

TIBCO Business Studio™

Modeling

User's Guide

*Software Release 1.1
June 2006*

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Contents

Preface	vii
Related Documentation	viii
TIBCO Business Studio Documentation	viii
Other TIBCO Product Documentation	viii
Third Party Documentation	viii
How to Contact TIBCO Customer Support	ix
Chapter 1 Getting Started	1
Who Should Use TIBCO Business Studio?	2
About Projects, Packages and Processes	3
Getting Help in TIBCO Business Studio	4
Using the Sample Processes	5
Creating a Project	6
Creating a Package	7
Creating a Process	9
Working with Processes	11
Adding Objects	11
Connecting Objects	11
Selecting Objects	12
Tutorial 1: Creating a Simple Process	13
Tutorial 2: Extending a Simple Process	17
Tutorial 3 - Deploying to the TIBCO iProcess Modeler	23
Creating Data Fields	25
Associating Data Fields with Activities	25
Creating Participants	26
Associating Participants with Activities	26
Chapter 2 Concepts and Definitions	27
Standards Support	28
Business Process Modeling Notation (BPMN)	28
XML Process Definition Language (XPDL)	28
Process Components	29
Flow Objects	30

Activities	30
Events	32
Gateways	32
Connecting Objects	35
Associations	35
Sequence Flows	35
Project Objects	37
Project	37
Package	37
Business Assets	38
Swimlanes	40
Lanes	40
Pools	43
Chapter 3 Tasks	45
Migrating Processes Created in Previous Versions	46
Creating Business Processes	47
Forking	47
Combining Sequence Flow	48
Decisions	51
Re-using Processes	54
Calling a Sub-Process	54
Expanding a Sub-Process	55
How Projects, Packages and Processes Support Reuse	56
Importing a TIBCO Business Studio/TIBCO iProcess Modeler Package	57
Source Controlling Processes	59
Using Subversion with TIBCO Business Studio	59
Creating a Project from an Existing Project in Source Control	60
Browsing SVN Repositories	60
Integrating with the TIBCO Staffware Process Suite	61
Integrating with Aris Software	63
Exporting from Aris	63
Importing Aris into TIBCO Business Studio	63
Exporting Procedure Documentation	65
Viewing Procedure Documentation	65
Chapter 4 Reference	67
The TIBCO Business Studio Modeling Perspective	68
Navigator View	68
Project Explorer View	68
Problems View	69

Outline View	70
Properties View	70
Cheat Sheets View	75
Process Editor	75
Process Validation	77
General Rules for Export to the TIBCO iProcess Modeler	77
Correcting Validation Errors	78
Object Mappings - TIBCO iProcess Modeler	78
Object Mappings - Aris Software	83
Chapter 5 Tips and Tricks	85
Process Editor	86
Workbench	88
Problems View	89
Index	91

Preface

TIBCO Business Studio™ is designed for business analysts who need to document business processes and also for those who implement business processes.

Topics

- *Related Documentation, page viii*
- *How to Contact TIBCO Customer Support, page ix*

Related Documentation

This section lists documentation resources you may find useful.

TIBCO Business Studio Documentation

The TIBCO Business Studio documentation set consists of user's guides for its main features, modeling and simulation. This documentation has the following main sections:

- *Getting Started* takes you through the basics of TIBCO Business Studio, including several tutorials.
- *Concepts and Definitions* explores the concepts and terminology related to TIBCO Business Studio.
- *Tasks* describes common tasks that you perform using TIBCO Business Studio.
- *Reference* provides detail about the major components of TIBCO Business Studio such as the properties sheets and user interface (UI).

The following documentation is also provided:

- *TIBCO Business Studio Installation Guide*: Read this manual for instructions on site preparation and installation.
- *TIBCO Business Studio Release Notes*: Read the release notes for a list of new and changed features. This document also contains lists of known issues and closed issues for this release.

