



TIBCO® BPM Enterprise

Getting Started

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Introduction to TIBCO BPM Enterprise

TIBCO® BPM Enterprise is used to develop, deploy, and manage *business process management* (BPM) applications. BPM applications are used to collect information, say for an insurance claim, then automate and control the flow of the information through a business process.

TIBCO BPM Enterprise is a container-based system that is managed by a container orchestration system (for example, Kubernetes). Scaling, high availability, and fault tolerance are achieved by creating additional container instances. The only external infrastructure needed to run a TIBCO BPM Enterprise system are a database, an LDAP service, and a container orchestration system. TIBCO BPM Enterprise is a multi-node system. All nodes use the same database.

A load balancer or reverse proxy is required to mediate calls from client applications and TIBCO Business Studio™ - BPM Edition to only one of the containers in the cluster.

Projects that were created in pre-version 5.x TIBCO Business Studio - BPM Edition can be imported into version 5.x using the Import wizard in TIBCO Business Studio - BPM Edition. For information, see "Importing Pre-Version 5.x Projects into TIBCO Business Studio - BPM Edition Version 5.x" in the *TIBCO Business Studio™ - BPM Edition Application Designer's Guide*.



Note: The runtime applications and their data are not backward compatible.

The use of sticky sessions is required, that is, client applications require a durable connection to one container instance throughout the lifetime of the client session.

For more details about the TIBCO BPM Enterprise architecture, see [TIBCO BPM Enterprise Reference Architecture](#).

For more information about:

- developing business processes and BPM applications using TIBCO Business Studio - BPM Edition, see [Developing TIBCO BPM Enterprise Applications](#).
- deploying BPM processes and applications, see [Deploying TIBCO BPM Enterprise Applications](#).

- managing the TIBCO BPM Enterprise system, see [Managing the TIBCO BPM Enterprise System](#).

Developing TIBCO BPM Enterprise Applications

There are two aspects of creating BPM applications in a TIBCO BPM Enterprise system: creating *processes* using **TIBCO Business Studio - BPM Edition**, and creating BPM client applications using **Application Development**.

Creating Processes

TIBCO Business Studio - BPM Edition is used to define processes, which define the flow of information in your BPM application. BPM applications create instances of processes, which in turn create work items for the users.

TIBCO Business Studio - BPM Edition is an Eclipse-based application that is used to:

- Create processes - These consist of many “tasks,” including manual tasks (which require user action), automatic tasks (which are executed automatically by the server), and conditional tasks, also known as “gateways” (which branch based on the result of a condition). Many types of processes can be created: business processes, pageflow processes, business services, and service processes.
- Define business object models (BOMs) - This is structured data that represents business-specific information. For example *Department*, *employee*, *purchase order*, and *inventory item*.
- Define organization models - These describe the organizational structure of your enterprise and the relationships between the different components (for example, organization units and positions) within your organization.

For details about TIBCO Business Studio - BPM Edition, see the *TIBCO Business Studio - BPM Edition Designer's Guide*.

Creating BPM Client Applications

TIBCO BPM Enterprise provides a user interface called **App Development** that is used for client application development and management. Some of the capabilities provided by Application Development are:

- Upload applications
- List application versions
- View the details of an application
- Download an application
- Revert to an earlier version of an application
- View, add, edit, or delete files from an application
- Publish applications

Deploying TIBCO BPM Enterprise Applications

Following items must be deployed before a TIBCO BPM Enterprise system can be used.

- TIBCO Business Studio - BPM Edition projects - Projects (including processes, organization models, business data models, and so on) that are created in TIBCO Business Studio - BPM Edition must be deployed. In TIBCO Business Studio - BPM Edition, project deployment artifacts are generated as RASC files, then deployed using Deployment Manager. For more information, see "Deployment Manager" in the *TIBCO BPM Enterprise Administrator's Guide*.
- BPM Client applications - BPM client applications can be uploaded to 'App Development', where they must then be deployed (published) and launched for the users to use them. For more information, see "Application Lifecycle" in the *TIBCO BPM Enterprise Developer's Guide*.

Managing the TIBCO BPM Enterprise System

A TIBCO BPM Enterprise system can be managed at two levels: the container orchestration system level and the TIBCO BPM Enterprise level.

Managing TIBCO BPM Enterprise Using a container orchestration system Administration Features

The container orchestration system (Kubernetes) provides management and monitoring capabilities, such as:

- Adding and removing pods from Kubernetes nodes. Replica Sets of pods across nodes can be created to scale TIBCO BPM Enterprise.
- Deploying Docker containers, containing TIBCO BPM Enterprise, to pods. As TIBCO BPM Enterprise only has a single container type, each pod will contain only a single container and the associated resources (database shared resources, IP address, and so on) required by TIBCO BPM Enterprise.
- Start and shut down of Docker containers containing TIBCO BPM Enterprise.
- Basic health monitoring. This is accomplished using Kubernetes cAdvisor, which monitors container metrics, as well as application metrics.
- Configuration injection. TIBCO BPM Enterprise configuration is injected into the container on startup. The injected configuration remains injected and is not written to the database. For more information, see the Injected Configuration section in the *TIBCO BPM Enterprise Administration Guide*.

