completed the task.
Submit Comment	A comment provided by the user that submitted the task.
Reject Comment	A comment provided by the user that rejected the task.
Approve Comment	A comment provided by the user that approved the task.

Attributes Added for Custom Actions

When you add a custom task action, the following attributes are added to TM1 Workflow.

Design Time Attributes

Attribute	Description
<action>_Subject	Subject line for mail sent when the action occurs.
<action>_Message	Body text for the mail sent when the action occurs.

Run Time Attributes

Attribute	Description
<action>_User	The user that performed the action.
<action>_Datetime	The date and time that the user performed the action.
<action>_Comment	The comment string provided by the user when the action was performed.
<action>_Subject	The text used to specify the Subject email field for this action.

Attribute	Description
<code><action>_Message</code>	The text used to specify the Message email field for this action.
<code><action>_To</code>	The text used to specify the To email field for this action.
<code><action>_CC</code>	The text used to specify the CC email field for this action.
<code><action>_BC</code>	The text used to specify the BCC email field for this action.

Setting Attribute Languages

To define the way a task attribute or task status prompt displays in languages other than English:

Steps

1. Select a task attribute from the **Admin** console, **Application Environment**, **Task Action** menu.
2. Select **Add/Edit** from the shortcut menu.

The Task Status Edit dialog box opens.

Enter the new values in the appropriate fields for the languages you use:

- **Name**
Name of this attribute. For example, the Name value for the Submit Subject task attribute is "Submit Subject."
- **Attribute_<language>**
Where *<language>* is a supported TM1 language.
For example, the **Attribute_French** setting for the Submit Subject task attribute is **Object de la soumission**.
The languages available depend on your installation.
- Click **OK** to store the new value.

Use **Admin** console, **Application Environment**, **Task Status** to set the language for a task status.

Workflow Status

To set the status for this workflow:

Steps

1. Select the workflow from the **Admin** console.

The Edit Process dialog box displays.

2. Use the Process Status menu arrow to select the status for this workflow:
 - To indicate that this workflow is ready to be used, select **In Progress**.
 - To indicate that this process is still being worked on but users can see it, select **Under Development**.
 - To indicate that his workflow process is no longer being deployed and is awaiting archiving, select **Finished**.
 - To indicate that this workflow is no longer used and is archived, select **Inactive**.
 - Click **Next** to continue editing the process or until you complete the screens.

Adding a New Workflow Status

You can also create a new type of status to become available to a workflow process. To add a custom workflow status:

Steps

1. Select any existing process status from the **Admin** console, **Application Environment**, **Process Statuses** menu.
2. Select **Insert New Process Status** from the shortcut menu.
The Add New Process Status dialog box opens.
3. Enter the name of the new process status.
For example, **Pending Approval**.
4. Click **OK**.
The dialog box re-displays with the default values for the new process filled in.
5. Edit the fields in this dialog box according to the following table:

Field	Description
Status_English	Name of the workflow status in English, such as In Progress.

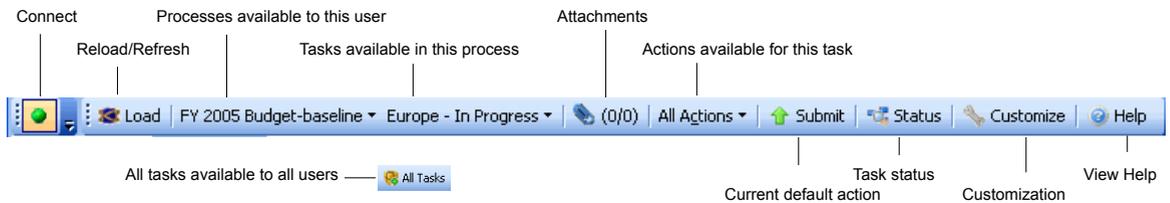
Field	Description
Status_German	Name of the workflow status in German, such as In Bearbeitung.
Status_French	Name of the workflow status in French, such as En cours. Other language attributes may display depending on your installation.
Display in Status Tree	The Process Status Tree displays when you click the Status button  from the Workflow Toolbar. To include this process in the Process Status Tree, set this value to Y . To prevent this process from displaying in the Process Status Tree, enter N .
Display in All Tasks	The All Available Tasks list displays when you click the All Tasks button  from the Workflow Toolbar. To include this process in the All Tasks list, set this value to Y . To prevent this process from displaying in the All Tasks list, enter N .
Apply Cell Level Security	This field determines whether cell-level security is applied to tasks belonging to processes with this status. If this field is set to N , no cell-level security is applied. If this setting is Y , cell-level security is applied to any task that meets the following conditions: <ul style="list-style-type: none"> <li data-bbox="714 1255 1393 1409">• The task belongs to a process that has the current status applied. For example, if you are editing the process status In Progress, only tasks belonging to processes with a status of In Progress are affected by this setting. <li data-bbox="714 1436 1393 1549">• The process security setting is set to CELL. This setting appears in the Edit Process dialog box when you right-click a process and choose Edit. <p>If you change the value of this field, you must save the value, then re-open and save the process to which you want to apply the new security setting. To re-save the process, select the process in the Admin console, select Edit from the shortcut menu, click Next, then click Finish.</p>

Field	Description
Display in Toolbar	<p>The Choose a Process button Choose a Process ▾ offers a list of processes to pick from on the Workflow Toolbar.</p> <p>To display this process in the Choose a Process list, set this value to Y. To prevent this process from displaying in the process list, enter N.</p>
Status	<p>The display string for the process status. In English installations, this string should be the same as the Status_English field. In German installations, this string should be the same as the Status_German field. In French installations, this string should be the same as the Status_French field, etc.</p>

6. Click **Apply** then **OK** to save your changes.
7. After the process dialog boxes are saved, to update a process so it can use the new status: select the process from the **Admin** console, select **Edit** from the shortcut menu, select **Next** on the Edit Parameters dialog box, and select **Finish** on the Verify Parameters dialog box.
Repeat for any processes that you want to have access to this status.
8. Use the [Workflow Definition](#) grid to incorporate the new status into the process flow.

Chapter 4: Using the Workflow Toolbar

Once a process has been defined and initialized, TM1 Workflow inserts the TM1 Workflow Toolbar into the Microsoft Excel toolbar for any user with assignments ready to be accomplished. The TM1 Workflow Toolbar displays tasks waiting to be accomplished and those already done.



The TM1 Workflow toolbar includes a number of buttons and options that allow you to navigate between Excel workbooks, track your task statuses, take action on a task after you have completed modifying the data, and customize your Workflow environment.

Accomplishing Tasks

When the TM1 Workflow Toolbar is available, users can proceed to accomplish their tasks and complete their processes.

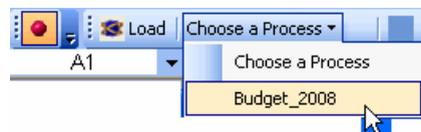
To accomplish a TM1 Workflow task:

Steps

1. Connect to the server that contains the TM1 Workflow data you need to run your process. If the server is already running, the toolbar will be loaded and ready to go.

The Toolbar may look different for different users depending on the processes that are associated with those users and the status of any tasks each user must accomplish. For example, there may be more than one process available, or one task might be Completed while another is still In Progress.