Other TIBCO Product Documentation

You may find it useful to read the documentation for the TIBCO Staffware Process Suite™, which may be used or integrated with TIBCO Business Studio. Information about this set of products can be found on the TIBCO Staffware Process Suite: Documentation Library CD.

Third Party Documentation

The Eclipse help also contains useful information on the Workbench and the Eclipse UI.

How to Contact TIBCO Customer Support

For comments or problems with this manual or the software it addresses, please contact TIBCO Support as follows.

- For an overview of TIBCO Support, and information about getting started with TIBCO Product Support, visit this site:

<http://www.tibco.com/services/support/default.jsp>

- If you already have a valid maintenance or support contract, visit this site:

<http://support.tibco.com>

Entry to this site requires a username and password. If you do not have a username, you can request one.

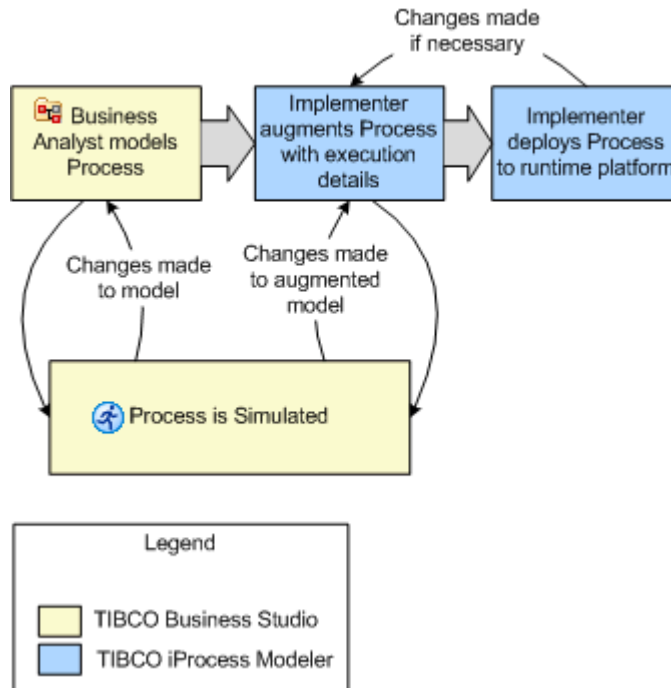
Chapter 1 **Getting Started**

If you are new to using this product, TIBCO recommends that you do the following:

1. Use the cheat sheet accessible from the **Welcome** page (and from the **Help** menu). The cheat sheet guides you through the process of creating a **Project** and **Package**.
2. Follow the tutorials in the help that explain creating a Process in detail. This will help you become familiar with the Process Editor.

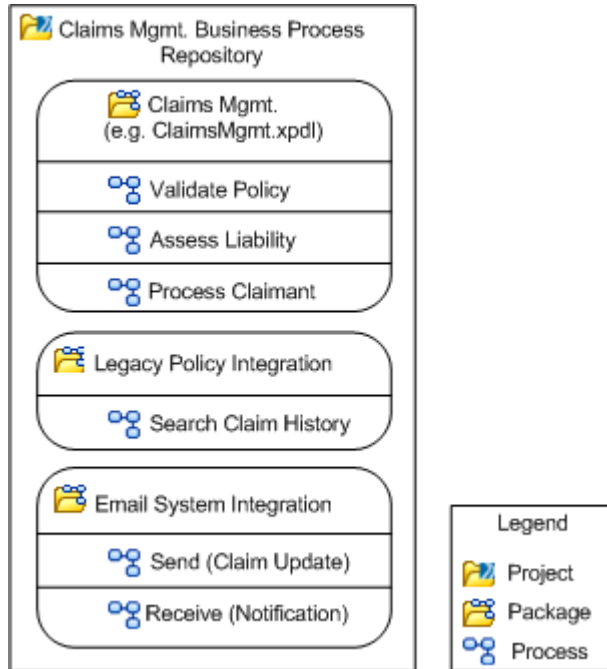
Who Should Use TIBCO Business Studio?