Managing TIBCO BPM Enterprise Using the Administrator

TIBCO BPM Enterprise provides an Administrator that is used to specify configuration settings needed by the TIBCO BPM Enterprise components. This capability is provided in the form of the **Administrator** UI that uses the Administrator REST API. Administrator User Interface is accessible from the Administrator application that is included with TIBCO BPM Enterprise.

The following are examples of the type of configuration that can be set using the Administrator:

- **Deployment Manager** to upload and deploy business processes.
- **Shared Resources Manager** to set up shared resources for authentication, security, and HTTP clients.
- **Process Manager** to start, stop, continue, and complete selected business processes.
- **Configuration Management** to set up properties used by each of the TIBCO BPM Enterprise components, such as Case Data Management, Directory Engine, Process Engine, and others.
- **Integrate Your App** to integrate custom applications.

The configuration that is required to start the container is injected into the container upon startup. This includes connection details for LDAP and the database. Injected configuration is achieved by setting environment variables in the container. For details about specifying configuration, see *TIBCO BPM Enterprise Administration*.

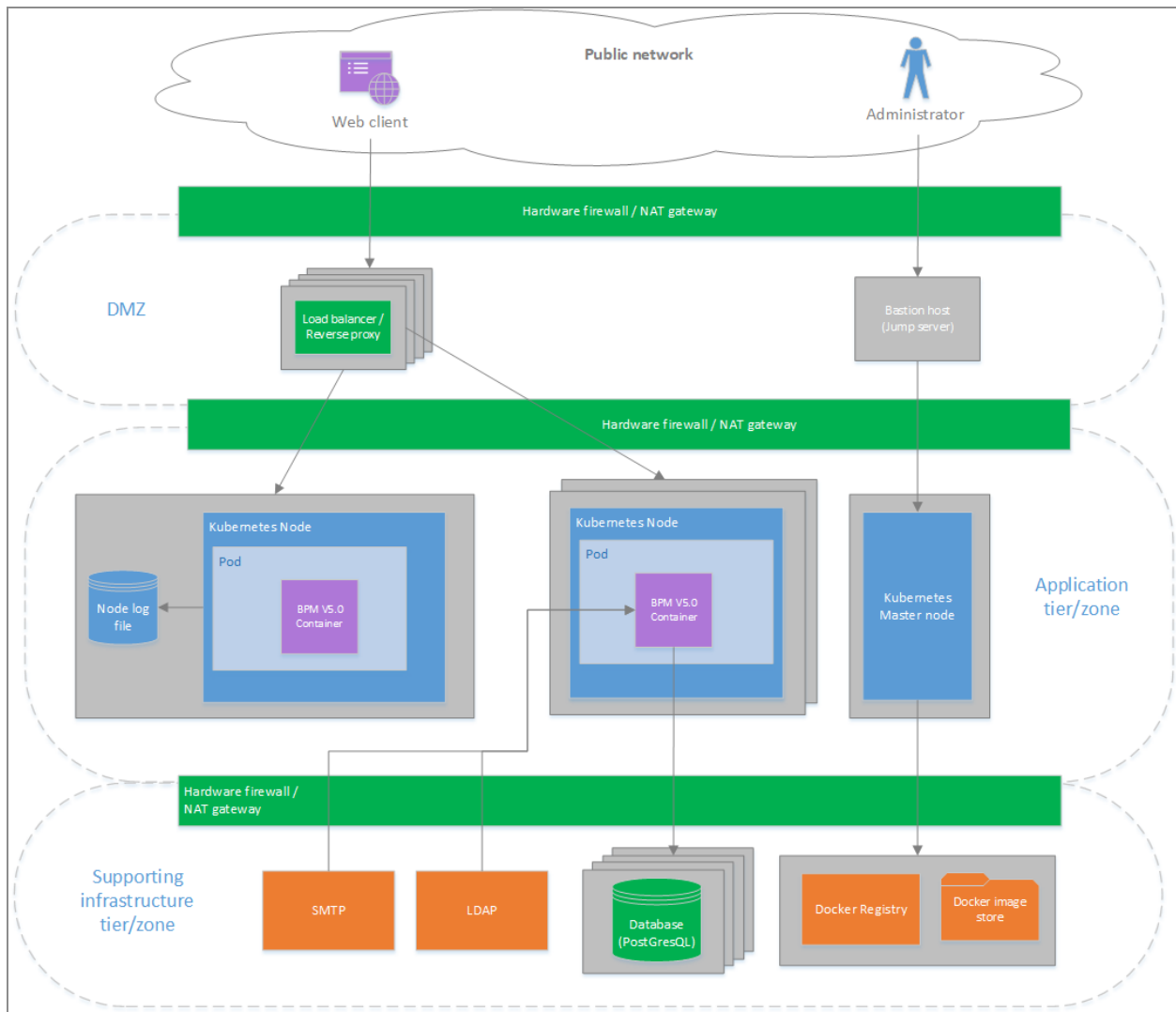
TIBCO BPM Enterprise Reference Architecture

TIBCO BPM Enterprise, like most enterprise software, is intended to be used in conjunction with a standard set of software and hardware infrastructure. It is not a software appliance, TIBCO® BPM Enterprise Concepts Guide 19 | Introduction to TIBCO® BPM Enterprise and therefore, cannot be installed on a machine and used in a safe and secure manner. Such an approach can be suitable for some development and "proof of concept" purposes. However, using TIBCO BPM Enterprise in this way in a production environment is not recommended. For this reason, a reference architecture is proposed that defines the kind of deployment that is expected for TIBCO BPM Enterprise in a production environment. For more information, see *TIBCO® BPM Enterprise Getting Started*.