2. Select the process you want to work on.

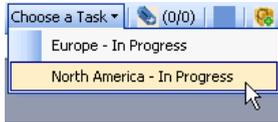


3. Once you have chosen a process, the task list updates with a list of your tasks.
4. You can then choose the task you want to complete.

TM1 Workflow navigates to the objects or cells you need to accomplish your tasks. Enter your data, or review your reports as required by your tasks and processes.

Choosing Tasks

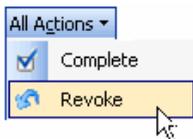
Once you have selected a process, the TM1 Workflow toolbar updates with the tasks you have not yet completed. Only tasks that require your attention are available. Once you have completed a task or submitted it for approval, it will be removed from the task list.



Depending on the structure of the task, the appropriate worksheet is opened, the appropriate security and navigation are applied, and you can complete or take action on the values as needed for your tasks.

Taking Action on a Task

After you select a task and complete the data entry required to complete that task, you can select the action to take. For example a task called North America might involve updating the values in the North America figures. When you choose the North America task, the worksheet you need is located and opened for you to update. When you have completed the task of updating the North America figures, you can choose to Submit or Revoke that task as one of the choices your TM1 Workflow toolbar offers. Task Actions typically also kick off emails to the appropriate users to inform them of the change in status for that task.



Task actions do several things:

- Taking a task action changes the status of the task, so that other process participants can see that you have finished the task.
- If you submit a task, the task is routed back to the delegator. This is usually a supervisor or someone higher in the task hierarchy. The delegator is responsible for reviewing the data you entered, and either accepting your numbers or rejecting them.
- It reduces the size of your task list. Once you have chosen to either Complete or Submit a task, that task is removed from your task list. The next time you load the task list, the completed task does not appear.

The All Tasks List

The All Tasks list shows all the tasks that you own in all processes with a status of In Progress or Finished. The buttons on the All Tasks list allow you to browse Details of a task, or Select the task.

The tasks for which you are responsible are determined by the TM1 Workflow administrator when the task and review structure was built. Three sets of tasks display in the task list:

- Tasks for which you are explicitly the owner.

- All tasks that are children of a task you own in the task and review structure.
- Tasks that you once owned that have been submitted back to the task delegator.

Process	Task	Status	Owner	Workflow Dimension	Approve Comment
Budget_2008 - In Progress	Europe	In Progress	Jones	plan_version	
Budget_2008 - In Progress	UK	Not Started	Reed	plan_version	
Budget_2008 - In Progress	Germany	In Progress	Deeds	plan_version	
Budget_2008 - In Progress	North America	In Progress	Jones	plan_version	
Budget_2008 - In Progress	Canada	In Progress		plan_version	
Budget_2008 - In Progress	Canada Sales	In Progress		plan_version	
Budget_2008 - In Progress	Canada Direct	In Progress		plan_version	
Budget_2008 - In Progress	Canada Indirect	In Progress		plan_version	
Budget_2008 - In Progress	Canada P50	In Progress		plan_version	
Budget_2008 - In Progress	US	In Progress		plan_version	

Task Details

The Task Details dialog box lists information about the current state of the task, the date and time of task actions, the process participants who have acted upon this task, and other information.

To display a task's properties, double-click a task from the All Tasks list, or click a task and click **Details**.

Click **Close** to return to the All Tasks dialog box.

Process Status

The Status button  shows all of the workflows, processes and tasks that are currently available in your TM1 Workflow system. The Status button is located next to the All Tasks button on the TM1 Workflow toolbar.

From the Status dialog box you can:

- Display the processes by Owner or Task:
 - To see the processes displayed based on users, select **View by user**.
 - To see the processes organized by the task hierarchy, select **View by task**.
 - To see any attachments that have been added to a task or process, select **View Attachments**.
- Search for tasks or processes:

Select **Filter** to open the Filter dialog box where you can design a search criteria to limit the processes displayed.

Processes: Q1_2005 [In Progress]

Task Status: Not Started
In Progress
Approved
Rejected
Not Delegated
Submitted

Owner: Admin
Jones
Smith

Keyword:

Task Due On or Before: 11/17/2008

Include Due Date Filter

Match All Filter Categories

- Send an email

Use the **Alert** button to open an email message addressed to the entire group responsible for a particular task.

Identify the task for the email by clicking the check box next to the task.

Note: Be sure to click a *task* instead of a workflow or process. A check next to workflows and processes in this dialog box has no effect.

Customize on the Workflow Toolbar

The Customize button on the TM1 Workflow Toolbar opens two tabbed areas that store the name, address and email for this user and let the user determine how saved data is handled.

Specifying User Name and Address

To set the user name and address for this user, enter the following values:

- **Email**

The email that TM1 Workflow uses for alerts.

- **First Name/Last Name**

The first and last name to identify this user to the TM1 Workflow system.

Note: If no email addresses are input for TM1 Workflow users, your email system will attempt to look up your TM1 user names in your default address book.

Specifying Workflow Data Save Management

To set how data is saved for this workflow user, set the following values:

- **Display Data Saved Messages**

If this option is set to **Yes**, a confirmation message displays when data has been saved. If this option is set to **No**, data is saved without a confirmation prompt.

- **Save Data on Parameter Change**

Some users prefer the added security of having the system save data as soon as it is modified while others prefer to be prompted or to wait for an explicit save action to make data values change.

Choose the setting for this user:

- **Never** - The field you modified is not saved until an explicit save action is taken.
- **Always** - The field you modified is saved as soon as it is changed.
- **Ask** - Workflow asks if you want to save the field.

Load

To connect to the TM1 Server, click Load. If you are not already logged in, enter the **Server ID**; **Username**; and **Password**, if necessary.

A message displays confirming your choices, then that user is connected to that data.

If you need to connect to a different server, use the Disconnect button on the toolbar first, then re-connect to the appropriate server.

When you are already connected, **Load** will refresh the toolbar.

Connect

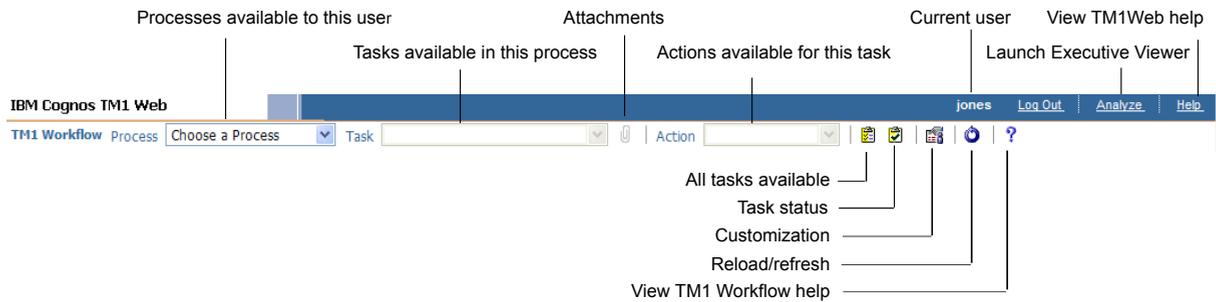
The Connect icon  indicates that you are connected to a server. Hover over the icon to display the service name and user.