TIBCO Business Studio is for business analysts and those responsible for the implementation of business processes. The following diagram shows how TIBCO Business Studio is intended to be used:



About Projects, Packages and Processes

In TIBCO Business Studio there is a hierarchy consisting of [Project](#), [Package](#) and [Process](#):



Some objects such as **Business Assets** can be shared at the Project Level. Others such as **Data Fields** and **Participants** can be created at either the Package level (where they can be shared amongst Processes in that Package), or at the individual Process level (where they can only be used by that Process).

Getting Help in TIBCO Business Studio

TIBCO Business Studio uses online help and cheat sheets:

- The main help for TIBCO Business Studio is displayed by selecting **Help > Help Contents**. The help and associated tutorials can also be accessed from the Welcome page that is displayed when you first start TIBCO Business Studio.
- Context-sensitive help is displayed by pressing **F1**. Help on the selected view or Palette tool/object is displayed.
- Cheat sheets can be displayed by selecting **Help > Cheat Sheets**. They can also be accessed from the Welcome page that is displayed when you first start TIBCO Business Studio.

Using the Sample Processes

TIBCO Business Studio provides a workspace that contains several sample Processes. To start the TIBCO Business Studio sample workspace, do the following:

1. Click **Start > All Programs > TIBCO > TIBCO Business Studio 1.1 > TIBCO Business Studio (Samples)**. This starts TIBCO Business Studio and opens the Samples workspace rather than your default workspace.
2. Expand the **Basic Samples** and **Tutorial Solutions** Projects, which contains the following Packages and Processes:
 - **OfficeProcedures.xpdl** - This contains Processes called **Book Meeting Room** and **Submit Expenses**.
 - **SimulationPackage.xpdl** - This contains a Process called **Claims Mgmt Solution**. This is the details of how to simulate this process is described in a tutorial contained in the Simulation help.
3. Expand the **Modeling Tutorial Solutions** and **Simulation Tutorial Solutions** Projects, which contains the following Packages:
 - **Tutorial n Solution.xpdl** - These contain the solutions to tutorials contained elsewhere in the Modeling and Simulation help.
4. Expand the **Industry Samples** Project, which contains sample Packages and Processes related to banking, health care, insurance and so on.

Creating a Project

You must create a [Project](#) to use TIBCO Business Studio. TIBCO Business Studio supports the full project life cycle, bringing together all artifacts in a single place. The Project is the container for these artifacts. As such, Projects help to facilitate sharing and organization of resources. For example, team members may have different responsibilities but need to use the same resources that are made available through the TIBCO Business Studio Project.

Each Project has a corresponding directory in the file system (specified when you create the Project).

To create a new TIBCO Business Studio Project, do the following:

1. Select **File > New > Project**.
2. Click **Next** to create a new TIBCO Project.
3. Enter the **Project Name**.
4. Either accept the default location for the Project (your workspace) or de-select **Use default** and click **Browse** to select a different location.
5. Click **Finish**.

The newly-created Project is displayed in both the Project Explorer and the Navigator views.

In the [Navigator View](#), a Project contains folders and files. The [Project Explorer View](#) provides a different view of the Project in which you can see the **Packages** and **Business Assets**.

Creating a Package

A **Package** is a mandatory container for Processes and their infrastructure (**Participants** and **Data Fields**). For example, in the insurance environment, separate packages could contain the Processes used by the Claims Department, the Policy Origination/Maintenance Team and the IT Department. Processes can be shared between Packages so libraries of process components can be created and reused. For more information on reuse, see [Re-using Processes on page 54](#).

To create a Package, do the following:

1. Right-click the Project under which you want to create the Package and select **New BPMN Package**.
2. If you want to change the Project, click **Browse**.
3. Enter the name of the **Package** or accept the default filename. The filename must have **.xpdI** as the extension. Click **Next**.
4. The **Package Details** dialog shows the **ID** and **Name** of the Package. Either click **Next** to accept the defaults or modify these as necessary:
 - **ID** defaults to the same name as the filename of the package with any invalid characters or spaces removed.
 - **Name** defaults to the same name as the filename of the package and is used for purposes such as simulation reports.