This section describes the logical topology of the recommended architecture.

It is presumed that TIBCO BPM Enterprise is the primary component in the system supported by the reference architecture. It is also presumed that the Kubernetes system is only used to support TIBCO BPM Enterprise. However, typically the Kubernetes system hosts multiple enterprise systems, and possibly other components that comprise part of the overall system for which TIBCO BPM Enterprise is the primary component.

The following diagram shows the logical structure of the reference architecture:



Legend



Components of the Kubernetes system.



Parts that comprise TIBCO BPM Enterprise.



Infrastructure parts specifically required for TIBCO BPM Enterprise. In some cases where the Kubernetes system is shared by multiple enterprise systems, one or more of these parts may also be shared.



These are standard components that will already be in place within the target organization.

i Note: In the illustration, worker or "minion" node connectivity is only shown on the far right-hand Kubernetes node. This connectivity is replicated across all of the Kubernetes worker nodes.

The illustration shows a tiered architecture, where it is expected that users will access the TIBCO BPM Enterprise system via the internet or a VPN, and that the system will be administered remotely from the data center that is hosting the complete system. Each tier of the system is encapsulated in its own "zone" bounded by two firewalls. As is conventional for such architectures, it is not possible to cross more than one firewall boundary from any system.

Above the outer tier of the system is the application user (represented by the TIBCO BPM Enterprise web client) and the Kubernetes administrator, which is a separate and distinct persona from the TIBCO BPM Enterprise administrator. Both of these users will not have any physical access to the machines hosting Kubernetes or any other component of the system. End users are typically not able to log in to these machines. The Kubernetes administrator may have an operating system login to these systems, but will not be able to log in remotely.

The top tier of the diagram contains a conventional web DMZ. This contains the required load balancer for the TIBCO BPM Enterprise system. This will also be a reverse proxy, to facilitate the indirection required to access this system via an external system. The reverse proxy will implement the sticky session capability required by TIBCO BPM Enterprise. Also located in this tier is the jump system (located on a Bastion server) that is used to administer the Kubernetes system. Typically, access to this server is only possible via a VPN (not shown on the diagram).

The middle tier contains the Kubernetes system. This must consist of at least one master node and one worker node, although, typically, there are two or more worker nodes. The diagram shows three worker nodes (this being the default used by some cloud services). Each worker node will house one or more pods that consist of a set of containers required for a particular application. In the case of TIBCO BPM Enterprise, the pod will typically consist of the mandatory TIBCO BPM Enterprise container. Other pods may also be present on the worker nodes. They may be required by other applications or for the required capabilities of the installed Kubernetes system.

The bottom tier contains the enterprise infrastructure used by Kubernetes and TIBCO BPM Enterprise. This tier contains the LDAP directory required by TIBCO BPM Enterprise, which is most likely the directory used by the organization running applications in TIBCO BPM Enterprise. This tier also contains the database required by TIBCO BPM Enterprise, the

SMTP email server used to send work item notifications and emails from executed email tasks, as well as the container repository used by Kubernetes.

Log files are emitted as standard log files for the docker container. These files are then managed at the pod level by Kubernetes. In a production environment, it may be necessary to combine these logs in a way that a single log file is available on a machine that is not a Kubernetes node or is available in a log management system.

The replica set is the primary mechanism to be used for HA/FT purposes. The minimum number of replicas should be one per node. Scaling will be performed using standard Kubernetes HPA mechanisms.

High availability and fault tolerance is provided using Kubernetes replica sets.

TIBCO BPM Enterprise Tutorial

To learn how to start using TIBCO BPM Enterprise, see the following tutorials. After completing these tutorials, you should be able to create a simple project in TIBCO Business Studio - BPM Edition, deploy it, and start using the application you have created.

How To Design a Simple WelcomeUsers Business Service

This tutorial demonstrates how to use TIBCO Business Studio - BPM Edition to rapidly design a simple business service.

When complete, the business service provides the following sections:

- Display a form to collect a user's name and phone number. For example, the user may request information for a product or sign up for a service.
- Call a process that runs a script to generate a message with the name and phone number.
- Display a form that prompts the recipient of the work item to call the user.

Work through each section to complete the tutorial.

Although it uses a very simple example, this tutorial demonstrates some of the fundamental points of the analysis phase for any business service. For example,

- Design the process flow.
- Create and assign the data that the process requires.
- Create and assign the employees who will participate in the process.
- Place and describe tasks such as scripts, or services, for the solution designer to implement later.

At the end of this tutorial, you should be familiar with the basic steps to create a process design.

What to do next

The tutorial: [How to Implement and Deploy the WelcomeUsers Application](#) demonstrates how to elaborate the design, convert it to an executable model, and then deploy it.

Create a New Project

A project is a basic container that stores all the artifacts for the business process. The project you create here contains a basic organizational model.