Help on the Workflow Toolbar

Select Help from the Workflow toolbar to display this chapter of the IBM Cognos TM1 *Workflow Administrator's Guide* .

Running TM1 Workflow on TM1 Web

If you have installed the TM1 Web client, users can run TM1 Workflow over the web. See the IBM Cognos TM1 *Installation Guide* for information about installing the TM1 Web client. The TM1 Workflow Toolbar has a slightly different appearance when running on TM1 Web:



Using TM1Web Skins in Workflow

When running TM1Web you have the ability set the look of the interface using skins. Skins are managed in the `TM1 web.config` file.

When TM1 Workflow is installed, the Workflow skin is set to the same value as the default TM1Web skin of "corporate." However, if you change the TM1Web skin setting, the Workflow skin does not automatically change as well.

You can set the Workflow skin manually using `UserStyle` in the `DisplayCustomToolbaroption` of the `web.config` file.

For example, to change the default skin from "corporate" to "modern," change

```
TM1WebPlanManToolbar?UserStyle=corporate
```

to

```
TM1WebPlanManToolbar?UserStyle=modern
```

See the "Administering TM1 Web" section in the IBM Cognos TM1 *Operations Guide* for more information about using web skins.

Chapter 5: Workflow Security and Navigation

As part of a workflow process task, you often need to provide access to specific workbooks, worksheets, URLs or even cells in your TM1 data. Workflow Navigation is the information Workflow needs to identify and open these objects for users as a workflow process unfolds.

Navigation can also link single or multiple views to tasks or processes.

For users to gain access to these objects, the appropriate security must be in place. TM1 Workflow Security lets you define security so that users can negotiate the workflow process you have designed. See [Workflow Security](#) for more information.

Specifying Objects for Navigation

Once you have established tasks for your process, you can identify the specific objects to be included as the process unfolds. You can associate many objects with your task including:

- [Using the TM1 Application Organizer Folder](#)
- [Navigating to a Workbook](#)
- [Navigating to a TM1 View](#)
- [Navigating to a TM1 Web URL API](#)
- [Navigating to an Executive Viewer URL API](#)
- [Navigating with Multiple Dimension Elements](#)

The Security and Navigation button on the Apply/Create Process dialog box opens the Security and Navigation dialog box where you can specify the objects to associate with this task and assign the security needed so the users can gain access to them.

Using the TM1 Application Organizer Folder

The TM1 Application Organizer allows you to store all kinds of objects that are used by TM1, many of which can be used in TM1 Workflow. However, the Workflow Object Browser recognizes only Workbooks and TM1 Views. So although you can store, for example, a text file in the TM1 Application Organizer, the Workflow Object Browser displays only TM1 Views or Workbooks.

You can also use an Application Organizer folder to store multiple objects that can all be linked to a single task.

You can use the Object Browser to enter a URL path, however, after choosing the Browser button, you must enter the URL path manually. See [Navigating to a TM1 Web URL API](#) for more information.

Navigating to a Workbook

To navigate to an entire workbook or worksheet:

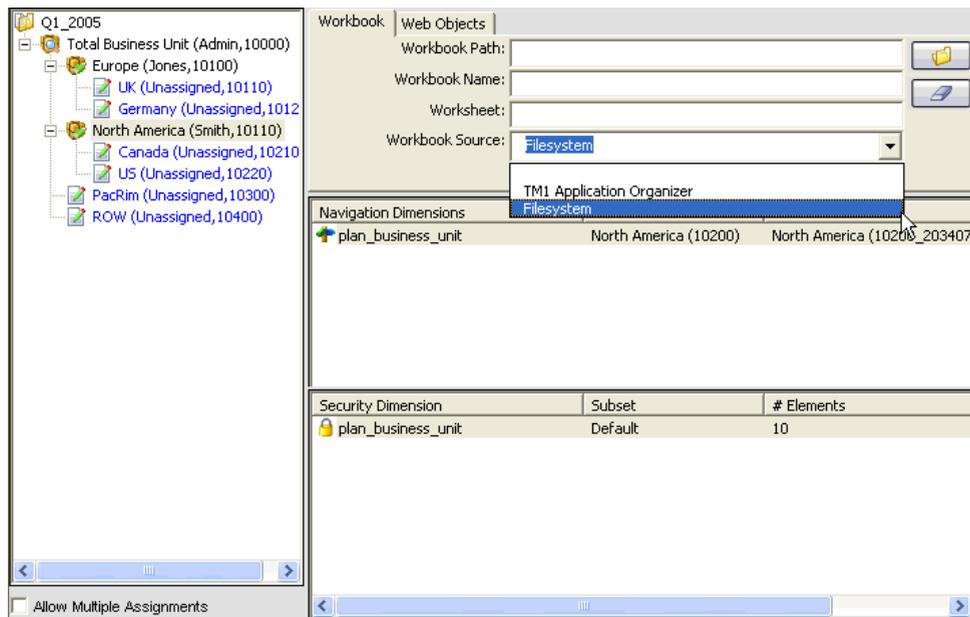
Steps

1. Double-click the process to work on from the Admin console.

The Apply/Create dialog box opens.

2. Click the **Security and Navigation** button.

The Security and Navigation dialog box opens and updates the left pane with the tasks of this process. Any existing security or navigation also updates in the right top and bottom panes.



3. Select the task that you want to work on.

4. Determine where the Workbook is stored:

- In the File System:

Select **Filesystem** at the Workbook Source menu.

Use the **Browser** icon to open the Workbook Browser and identify the workbook to use.

When a path is displayed in the **Path** text box, you can use the file open icon  to open that file to verify that it is the one you need.

The Workbook Path; Workbook Name; and Worksheet fields update with the appropriate information for that worksheet/workbook.

- In the TM1 Application Organizer

Select **TM1 Application Organizer** from the Workbook Source menu. Use the Browser button to identify the workbook then click **OK** to update the text boxes.

- The **Eraser** button clears the fields so you can define a new object.

- Once you have identified the workbook and/or sheet, you can assign security using the Security pane. See [Workflow Security](#) for more information.

Navigating to Specific Cells

To navigate to specific cells in a workbook or worksheet, you must first identify the cells using a SUBNM or Named Range.

Navigating Using SUBNM

The most common form of navigation involves manipulating SUBNM functions in a worksheet. For example, if a user chooses a task called Germany, you could configure Workflow to do the following:

- Open an Excel Workbook called Planning _Germany.xls.
- Migrate to sheet1 in the Excel workbook.
- Search the specified sheet for a SUBNM for the Business Unit dimension.
- Set the SUBNM to the value GERMANY.

When you recalculate the sheet, the DBRW functions in the sheet that use the cell containing the SUBNM as an argument display the data for the Germany business unit.

It is important for the TM1 Workflow administrator to ensure that any worksheets that must be used as part of a task have the appropriate cell-level structures so that TM1 Workflow can locate them during the workflow operation.

Navigating Using Named Ranges

You can build worksheets that read data from TM1, but contain DBRW functions that reference named ranges that are established in the workbook.

Named ranges are variables stored within the Excel workbook. The values of these variables might be stored in a spreadsheet cell, stored in a range of cells, or be stored by Excel in a variable with no cell address. Named ranges can be used in Excel formulas, like a variable in a programming language.