5. The **Package Details** dialog is displayed. This allows you to specify or change the optional details about the Package:
 - **Author** - username of the user who created the Package.
 - **Created** - displays the date/time that the Package was created.
 - **Description** - text description of the package.
 - **Documentation Location** - URL or filename of any supporting documentation.
 - **Status** - project life cycle status for informational purposes. How or whether you use life cycle statuses is up to you, but they are typically used as follows:
 - UNDER_REVISION - for packages in development
 - UNDER_TEST - for packages in User Acceptance Testing (UAT)
 - RELEASED - for packages in production
 - **Business Version** - version information about the Package.



The version you specify is unrelated to any source control system and versioning is entirely user-defined.

6. Click **Finish**.

Creating a Process

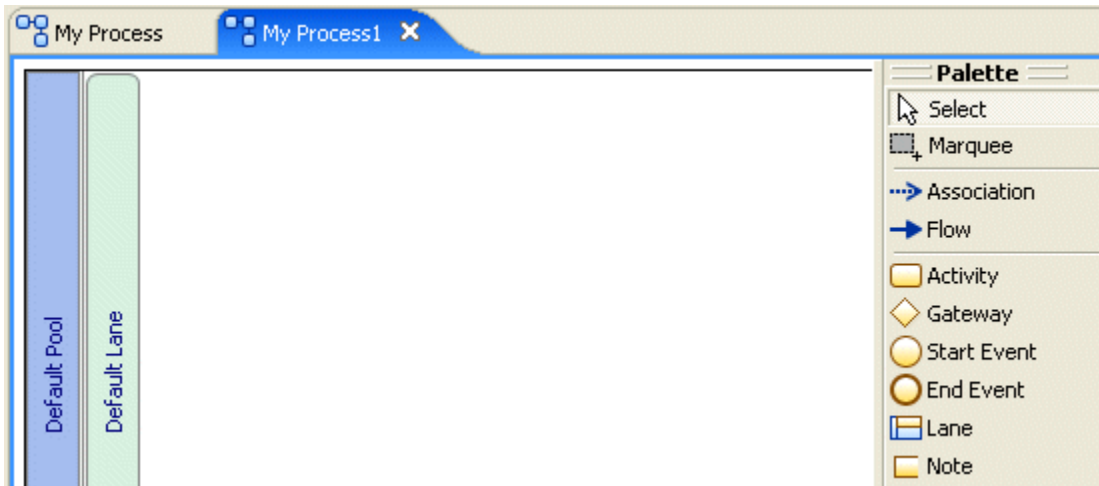
You can create business process diagrams with the Process Editor to model actual and future business processes in your organization. The Process Editor provides tools on a Palette that use [Business Process Modeling Notation \(BPMN\)](#) features. By creating your business process this way, you can fully prepare it for implementation by a specialist in your organization.

1. Before creating a Process, you must create a Project and a Package to contain your Process.
2. In the Project Explorer, select the Package you created, right-click and select **New Process**.
3. The **Create New Process** wizard is displayed.
4. If necessary, browse to change the **Project** and **Package** then click **Next**.
5. Enter the **Name** of the Process and click **Next**.
6. Select the **Destination Environment** (optional). This controls the validation that TIBCO Business Studio performs when you save the Process:
 - If you select the **TIBCO iProcess Modeler**, the Process will be validated for future import into the TIBCO iProcess Modeler as well as for BPMN correctness.
 - If you select **Simulation**, the Process will be validated for simulation in TIBCO Business Studio as well as for BPMN correctness.
 - If you do not select a destination environment, basic BPMN validation will be performed.

You can change or select the destination environment after the Process has been completed on the Advanced tab of the [Process Properties](#).

7. Click **Finish**.

- When you start the Process Editor, you see the following window (the Palette might be collapsed; if so, click the black arrow to expand it):



You can expand this window to fill your screen by double-clicking the title bar (in this example, the area labeled MyProcess1).