Procedure

1. Start TIBCO Business Studio - BPM Edition.

The first time you start TIBCO Business Studio - BPM Edition, a window opens that prompts for a folder location to store the projects. Choose a folder location, and click **OK**.

2. Go to **File > New > BPM Process Project**.

BPM Modeling is the default perspective.

The New BPM Process Project window opens.

Enter **WelcomeUsers** in the **Project name** field, then click **Finish**.

The process opens in the **Process Editor** pane, the **Properties** pane for **WelcomeUsers-Process** opens, and the new project opens in the **Project Explorer** pane.

The project contains many folders, each of which contains different types of artifacts.

i Note:

- The project contains a single process package, called **WelcomeUsers.xpdl**.
- The process package contains a single process, called **WelcomeUsers-Process**.

Add a User Task to the Process


Use the Process Editor to create the business process. It includes a Palette that contains tools to create the process.

The Process Editor displays the default process for a new project.

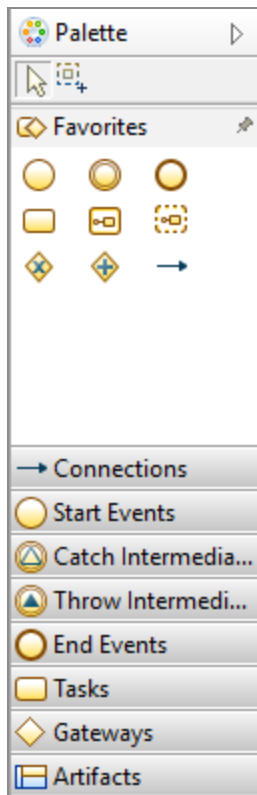
The **WelcomeUsers-Process** contains the following events:


- The **Start Event** marks the beginning of the process.
- The **End Event** marks the end of the process.
- A sequence flow shows the flow of activities through the process.

Procedure


1. Click  **Show Palette** in the upper-right part of the **WelcomeUsers-Process** pane.

The Palette contains many drawers, each of which contains a set of tools.



2. Click **Tasks**, and then click  **Script Task**.
3. Click the sequence flow between the Start and End events to add the **Script Task**.
4. On the **General** tab in the **Properties** view, change the **Label** to *Generate Message*, then click away from the field to save the change.

The **Name** changes to *GenerateMessage*, without the space.

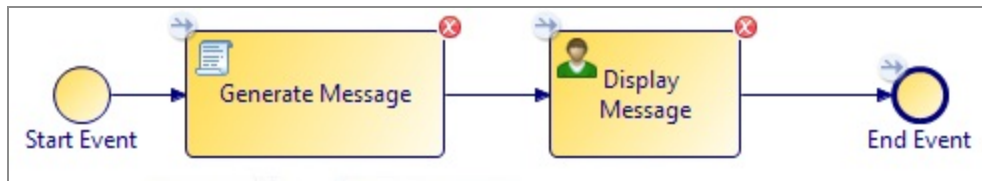
5. Click  **User Task** in the Palette.
6. Click the sequence flow after **Generate Message** to add a user task.

✓ **Tip:** If there is not enough space in the sequence flow to add another task, move the other tasks over by dragging and dropping them. Otherwise, the sequence flow will have a bend in it to fit the task in.

7. On the **General** tab in the **Properties** view, change the **Label** to *Display Message*, then click away from the field to save the change.

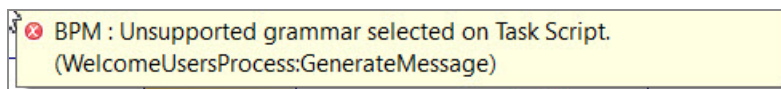
The **Name** changes to *DisplayMessage*, without the space.

The process should now look like this.

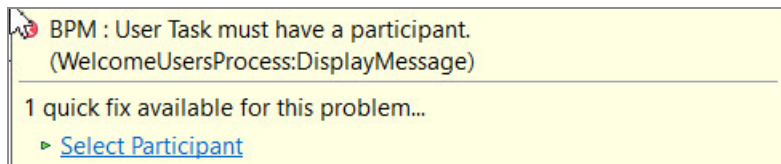


Note: The tasks have a . This is a validation marker, and something is either wrong or missing. This prevents the deployment of the process in its current state.

To display the error message, hover over the validation marker.



The validation marker on **Generate Message** is a reminder to update the task to a supported grammar such as JavaScript. See [How to Implement and Deploy the WelcomeUsers Application](#).



The validation marker on **Display Message** is a reminder to assign somebody to perform the task. See [Add the Tester Position as a Participant in the Process](#).

8. Press Ctrl+S to save the changes to the process.

Tip: Select **Don't ask in future** to avoid a repeat of this reminder.

9. Click **OK**.

Add Data to the Process

Data inputs for a business process require parameters. User tasks can include data fields to obtain and display data. Script tasks can manipulate data.

To add data to the process, first define the required parameters, and then assign the parameters to a start request event.

Define the Input Parameters

Input parameters define the data that the process requires.

Procedure

1. In **Project Explorer**, drill-down and select **Parameters** under **WelcomeUsers-Process**.

Parameters open in the **Properties** pane.

2. Click  **Add Parameter (INS)**.

A new parameter has **Type** text, and its **Label** and **Name** are *Parameter*.