Navigation through named ranges occurs after, and in addition to, navigation with SUBNM functions.

To set up a Navigation using Named Ranges:

Steps

- Determine the Named Range in your worksheet.
- Double-click **Binding Address Template** from the **System Options, Task Attributes** menu in the Admin console.

The Task Properties dialog box opens.

- Enter **%dimension%** in the Default Value field of the **Binding Address Template** option.

The value *%dimension%* tells Workflow to write the dimension element name (or alias) to the named range that is identified by the dimension name.

4. Click **Apply** and **Yes**.
5. Add a named range to your spreadsheet.

The named range must be the name of a dimension that is specified as a navigation object, or must match the pattern in the Binding Address Template field.

6. Change the DBRW formulas in the spreadsheet to include the named range in place of a cell range.

If you have a named range defined, you can use it as an argument to a DBRW function. For example, a DBRW function for the plan_BudgetPlanLineItem cube in the Planning Sample database might look like this (in a TM1 slice, the DBRW formulas typically look this way):

```
=DBRW($B$1,$B$2,$B$3,$B$5,$B$6,$B$4,$A11,C$8)
```

The first argument (*\$B\$1*) of the DBRW function is always the TM1 server and the cube name. The third argument (*\$B\$3* in this example) contains the cell address of the plan business unit element - Germany, for this example.

You can insert a named range into the DBRW function like this:

```
=DBRW($B$1,$B$2,plan_business_unit6,$B$5,$B$6,$B$4,$A11,C$8)
```

If the plan_business_unit6 named range is set to Germany, you can recalculate the spreadsheet, and it will display the proper data for Germany.

DBRW functions that use the named range as an argument are affected by any change in the value of the named range.

Navigating to a TM1 View

To navigate to a TM1 View:

Steps

1. Double-click the process to work on from the Admin console.

The Apply/Create dialog box opens.

2. Click the **Security and Navigation** button.

The Security and Navigation dialog box opens and updates the left pane with the tasks of this process. Any existing security or navigation also updates in the right top and bottom panes.

3. Select the task to work on.
4. Determine where the view you need is stored:

- On the Web Objects tab

Select **TM1 View** at the Object Type menu.

Use the **Browser** button to open the Web Objects browser and identify the Cube and View to use by selecting them from the menu.

- In the TM1 Application Organizer
Select **TM1 Application Organizer** at the Object Source menu.
A new App_Org menu displays.
Select the App_OrgView, App_OrgWorkbook, or App_OrgFolder depending on the type of object you want to use.
 - Use the **Browser** button to open the Web Objects browser and locate the object.
5. The **Eraser** button clears the fields so you can define a new object.
Once you have identified the TM1 View, you can assign security using the Security pane. See [Workflow Security](#) for more information.

Navigating to a TM1 Web URL API

To navigate to a TM1 Web URL:

Steps

1. Double-click the process to work on from the Admin console.
The Apply/Create dialog box opens.
2. Click the **Security and Navigation** button.
The Security and Navigation dialog box opens and updates the left pane with the tasks of this process. Any existing security or navigation also updates in the right top and bottom panes.
3. Select the **Web Objects** tab.
4. Select **Web URL** at the Object Source menu.
5. Use the **Browser** button to open the Web Objects browser.
6. Enter a valid TM1 URL API in the **URL Path** text box.

For example, the following URL will navigate to t view named Budget Input Detailed hosted on the server named boston. The title dimension plan_business_unit will be set to Canada:

```
http://boston/TM1WebMain.aspx?action=OpenObject&type=Cubeviewer&value=plan_BudgetPlan$$Budget%20Input%20Detailed$$PUBLIC&title_plan_business_unit=Canada&UseIndex=no
```

See the "TM1 Web URL API" section in the IBM Cognos TM1 *Developers Guide* for more information.

7. To dynamically set a value on the title dimensions, use the following syntax:

```
&title_DimensionName = <DimensionName>&UseIndex=no
```

For example, the following URL will navigate to the same view as above, but will dynamically set the element for the plan_business_unit title dimension depending on the currently selected task:

```
http://boston/TM1WebMain.aspx?action=OpenObject&type=Cubeviewer&value=plan_
BudgetPlan$$Budget%20Input%20Detailed$$PUBLIC&title_plan_business_unit=<plan_
business_unit>&UseIndex=no
```

If the task US is selected, the title dimension plan_business_unit will be set to US.

If the task Canada is selected, the title dimension plan_business_unit will be set to Canada.

When using Web URL navigation, you cannot set additional parameters in the **Navigation Dimension** pane. The **Navigation Dimension** pane has no impact on URL navigation.

8. The **Eraser** button clears the fields so you can define a new object.

Once you have identified the TM1 View, you can assign security using the Security pane. See [Workflow Security](#) for more information.

Navigating to an Executive Viewer URL API

When you navigate to an Executive Viewer object using the standard Executive Viewer URL API, you will not be able to set values of offspread numbers. Use the following specialized URL syntax to associate a task with an Executive Viewer view object:

```
http://localhost/TM1Web/UrlApiPage.aspx?item=2FPlanning_Sample%2plan_
BudgetPlan&title_plan_business_unit=<plan_business_
unit>&toolbar=true&tabbar=true&theme=sky%server=yliu
```

The URL can include the following parameters

- **Item**
Specifies the item to be opened by the Executive Viewer Client. Use the following format to define a path to an EV item: `item=%2F<folder>%2F<item` For example: `item=%2FPlanning_Sample%2Fplan_BudgetPlan`
- **TabBar**
Specifies whether to show the Executive Viewer tab bar. Possible values are true or false. This parameter is optional. Default value is false.
- **TabBarPosition**
Defines the position of the Executive Viewer tab bar. Possible values include: Top, Bottom, and Theme. This is an optional parameter.
- **Toolbar**
Specifies whether to show the Executive Viewer toolbar. Possible values are true or false. This parameter is optional. Default value is false.
- **Theme**
Specifies which theme to use in Executive Viewer. Possible values include: Classic, Sky, Ocean, Desert, Forest, Olive, Silver, Cognos. This parameter is optional. The default value is Classic.
- **Title_dimensionName**

Sets the name of an offspread member. Possible values: This can be set to a static or dynamic value. For example: `title_plan_business_unit=Canada` or `title_plan_business_unit=<plan_business_unit>`. This parameter is optional.

- **Server**

Specifies the Executive Viewer server name. This can be different from the web server name. This parameter is optional. The default value is the name of the TM1 Web server.

Navigating with Multiple Dimension Elements

You can design your task so that it uses more than one dimension. To add a dimension navigation element to an object:

Note: You can assign an object to multiple tasks by clicking the **Allow Multiple Assignments** check box on this pane.

Steps

1. Select the task in the **Security and Navigation** dialog box.
2. Right-click on the task.
3. Select **New Dimension Navigation Element** from the shortcut menu to select a dimension from the list of dimensions that display.
4. Select the data to use from the subsets that display.
5. Click **OK** to return to the **Security and Navigation** dialog box.

To make a change to a navigation object you have previously assigned, select **Edit** from the **New Dimension Navigation Element** shortcut menu.