The Process Editor provides a **Default Pool** and **Default Lane** that you can rename if you plan on using [Pools](#) and [Lanes](#). You add elements of your business process using the [Palette](#).

Working with Processes

This section describes some common tasks and shortcuts to help you use the Process Editor to create Processes. For additional information, see [Process Editor Tips and Tricks](#).


Adding Objects

Add an object (for example, an Activity) by doing the following:

1. Click the appropriate tool in the Palette.
2. If you want to add more than one object of the same type, hold down the **Ctrl** key.
3. Position the pointer on the Process at the place where you want to place the object. The pointer changes shape: 
4. Click on the Process. The object is added.

Connecting Objects

To connect two objects with Sequence Flow, do the following:

1. Click the **Flow** tool.
2. Position the pointer over the object that will be the source of the Sequence Flow. The pointer changes shape: 
3. Draw the Sequence Flow using one of the following methods:



While drawing the Sequence Flow, you can add bendpoints by right-clicking or pressing the spacebar.

- Click the source object, then position the pointer over the target of the Sequence Flow. If you are satisfied with the shape of the flow, click the Target.
- Click the source object, holding down the mouse button, drag the pointer to the target object and release the mouse button.

Selecting Objects

Select objects using one of the following methods:

- Use the **Select** tool on the palette. Hold down the **Ctrl** or **Shift** keys to select more than one object.
- Using the **Marquee** tool. This allows you to drag a rectangle around all the objects that you want to select.

Tutorial 1: Creating a Simple Process

To get started working with the Process Editor, use this tutorial to create a simple Process that represents part of the hiring process within a company. In this tutorial, we will do the following:

- [Create the Project, Package and Process](#)
- [Customize the Lane](#)
- [Add Some Objects to Your Process](#)
- [Add Flow to the Process](#)
- [Add a Gateway](#)

Task A Create the Project, Package and Process

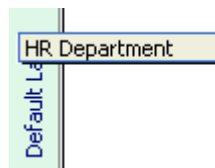
1. Make the Project Explorer active by selecting **Window > Show View > Project Explorer**.
2. If you have not already done so, [create a Project](#).
3. Next, [create a Package](#).
4. Select the Package you created, right-click and select **New Process**.
5. Click **Next** to accept the current Package and Process.
6. Enter **Hiring** for the **Name** and click **Finish**.
7. Double-click the title bar:




The Process Editor expands to fill the window. You can double-click the title bar at any point to restore it to its original size (for example, if you need to see other windows).

Task B Customize the Lane

1. Rename the lane by double-clicking **Default Lane** and entering the text **HR Department**.



2. Make the Lane larger:
 - a. Click the Lane.
 - b. Position the mouse pointer over the bottom edge. The pointer changes shape  .
 - c. Drag the lower edge of the Lane to make it larger.

Task C Add Some Objects to Your Process

1. If the Palette is not visible, expand it by clicking the **Show Palette** button to the right of the window:



2. On the Palette, click **Start Event**.
3. Press **F1**. This displays context help on Process Editor (if the Process Editor is maximized, double-click the title bar to see the help). You can get context help on specific tools in the palette by selecting them.
4. Position the mouse pointer over the white area of the Lane and click.
The Start Event (indicated by a circle) is added to your Process.
5. Double-click the Start Event and enter the text **Start**.
6. On the Palette, click **Activity**.
7. Position the mouse pointer over the white area of the Lane (following the Start Event) and click.
The Activity is added to the Process.
8. Double-click the newly-added Activity and enter the text **Receive Application**.

9. Add another Activity in the same manner, naming it **Review Application**. Your Process should now look like this:



Task D Add Flow to the Process

The Process now consists of three disconnected objects. Now we will add Sequence Flow to the Process.

1. On the Palette, click the **Flow** tool.
2. Click the Start Event (this marks the beginning of the Flow).
3. Click the **Receive Application** Activity (this marks the target of the Flow).