3. Click **Label** to change *Parameter* to *UserName*.

The **Name** also changes to *UserName*.

4. Change the **Mode** to *In*, because it is an input to the process.

5. Repeat steps 2 to 4 to add a second parameter, **PhoneNumber**.

Project Explorer includes the two new parameters under **Parameters**.

6. Press Ctrl+S to save the changes.

Define a Data Field

Data fields identify inputs to and outputs from the user activities.

Procedure

1. In **Project Explorer**, drill-down and select **Data Fields** under **WelcomeUsers-Process**.

Data Fields opens in the **Properties** pane.

2. Click  **Add Data Field (INS)**.

A new data field has **Type** text, and **Label** and **Name** are "Field".

3. Click **Label** to change *Field* to *Message*.

The **Name** also changes to *Message*.

4. From **Project Explorer**, expand **Data Fields**, and then drag and drop **Message** onto the **Display Message** task.

A dialog opens.

✓ **Tip:** If the drag and drop fails, the dialog does not open. Check the selection is a data field, and the target is a user task.

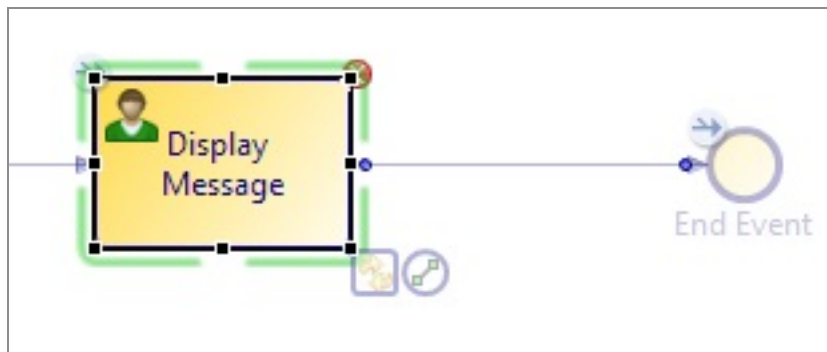
5. Click **Add Data To View**.

The process associates a user task with a work item. The field contents for the work item are now set to read-only.

6. From the **Highlighting** menu (🔍), check that **Enable Highlighting** is enabled.

With **Highlighting** enabled, and **Message** selected from the **WelcomeUsers-Process** pane, **Display Message** is highlighted because the process associates **Message** with **Display Message**.

Other tasks and steps in the process are grayed out.



i **Note:** The same reference highlighting can identify the tasks associated with parameters and participants.

7. Click away from **Display Message** to clear the highlight.

8. Press Ctrl+S to save the changes.

Create a Business Service

Data inputs for a business process require parameters. A business service sends the parameters to a message start event in the business process.

Generate the Business Service

A business service collects the data required to start the process.

Procedure

1. From the **WelcomeUsers-Process** pane, right-click the **Start Event** and select **Generate > Business Service**.

The **WelcomeUsers-Process-Start Event** pane opens. It contains **User Task** and **Call WelcomeUsers-Process**.

The business service collects the data, **UserName**, and **PhoneNumber**, and sends it to the business process.

2. Change the **Label** for **User Task** to "Collect Data".
3. Change the **Label** for **Call WelcomeUsers-Process** to "Start Process".
4. In **Project Explorer**, select **WelcomeUsers-Process-Start Event**.
5. Change the **Label** for **WelcomeUsers-Process-Start Event** to "Request Call".
6. Press Ctrl+S to save the changes.

Define an Organization Model for the Process

An organization model captures and defines information about the organization of an enterprise. The model represents the different entities in the organization, such as positions, organizational units or groups, their organizational structure, and the relationships between them.

The model can also describe characteristics that these entities can possess, such as privileges, capabilities, and location.

A process designer can use the information defined by the organization model to ensure that the process sends the right work to the right people at the right time.

The process can only assign user tasks to entities defined in the organizational model. They are known as participants.

i Note: An organization model does not define the actual users, or resources, who belong to it. Use the Organization Browser at runtime to assign users to organization model entities. See [How to Map Users to the WelcomeUsers Organization Model](#).



Procedure

1. Click **File > New > Organization Project** to create an Organization project. Name it *XYZInsurance* and click **Finish**.

Use the **Organization Editor** to produce an organization diagram that shows the structure of an organization, the organization units and positions it contains, and the relationships between them.

The **Organization Editor** contains a canvas area and a **Palette**. The **Palette** contains a different set of tools than those available for the Process Editor.

The **Organization Editor** initially shows an empty organization for *XYZInsurance*.

2. In Project Explorer, drill-down and expand **XYZInsurance v1.0 > Organization > XYZInsurance.om > Organization Model > Organizations**, and select **Organization1** and change its label in the Properties view to "XYZInsurance".
3. Select  **Organization Unit** from the Palette, and then click anywhere in the Organization Editor canvas to add an organization unit.
4. Change the **Label** from *OrgUnit1* to *Test Department*.
5. Click outside the field or press **Enter** to save.
6. Select  **Position** from the **Palette**, and then click inside **Test Department** to add a position.
7. Change the **Label** from *Position1* to *Tester*.

i Note: An asterisk against an item in the **Organization Editor** and the **Project Explorer** indicates unsaved changes.