Workflow Security

As you expand the complexity of your organization process model, you can control who has access to many parts of the process down to the cell level. Workflow allows you to link Microsoft Excel workbooks and TM1 data to a task within the Workflow system. When a user chooses a task from the Workflow menu, the associated workbook will open, the worksheet within the workbook will display, and the formulas within the worksheet will adjust so that the user is working with the data that is relevant to the task they selected.

Workflow security also allows you to control who changes your data and when.

Since security is applied only at the group level in TM1, the workflow administrator must ensure that TM1 user groups have the appropriate access to objects needed for the workflow.

Setting Up Security for Workflow Worksheets

When you create a new Workflow process, you have the option of applying one of two security settings to the workflow:

- *None*

Access to the data is not restricted beyond what you have already defined for your cubes, dimensions, elements and cells. Note that this does not mean there is no security applied; just that the TM1 Workflow process is not imposing any further security.

- *Cell Level*

As this process executes, you can control the user's access to all components of the data, including any cubes or dimensions used by the process, all the way to the individual cell.

Cell-level security is applied when the process status is *In Progress*. The security privilege applied is based on the current task status.

In most situations, cell-level security is set to READ. However, cell-level security is applied to Owners or Delegators differently depending on the part of the process.

For Owners:

- The *In Progress* and *Rejected* status applies WRITE security.
- The *Not Delegated* and *Pending* status applies None, or no additional security.
- Every other Owner status applies READ.

For Delegators:

- The *Pending* status applies None, or no additional security.
- Every other Delegator status applies READ.

Modifying Workflow Security

If you choose to implement cell-level security for a process, you should modify the security so that it is as efficient as possible.

For example, in a typical two-cube budget workflow the number of cells to which cell-level security can be applied in the first cube might be over 12 million and the number of cells with cell-level security in the other cube could easily be over 7 million. Cell-level security applied to such a large number of cells will cause a significant degradation in system performance. You can narrow the scope of cell-level security by changing the number of elements in each subset used to define security.

Security Dimension	Subset	Task
plan_BudgetPlan		64864800
plan_BudgetPlanLineItem		38918880
plan_business_unit		9
plan_chart_of_accounts		42
plan_department		11
plan_exchange_rates		6
plan_lines		6
plan_source		10
plan_time		52

Dimensions and subsets used to define cell-level security

Number of cells to which cell-level security applies.

To narrow the scope of cell-level security:

Steps

1. Double-click a dimension in the security pane of the **Security and Navigation** dialog box. The TM1 Subset Editor opens.
2. If an existing subset contains the elements you want to use to define cell-level security, select the subset from the **Subset** menu.

If a subset is not available, create and save one using the options on the Subset Editor. See the *TM1 User Guide* for details on using the Subset Editor.

3. Click **OK**.
4. Select any element in the current subset and again click **OK** on the Subset Editor. (If you do not select an element, an error displays prompting you to do so.)

The new subset is now shown in the **Security and Navigation** dialog box and the number of cells to which cell-level security applies is adjusted accordingly.

5. Repeat these steps for each dimension in the **Security and Navigation** dialog box.
6. Click **Close**, **Next**, and **Finish** to complete this operation and close the edited process.

Chapter 6: Workflow Messaging

Certain Workflow tasks kick off emails to appropriate users as the process unfolds. Workflow enables you to customize several aspects of the email, such as adding explanatory comments; including helpful files or URL links; or customizing file and URL attachments. Messages are triggered when a new workflow is created or when an action is executed from the Workflow toolbar.

You can design emails that are sent automatically when a user performs any task action, or you can override the general email and design a specific email to be sent when a specific task within a process is executed.

Email messages can be customized to include variables such as task name, or assignees, and may include attachments, URL's, or worksheets.

Setting the Default Message for a Task Action

To set up a default message that is sent when any user performs a specific action on a task:

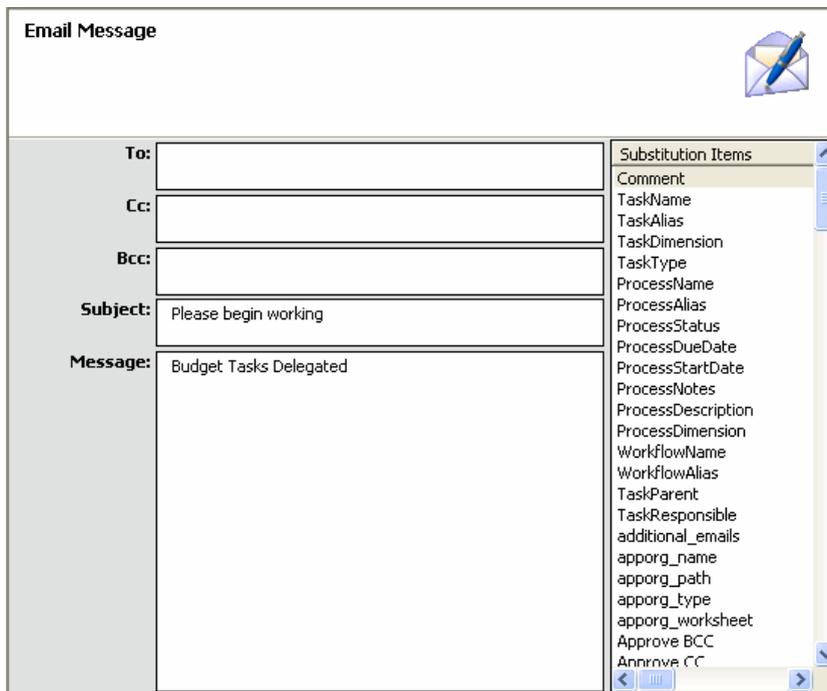
Steps

1. Double-click the Task Action to work on from the **Admin** console, **Application Environment**, **Task Actions** menu.
2. The Task Action Edit dialog box displays and lists the currently set information for that task including any current Task Attributes. For some actions the **Subject** field may be filled in.

Note: You can change to a different action using the menu offered here.

3. When you click anywhere in the Subject field, the continuation icon  displays. When you click that icon the Email Template Setup dialog box opens.

This dialog box offers spaces for you to design the To; Cc; Bcc; Subject; and Message fields.



The elements in the Substitution Items list are variables you can include in your email that will be updated with the appropriate information when the email is generated and sent. In the email variables are surrounded by % to identify them as placeholders.

- To construct the fields, drag the variables from the Substitution Items into the appropriate fields and type any fixed text.

For example, when the user receives an email message designed as:

Please review the %TaskAlias% task for the %ProcessAlias% in the %WorkflowAlias% Workflow

the resulting message becomes

Please review the Germany task for the Q4_projected in the Overall_budget Workflow.

- Click **OK** to close the edit box.

When that task action is used in a task, the constructed email will be updated and sent to the recipient specified in the **To** field, along with any other users identified in the other address fields.

Setting Up Messages for An Individual Task

You can also set up an email message tied to a specific task within a process. A specific task email message overrides the system-wide task action message.

To define an email for a specific task within a process:

Steps

- Double-click the process that contains the task to work on from the **Admin** console.

Or, you can right-click the process and select **Edit** from the shortcut menu.

2. Click **Edit Task Tree**.
3. Click the task in the **Task and Review Structure** in the right pane.
4. Click the **Task Attributes** tab.
5. The attribute values for that task display in the dialog box.