8. Press Ctrl+S to save the changes.

Add the Tester Position as a Participant in the Process

Participants represent the users who perform the work defined by user tasks.

i Note:

- Participants must be defined as external references in the organization model.
- Every user task in a process must have a valid participant.

First, define a participant. Then, assign the participant to every applicable user task.


Define a Participant

A process can define participants as a group, position, or organization unit (although other types are also allowed). This allows users mapped to the group, position, or organization unit to receive work items.

Procedure

1. From **Project Explorer**, locate **Participants** inside **WelcomeUsers**.
2. Right-click **Participants**, then select **New > Participant**.
3. Change the **Label** to "Process Tester".
4. For **Type**, click **External Reference**.

This allows the selection of a participant from the organization model who is defined outside the process.

5. Click .
6. On the Select Type dialog box, select **Tester** in the Organization Model project you created, then click **OK**. You will be asked if you want to add the Organization Model you created as a reference project.
7. Click **Yes**.
8. Click **Finish**.
9. Press Ctrl+S to save the changes.

Assign a Participant to a User Task

A participant is not an individual. A participant defines a set of users. When a process assigns a participant to a user task, the process sends work items associated with the user task to that set of users.

Procedure

1. Click **WelcomeUsers-Process** in the upper-right pane.

This opens the **Process Editor**.

2. From **Project Explorer**, drag and drop the **Process Tester** participant onto the **Display Message** task.

i Note: The validation marker now disappears because the user task has a participant.

3. Press Ctrl+S to save the changes.

How to Implement and Deploy the WelcomeUsers Application

This tutorial demonstrates how to use TIBCO Business Studio - BPM Edition to turn the simple WelcomeUsers business service created earlier into an executable model, then how to deploy and execute it.

Before you begin

Complete the tutorial: [How To Design a Simple WelcomeUsers Business Service](#).

This tutorial demonstrates the fundamental points about the implementation and deployment of a business service for execution. Any script, service, or task in a process must have complete implementation details before deployment.

i Note: User tasks do not require a form before process deployment. Forms are optional, not a requirement. At runtime, a user task uses a default form, if it does not have a form associated with it.

At the end of this tutorial, you should be familiar with the following:

- The basic steps to elaborate a process design and convert it into an executable model that Process and Work Manager can execute.
- How to deploy an executable model to the TIBCO BPM Enterprise runtime.

Implement the Generate Message Script

Any script in a process must use JavaScript to remove any validation markers before process deployment.

Process objects, such as data fields or user tasks, have a **Label** and a **Name**. A Label can contain spaces or non-alphanumeric characters. TIBCO Business Studio - BPM Edition automatically generates the Name for the Label and removes spaces and non-alphanumeric characters.

Perform the following procedure to add the appropriate JavaScript code.

Procedure

1. From the **WelcomeUsers-Process** pane, select **Generate Message**.
2. From **Properties > General**, click **Script Defined As**, and select **JavaScript**.
3. In **Describe Task Script**, add the following JavaScript:

```
data.Message = "Please call " + data.UserName + " at " +  
data.PhoneNumber + "."
```



Note: **Generate Message** no longer has a validation marker.

4. Click outside the field to save.
5. Press Ctrl+S to save the changes.

Deploy the WelcomeUsers and Organization Model Projects

To make an application available, deploy the associated projects.

Note: To be able to deploy the organization model and project, you must have a BPM server running.

Procedure

1. Right-click the WelcomeUsers project and select **Deployment > Generate Test Artifacts**.
2. Select XYZInsurance (WelcomeUsers is already selected), then click **Generate**.

Note: The path in the **Destination** pane shows where the artifacts are being saved.

3. Click **Launch Admin**.

This starts the **Administrator**, from which you can deploy the artifacts you just generated.

4. On the **Set the base URL of the Admin page** dialog, enter the Deployment Manager URL, then click **OK**.

For example,

`http://bpmserver/apps/admin/#/deploy-manager`

where, *bpmserver* is the name or IP address of the BPM Server.

5. Log in to TIBCO BPM Enterprise as an administrator.

For example,

Enter **Username** as *tibco-admin* and **Password** as *secret*.

6. In the Deployment Manager, select **New Deployment**.
7. To deploy the RASC file from the **New Deployment** dialog box, either drag and drop the RASC file into the dialog box or click **Select RASC file** to browse to it.

The RASC file can be found in two locations:

- a. In the Deployment Artifacts folder in **Project Explorer** of the TIBCO Business Studio - BPM Edition application.
- b. In **Deployment Artifacts** in the project workspace of your file system.

Note: The organization model RASC file must be deployed before the WelcomeUsers RASC file, as the WelcomeUsers project is dependent on the organization model.

8. Select **Deploy**.

Once the organization model has deployed, its status is shown as **Deployed in All Deployments**.

9. Repeat steps 6 and 7 for the WelcomeUsers project.

How to Map Users to the WelcomeUsers Organization Model

This tutorial demonstrates how to use the Organization Browser to map a user to a position in the organization model. The user can then log in to the WelcomeUsers application and process work items.