The Task Attributes values are in alphabetical order so the email fields are distributed throughout the list.

Notice that there are separate Subject fields for every type of task action in your TM1 Workflow system, for example *Approve Subject*, *Complete Subject*, *Delegate Subject*, etc.

6. Click in the **Subject** field for the task you want to work on. For example, to set the email for this particular task's **Submit** action, click the **Submit Subject** field.
The Email Message Template displays and you can complete it using the Substitution List to design the email that is sent when a user clicks **Submit** during the performance of this task.
7. You can continue building emails for other actions in this task, for example, you can design an email to be sent when the owner delegates this task using the **Delegator Subject** field.
8. When the attributes are all set, click **Finish**.

Defining Email Addresses

The **Customize** button on the TM1 Workflow toolbar offers a **Name & Address** tab where users can define the email address to use for TM1 Workflow.

If no email addresses are input for TM1 Workflow users, your email system will attempt to look up your TM1 user names in your default address book.

Adding Attachments

You can attach a file, a hyperlink to a file, or an URL to a Workflow process or to an individual task. Once you have enabled the system-wide attachments feature, processes and tasks will enable the user to add, delete, or edit attachments.

Users with Admin rights can add both task and process attachments. Users without Admin rights can add only task-level attachments.

There are three levels of settings used to control attachments:

- System-wide
- Process or Task-based
- User

For attachments to be allowed for users, all of these settings must be turned on.

Enabling Attachments Within Workflow

To enable TM1 Workflow attachments system-wide:

Steps

1. Double-click **Support Task Attachments** from the **Admin** console, **Applications Environment**, **System Options** menu.

The System Options dialog box displays with the values currently for the Support Task Attachments option filled in.

2. To permit all users to add attachments, enter **Y** at the Default field.

The Maximum Task Attachment field is not supported at this time.

Enabling Process-Level Attachments

To enable attachments for this process:

Steps

1. Double-click the process from the **Admin** console.

2. At the Allow Process Level Attachments option on the Edit Process dialog box, select **Yes**.

When this option is **Yes**, the user is prompted to add attachments by the appearance of the paperclip in the Workflow toolbar.

Only Administrators users can add process-level attachments.

When **No** is selected here, no attachments are permitted by any user on this process.

Using the All Tasks Button to Add an Attachment

The Task Attachments dialog box is available from the All Tasks list and lets you design all aspects of the attachment.

Steps

1. From the Workflow Toolbar, click **All Tasks**.

2. Select the task that needs the attachment.

3. Click the **Attachments** button.

The Task Attachments dialog box displays.

4. Select the **File** button and use the **Address** box to enter the file location, or use the **Browser** button to search for the file.

The **Task Attachments** and **Process Attachments** windows display the current attachments including their size, the user who has ownership, and the date the file was attached. You can select an attachment and use the **Delete Selected** button to remove the attachment from the task or process. Note that deleting the attachment here removes it from the entire file system.

5. To attach this file to a task, select the **Task** button.

To attach this file to an entire process select the **Process** button.

Viewing Attachments

When attachments are enabled and your tasks include attachments, a paper clip identifies the total number and current attachments in the **All Tasks** window. Use the **Attachments** button to open those attachments or the **Details** button to display the task tree.

When you display attachments using TM1 Web, the attachment size displays as a tool tip when you mouse over the paper clip icon.

In the **Process Status** window, attachments display when you click the **Show Attachments** button.

When using the **All Actions** button on the toolbar, attachments display at the bottom of the list and you can open them by selecting them from this list.

Chapter 7: Using the TM1 Workflow Definition

The TM1 Workflow Definition grid lists the actions, statuses, and dependencies for all the actions that take place during the execution of the process. It provides a map as well as a mechanism for changing how your workflow process unfolds. The grid is useful as your workflow process grows in complexity, however, even the simplest processes can be managed using the grid.

The Task Status Properties dialog box lists the default behavior for each action in your workflow. Task Attributes also define much of the behavior of tasks. See [Task Statuses](#) and [Task Attributes](#) for more information.

Displaying the Workflow Definition

To display the Workflow Definition grid:

Steps

1. Double-click on any task from the **Admin** console, **Application Environment**, **Task Actions** menu.
2. Click the **Workflow** button at the bottom of the dialog box.

The Workflow Definition grid opens showing the status for the tasks and owners used in this workflow.

User Performing Task Action: <input type="text" value="Owner"/>		Task Type: <input type="text" value="Delegate"/>						
Action performed	Current Task Status							
	Approved	Completed	In Progress	Not Delegated	Not Started	Pending	Rejected	Submitted
Approve								
Complete								
Delegate								
Execute								
Reject								
Revoke			Not Started					In Progress
Start					In Progress			
Submit			Submitted		Submitted		Submitted	

Using the Workflow Definition Grid

The grid defines under what conditions the status of a task action changes. The intersection of the Action Performed and the Current Task Status cell contains the new status when all the conditions are met.

Click on any cell to display a menu of the values you can enter in that cell.

User Performing Task Action: Delegator		Task Type: Delegate						
Action performed	Current Task Status							
	Approved	Completed	In Progress	Not Delegated	Not Started	Pending	Rejected	Submitted
Approve			Approved	Approved	Approved		Approved	Approved
Complete								
Delegate				In Progress				
Reject	Rejected		Rejected	Rejected	Rejected			Rejected
Revoke	Submitted		Not Delegated		Not Delegated		Submitted	In Progress
Start					In Progress			
Submit				Submitted	Submitted		Submitted	

The grid displays a task's status using these conditions:

- **User Performing Task Action**

When **Owner** is displayed, the grid shows the status for actions taken by the owner of a task. You can change this condition to **Delegate** to display the status when a delegator takes the action.

- **Task Type**

When **Complete** is displayed the grid shows the status when only the user can perform the task. **Delegate** means this action can be passed along to another user. You may want to have a different status for actions when they are taken by an Owner versus a Delegate. For example, the Owner Submit may *Complete* the process when the Delegate Submit may continue to be *In Progress*.

- **Action Performed**

Task actions listed down the left define the rows and indicate the action being taken to change the status.

Notice that the Action is *Approve* while the status is *Approved*.

- **Current Task Status**

Actions listed across the column headings indicate the status of the task before the left column action is taken.

- **New Status**

The intersection of the cells in the grid show the new status that the task assumes when the other criteria are met.

For example, if the cell at the intersection of *Completed* and *Revoke* is set to *In Progress*, this means the task status is set to *In Progress* under the following conditions:

- The user is a Delegator.
- The task type is Delegate.
- The task status is Completed.
- The user performs a Revoke on the task.

As you change the Owner or Task Type, the cell contents update with the status appropriate for the new conditions.

You can use the grid to modify the actions and conditions under which a task status should change. Every cell contains a list of the possible statuses that can be assigned. When you add custom actions they are included in this list.

The Workflow Definition grid provides a map of the interactions within your workflow. As your workflow becomes more complex, you can use the grid to see how each task and status change effects other users and tasks.

Chapter 8: The TM1 Workflow Application Environment

The TM1 Workflow Application Environment settings enable the TM1 Workflow Administrator to customize many aspects of TM1 Workflow operation throughout the entire system or down to the individual user. To see the list of environment settings you can make to Workflow, open the **Application Environment** on the Admin console.

Setting System-Wide Options

To set an option value as the default behavior for all users throughout the TM1 Workflow system, double-click the option from **Application Environment, System Options**. You can then set the appropriate value for each field.

System Option	Description
Client Help Type	See Setting User Help Text in Workflow .
Client Help Path	See Setting User Help Text in Workflow .
Save Data on Parameter Change	See Setting Client Update Capability .
Admin Help Type	Setting Admin Help Text in TM1 Workflow
Default Delegation Task Status, Default Completable Task Status	See Task Status .
Image Name	Icon image to use for workflow.
Display Data Saved Message	See Setting Client Update Capability
Pre Action TI Process, Pre Action TI Return, Post Action TI Process, Post Action TI Return	Defines the TurboIntegrator processes that happen as a part of this workflow.
Binding Address Template	See Named Ranges .
Open Workbooks Readonly	Yes indicates that when a task navigates to a workbook, the workbook opens in ReadOnly mode. No allows the workbook to be opened for editing.

System Option	Description
Open WorkbooksInPlace	<p>Yes indicates that when a task navigates to a workbook, the workbook opens in its original location.</p> <p>No means the workbook is opened in a different location so it can be saved without overwriting the original.</p>
Open Workbooks With Unique Name	<p>Yes indicates that when a task navigates to a workbook, the workbook is given a unique name that incorporates the workflow name so that it can be saved without overwriting its existing version of the workbook.</p> <p>No does not change the title of the workbook.</p>
Support Task Attachments, Maximum Task Attachments	See Enabling Attachments .
Maximum Blob Size	See Setting User Help Text in Workflow .

Setting User-Based Options

To override a system-based setting for a specific user:

Steps

1. Right-click on the user's name in **Admin** console, **Application Environment** , **User Options** menu.
2. Select the parameter to change.
3. Enter the new value.

The value set here affects only that user. For some values, the system-based option must be turned on to allow the user option to take effect.

Setting Client Update Capability

You can also control whether users have the ability to change their own system-wide settings. When the **Client Update** field for that specific system option is set to **Y**, users can set their own values in their individual **User Options** fields.

If the **Client Update** field within that **System Option** is set to **N**, users cannot override the value set at the system level for that particular option.

For example, if the system administrator decides that all users should see a confirmation prompt when they save any data and the administrator does not want to allow any users to change that, the **Admin** console, **System Options** , **DisplayDataSavedMessage** option is set to **Y** and the **Client Update** value of that option is set to **N**.

If the administrator decides to allow individual users to determine whether or not they see the confirmation, the administrator can change the **DisplayDataSavedMessage Client Update** field to **Y**. Then, if an individual decides they don't want to see the prompt after all, the individual user can go to **User Options** select their own name, select **DisplayDataSavedMessage** and enter **N**.

Setting User Help Text in Workflow

The TM1 Workflow Toolbar has a help button that can be accessed by any Workflow user.

When you click the toolbar help button, the user help for the TM1 Workflow Toolbar opens. You can modify this behavior to display a custom help file of your choice. Follow these steps:

Steps

1. Run TM1 Workflow as an Administrator.
2. To change the behavior of the Workflow help button, modify the **Admin console, Application Environment, System Options**, **Client Help Path** and the **Client Help Type** fields to point to the new help file.
3. Depending on the type of file to use, select **Blob, File, URL, or App**.
4. The information you enter into the **Client Help Path** field depends on the **Client Help File Type**:

Client Help File Type	Client Help Path
BLOB	<p>Enter the name of a TM1 BLOB.</p> <p>Clicking Help displays the contents of a TM1 BLOB. A BLOB is any file stored in the TM1 server's data directory that has a .BLB extension. If you specify a BLOB, the TM1 server delivers the BLOB to Workflow. Workflow strips off the .BLB extension and passes the resulting file to the operating system. The operating system determines which application produced the file by looking at its extension. It then opens the file using that application.</p> <p>For example, if you specify <i>HelpInfo.htm.blb</i>, Workflow opens the file <i>HelpInfo.htm</i> in a web browser.</p>
File	<p>Clicking Help displays the contents of a file. Enter a complete UNC to the file, including the file name. For example:</p> <pre>\\mymachine\c\$\work\workflow\eng-workflow.htm</pre>

Client Help File Type	Client Help Path
URL	Clicking Help displays a web page. Enter a full URL. For example: <i>http:\www.ibm.com\help</i>
App	Clicking Help runs an application program. Enter the full path name to the program executable.

5. Click **OK**.
6. Right-click each of your processes, and select **Edit**.
7. Click **Next**.
8. Click **Finish**.

Setting Admin Help Text in TM1 Workflow

The **Admin Help Type** and **Admin Help Path** parameters determine what help file appears when you click Help on any TM1 Workflow dialog box. By default, the **Admin Help Type** is set to *BLOB*, and the **Admin Help Path** is set to *eng-planman.pdf*. When a user clicks Help in a dialog box, the IBM Cognos TM1 *Workflow Administrator's Guide* opens.

You can generate your own help text and set up TM1 Workflow to display that text. For example, to set up the help button to display a file called *Help.htm*:

Steps

1. Right-click the **Admin Help Type** option on the **Admin** console, **Application Environment**, **System Options** menu.

The System Property Edit dialog box displays.

2. Change the Default Value field to **File**.
3. Click **OK**.
4. Right-click **Admin Help Path** and select **Add/Edit**.
The System Property Edit dialog box displays.
5. Change the Default Value field to **C:\temp\help.htm**.
6. Click **OK**.
7. Right-click each of your processes, and select **Edit**.
8. Click **Next**.
9. Click **Finish**.

Now from anywhere in TM1 Workflow and you can click Help and view the Help.htm file.

Appendix A: Advanced TM1 Workflow Process Design

There are many advanced ways to manage your TM1 Workflow. You can design a TurboIntegrator process to become part of the Workflow actions or customize many aspects of the operation sequence.

Using TurboIntegrator in a TM1 Workflow Process

You can design your TM1 Workflow process to perform a TurboIntegrator process on the data before you begin TM1 processing (Pre-TI) or after you complete TM1 Workflow processing (Post-TI).

Each process accepts a string argument for:

Parameter	Description
Action	The name of the action, such as Submit.
User	The name of the user performing the action.
TaskType	Value is always: Element. Used by some TM1 Workflow functions.
Task	The Task ID.
Process	The name of the process.
Workflow	The name of the workflow.

The following table details the information you need to know to customize the these processes:

Parameter	Description
Pre TI	A TI process that runs before an action is processed.
Pre TI Return	Set this parameter to Continue or Abort. If the Pre_TI process has an error, and the Pre_TI_Return parameter is set to Abort, the entire task action is terminated. If Pre_TI_Return parameter is set to Continue, processing continues for the task action regardless of whether the Pre_TI process has and error. This parameter allows you to stop execution of the task action if the Pre_TI TurboIntegrator process has an error.