Before you begin

- The [How to Implement and Deploy the WelcomeUsers Application](#) tutorial must be completed.
- The EasyAs LDAP source must be available. This LDAP is installed as part of the Developer Server.

At the end of this tutorial, you should be familiar with the following:


- How to start the Organization Browser.
- How to create an LDAP container.
- How to map a user to a position in the organization model.

Start the Organization Browser

The Organization Browser is used to map users to groups or positions in an organization model so that those users can log in to an application, and receive work items.

To access the Organization Browser in TIBCO BPM Enterprise, you must follow these steps.

Procedure

1. Log in to TIBCO BPM Enterprise with a valid username and password.
2. Click  to access the list of applications available.
3. Click **Organization Browser**.

What to do next

[Create an LDAP Container](#)

Create an LDAP Container

LDAP containers are a collection of one or more LDAP sources. An LDAP source represents an LDAP server, which holds information about candidate resources. LDAP resources include users who might need to use or participate in TIBCO BPM Enterprise applications.

The EasyAs LDAP source is included in the TIBCO BPM Enterprise Developer Server, which is a prerequisite to using this tutorial. That LDAP source is used in this tutorial to obtain a list of candidate resources that can be mapped to positions or groups in the organization model that you deployed in the [Deploy the WelcomeUsers and Organization Model Projects](#) tutorial.

Procedure

1. In the Organization Browser, click **Create New LDAP Container**.



Note: If an LDAP container is not present, you must create the first instance by clicking Create an LDAP.

2. On the New LDAP Container dialog, complete the fields as follows, then click **Next**.
 - **Name:** Enter *XYZCorp*.
 - **Description:** Enter *XYZ Corporate Users*.
 - **Select organizations:** *XYZInsurance*
3. **Select source type** as *Query source*, then complete the fields as follows:
 - **Alias:** Select *easyAs*.

- **Base DN:** Leave this field blank.

The **Base DN** field can include a base DN (Distinguished Name), which can be used to limit the search in the LDAP directory structure. If the LDAP directory structure is large, this can increase the efficiency of the search. You can limit the search to a *branch* (for example, a single organization unit) of the structure. Leaving the field blank causes the search to include the entire structure.

- **Query:** Leave the default value of "(objectClass=person)".

This is a filter string used to determine which of the resources to return from the LDAP source that are available as *candidate resources* and can be mapped to positions or groups. This allows you to limit the resources returned. For example, you may only be interested in considering resources from a specific department or region. The default value returns all resources that are people.

- **Resource name attribute(s):** Change this to *ou*.

This specifies the attributes in the LDAP source that are used to determine the name users must use to log in to BPM applications. In the next step, when you click **Show Sample Data**, you will see the available attributes that can be specified here. In the example, LDAP that is being used in this tutorial, the *ou* attribute contains the user's first and last name, whereas the *cn* attribute (the default) contains "Mr" or "Mrs" before the user's full name. You would not want to require users to enter "Mr" or "Mrs" as part of their login name.

- **Search scope:** Select **Sub Tree**.

This specifies the depth to perform the search in the LDAP directory structure. "One Level" means to search only directly within the base DN level. "Sub Tree" means to search within, and below, the base DN level.

4. Click **Show Sample Data**.

This displays a list of users that match the search criteria. These are the candidate resources that can be mapped to positions and groups.

5. Click **Save LDAP source**.

This displays the LDAP source in a row with all the details.

6. Click **Next** and in the **Version** field, select *1*.

Some additional steps are required when creating an LDAP container (such as mapping resource attributes and setting up a container organization relationship).

For more details, see **Creating an LDAP Container** in the *TIBCO® BPM Enterprise Administration* guide.

7. Click **Create LDAP Resource**.

The XYZCorp LDAP container is created.

8. Click **Show Resources**.

A list of the resources in the XYZCorp LDAP container is displayed.

What to do next

[Map a User to the Tester Position in the Organization Model](#).

Map a User to the Tester Position in the Organization Model

TIBCO BPM Enterprise applications generate work items and send them to positions or groups in the organization model.

A system administrator maps users to positions or groups in the organization model so that they can receive and process work items sent to those groups or positions.

For example, in the WelcomeUsers application, the **Display Message** user task generates work items and sends them to the **Tester** position. A system administrator must map at least one user to the **Tester** position to process those work items.

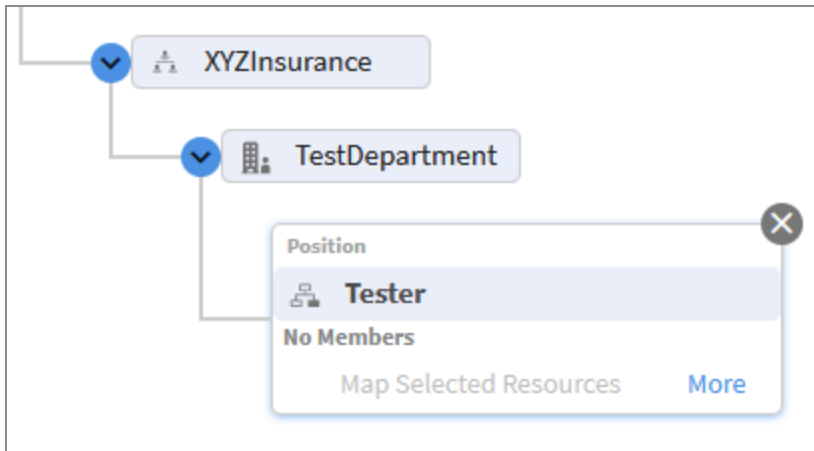
In this tutorial, you will map the user, Clint Hill, to the Tester position.