Parameter	Description
Post TI	This is the name of a TurboIntegrator process that runs after an action is processed.
Post TI Return	<p>Set this parameter to Continue or Abort.</p> <p>If Workflow has an error while processing the action, and the Post_TI_Return parameter is set to Abort, the entire task action is terminated.</p> <p>If the Post_TI process throws an error, and the Pre_TI_Return parameter is set to Continue, the Post_TI TurboIntegrator process runs.</p>
System Options	These are executed when the Client Attributes are undefined.
Pre Action TI Process	This is the name of a TI process that runs before an action is processed.
Pre Action TI Return	<p>Set this parameter to Continue or Abort.</p> <p>If the Pre_Action_TI_Process has an error while processing the task action, and the Pre_Action_PTII_Return parameter is set to Abort, the entire task action is terminated.</p> <p>If the Pre_Action_TI_Return parameter is set to Continue, the task action processing continues whether the Pre_Action_TI_Process generates an error or not.</p> <p>This parameter allows you to stop execution of the task action if the Pre_Action_TI_TurboIntegrator process has an error.</p>
Post Action TI Process	This is the name of a TurboIntegrator process that runs after Workflow processes the task action.
Post Action TI Return	<p>Set this parameter to Continue or Abort.</p> <p>If Workflow has an error while processing the task action, and the Post_Action_TI_Return parameter is set to Abort, the entire task action is terminated.</p> <p>If Workflow throws an error, and the Post_Action_TI_Return parameter is set to Continue, the task action is completed normally.</p>

The Workflow Execution Sequence

When a user clicks a task action from the Workflow toolbar (such as Submit) the following sequence occurs. If Client Attributes have been set, they supersede the System Option settings.

1. Workflow Checks to See if You are Logged In

If you are not logged in, a login dialog box appears, allowing you to establish a connection with the Workflow server.

2. Workflow Determines:

- Task ID
- Workflow
- Process
- Your TM1 Username

3. Workflow Checks the DisplayConfirmMessage setting for the Action

If the DisplayConfirmMessage setting is Y, launch the comment dialog box.

If the user clicks cancel, the entire action is terminated. If the user enters a comment string, store the comment string.

4. Check to determine if a Pre-TI Process is associated with the User

If a Pre_TI process is associated with the current user, load the Pre_TI_Return attribute for the task. If no Pre_TI_Return client attribute exists, load the Pre Action TI Return system attribute.

If no Pre_TI process is associated with the current task, check to see if a Pre Action TI Process is established in the system options. If there is, load the Pre Action TI Return system attribute.

If no Pre_TI process or Pre Action TI Process is defined, skip to Step 6.

5. Execute the Pre-Ti process or the Pre Action TI process

- *If, after Step 4, Workflow runs a Pre_TI process, the following occurs:*

The Pre_TI process runs. If the Pre_TI process returns an error and the setting for Pre_Ti_Return is not Continue, Workflow generates the error Error Executing Pre Task - Action Aborted, then terminates execution of the task action.

If the Pre_TI process runs successfully, or the setting for Pre_Ti_Return is Continue, Workflow completes the execution of the process and proceeds with Step 6.

- *If, after Step 4, Workflow runs a Pre Action TI process, the following occurs:*

The Pre Action TI process runs. If the Pre Action TI process returns an error and the setting for Pre Action Ti Return is not Continue, Workflow generates the error Error Exciting Pre Task - Action Aborted, then terminates execution of the task action.

If the Pre Action TI process runs successfully, or the setting for Pre Action Ti Return is Continue, Workflow completes the execution of the process and proceeds with Step 6.

6. Collect Workflow Information

Workflow collects the following information:

- The current time.
- The current status of the task for which the action is being performed.

- The current owner of the task.
- The owner of the current task's parent in the Task and Review structure.

7. Determine Whether the Task is a Completable or Delegated Task

Workflow compares the task's owner and the parent task's owner. If the owner of the task and the owner of the task's parent are the same or the task is the top task of the hierarchy, this is a completable (simple) task. If the owners are not the same, this is a delegated task.

8. Use the Workflow Definition to Determine the New Task Status

The Workflow Definition lists the actions and status that take place for this workflow or process.

User Performing Task Action: <input type="text" value="Owner"/>		Task Type: <input type="text" value="Delegate"/>						
Action performed	Current Task Status							
	Approved	Completed	In Progress	Not Delegated	Not Started	Pending	Rejected	Submitted
Approve								
Complete								
Delegate								
Execute								
Reject								
Revoke			Not Started					In Progress
Start					In Progress			
Submit			Submitted		Submitted		Submitted	

To determine the new task status, Workflow combines the following information:

- The type of user performing the task action (Owner or Delegator)
- The type of task (delegated or Completable)
- The Task Action Type
- The Current Task Status

From this information, Workflow determines the task status resulting from the action.

9. Set Task Attributes Based On the New Status

If Step 8 results in any task status, Workflow sets the current task's attributes to reflect this status, as follows:

- The Task's Status attribute is set to the new status.
- The <Action> By attribute is set to the name of the user performing the action. For example, if this is a submit action, the Submit By attribute is set.
- The Action_Datetime attribute is set to the current time.
- If this is a user-defined action, the <Action> User attribute is updated. For example if you are user planner and you run a custom action called execute, Workflow updates the execute planner attribute with your name.

10. Update the Workflow Toolbar Structures and Data

Workflow updates control cubes. These control cubes are used to optimize toolbar performance within Workflow.

If the user chose to add a comment to the task, Workflow adds the text of the comment to the task attribute Action_Comment.

11. Check for a Post_TI Process

If a Post_TI process is associated with the current user, load the Post_Ti_Return attribute for the task. If no Post_Ti_Return client attribute exists, load the Post Action TI Return system attribute.

If no Post_TI process is associated with the current task, check to see if a Post Action TI Process is established in the system options. If there is, load the Post Action TI Return system attribute.

If no Post_TI process or Post Action TI Process is defined, skip to Step 8.

12. Execute the Post-Ti process or the Post Action TI process

- *If, after Step 11, Workflow runs a Post_TI process, the following occurs:*

The Post_TI process runs. If the Post_TI process returns an error and the setting for Post_Ti_Return is not Continue, Workflow generates the error Error Executing Post Task - Action Aborted, then terminates execution of the task action.

If the Post_TI process runs successfully, or the setting for Post_Ti_Return is Continue, Workflow completes the execution of the process and proceeds with Step 13.

- *If, after Step 11, Workflow runs a Post Action TI process, the following occurs:*

The Post Action TI process runs. If the Post Action TI process returns an error and the setting for Post Action TI Return is not Continue, Workflow generates the error Error Executing Post Task - Action Aborted, then terminates execution of the task action.

If the Post Action TI process runs successfully, or the setting for Post Action TI Return is Continue, Workflow completes the execution of the process and proceeds with Step 13.

13. Process Email

Email is sent if the user enables the Send Email check box when they add comments to the task. If they do this, launch the default system mail client.

Add the comments for the task to the mail message. If there are no comments, set up the email message according to the message template established in the Design Time system attributes.

14. Reload Task Dropdown on the Workflow Toolbar

When a task action is executed, frequently a task will be routed from one user to another. For example, when a user submits a delegated task, the task is routed to the task's delegator for approval.

Workflow determines if, after the action is completed, the task should remain in the current user's toolbar. If appropriate, the task is removed.

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