Procedure

1. From the Organization Browser, click the **XYZCorp** LDAP container in the list of **All LDAP Containers**.
2. Click **Browse Organization**.
3. In the Version field, select *1*.

This is the version of the organization model that was deployed earlier in the tutorial.

4. Navigate down into the XYZInsurance organization to the Tester position:



- From the list of resources in the left pane, drag *Clint Hill* into the **Tester** position in the right pane.

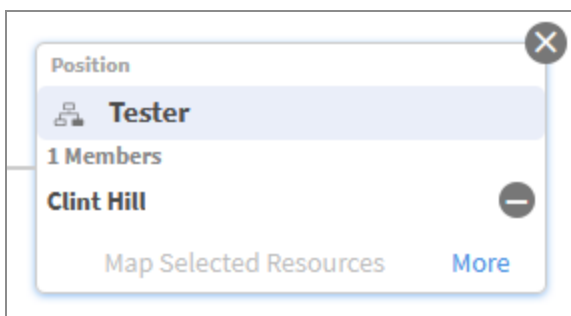
There are many ways to map a user to a position or group. Use this to map a single user.



For information about other ways to map a user, see Mapping Resources in the *TIBCO BPM Enterprise Administration* guide.

- On the Add resource dialog box, optionally modify the resource name or resource label for the user, then click **Create Resource**.

The resource name is the name the user must use to log into BPM applications. The resource label is the name shown in various areas of the Organization Browser. The resource name and label can be modified at a later time. See "Renaming a Resource" in the *TIBCO BPM Enterprise Administration* guide.

Clint Hill is now shown as a member of the Tester position:



Also notice in the list of resources in the XYZCorp LDAP container, there is  to the left of Clint Hill. This indicates that Clint Hill is a BPM resource and can log into BPM applications. Resources that have  on the left of their name are candidate

resources and cannot log into BPM applications.

Result

- Clint Hill can log into the WelcomeUsers application with the unique username Clint Hill.
- He will use his password defined in the LDAP resource.
- He has become a Tester in the Test Department.
- He will receive work items that the WelcomeUsers application generates for the Tester position.
- He is not available as a candidate resource for any other BPM applications that use the same LDAP resource.

What to do next

[Run the WelcomeUsers Application](#)

Run the WelcomeUsers Application

This tutorial demonstrates how to use TIBCO BPM Enterprise Work Manager as a user to start the WelcomeUsers application, and process work items.

Before you begin

The tutorial: [How to Map Users to the WelcomeUsers Organization Model](#) defines the login credentials for users of the WelcomeUsers application.

Work through each section in turn to complete the tutorial.

This tutorial demonstrates how to do the following:

- Log on to, and log off from TIBCO BPM Enterprise Work Manager.
- Start a business service.
- Open and process work items.

Log on to TIBCO BPM Enterprise Work Manager as a User

TIBCO BPM Enterprise **Work Manager** is a web application that allows users to work with applications. For example, to process work items or start business services.

Before you begin

Obtain the URL for TIBCO BPM Enterprise **Work Manager** from the system administrator. It should be in the form:

`http://bpmserver/apps/work-manager/`

where *bpmserver* is the name or IP address of the BPM Server.

Use the following login credentials:

- **Username:** *Clint Hill*
- **Password:** the default is *tibco123*

Procedure

1. Enter the URL for TIBCO BPM Enterprise **Work Manager** into a web browser, and press **Enter**.
The Login window is displayed.
2. Use the login credentials for Clint Hill in the **User Name** and **Password** fields, and click **Login**.

Start the Business Service

Users with applicable permissions can start the deployed applications with a business service. The business service displays a form. A user enters the information into that form which the business process requires.

The WelcomeUsers business process has assigned the DisplayMessage work item to the Tester position.

The WelcomeUsers application offers the work item to any user whom a system administrator has mapped to this position, including Clint Hill.

Procedure

1. From Work Manager, select **Business Services**.
2. From Business Services, select **All Categories > WelcomeUsers > WelcomeUsers**.
3. From **RequestCall**, click **START**.

The Collect Data form opens.

4. Enter a name and phone number in the **PhoneNumber** and **UserName** fields, and click **Submit**.
5. Close Business Services and click **Work Views**.

The **Work Views** window includes the **DisplayMessage** work item. If necessary, refresh the contents of the work list.

6. Double-click the **DisplayMessage** work item.

The DisplayMessage form opens.

7. Select **Submit**.

The **DisplayMessage** work item has been removed from the list.

Log out of TIBCO BPM Enterprise Work Manager

Always log out when work is complete. This prevents others from performing work with your login credentials.

Do not close the browser and assume this will log out of an application. TIBCO BPM Enterprise Work Manager does automatically log users out from an application after a period of inactivity. However, it is best practice to log out of TIBCO BPM Enterprise Work Manager manually.

Procedure

1. Click  > **Sign Out**.

The Login window displays.

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