The Process should look like this:



4. Another way to add Sequence Flow is by dragging: click the **Receive Application** Activity, click the Flow tool and holding down the mouse button, drag the pointer to the **Review Application** Activity and release the mouse button.

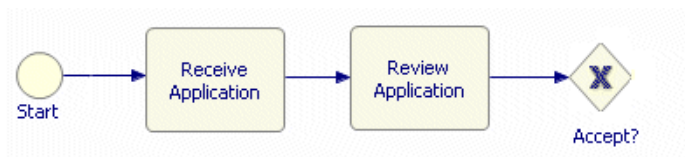


- If you have several Sequence Flows to add, hold the **Ctrl** key down while adding them to avoid having to re-select the Flow tool.
- For easier alignment of objects in the Process Editor, you can select either or both of the following options:
 - **View > Grid** - This allows you to align objects to a grid.
 - **View > Alignment Guides** - As you move objects in a Process Editor, a blue line appears when the center of two objects coincide.

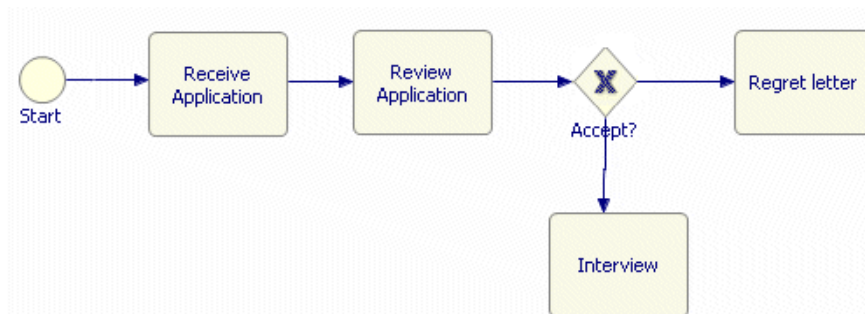
Task E Add a Gateway

1. Click the **Gateway** tool and add a Gateway after the **Review Application** step.

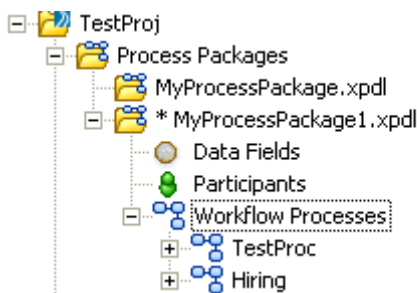
2. Double-click the Gateway and name it **Accept?**.
3. Add Flow that connects the **Review Application** Activity and the Gateway. The Process should look like this:



4. From the Gateway, add **Regret Letter** and **Interview**. Add Sequence Flow to connect these to the Gateway:



5. Double-click the title bar to see the Project Explorer. Note that at this point you have not saved the Process. This is indicated in the Project Explorer by an asterisk (*) next to the Package that contains the Process. For example:



6. Right-click the Package, select **Save** and note that the asterisk disappears.

Summary

This tutorial explored using some of the Palette tools to create a simple (although incomplete) Process. Continue with [Tutorial 2: Extending a Simple Process on page 17](#).

Tutorial 2: Extending a Simple Process

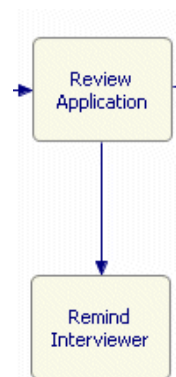
In the previous tutorial we created a simple Process that represented the beginning of a hiring process. In this tutorial, we will add to this Process, exploring some of the advanced features of the Process Editor, including:

- [Add a Timer Sequence Flow](#)
- [Add Notes and Associations](#)
- [Configure Service and User Activities](#)
- [Add an Exclusive Gateway](#)
- [Add an Activity Loop](#)
- [Add Conditional Flows](#)

These features are part of the complete set of [Business Process Modeling Notation \(BPMN\)](#).

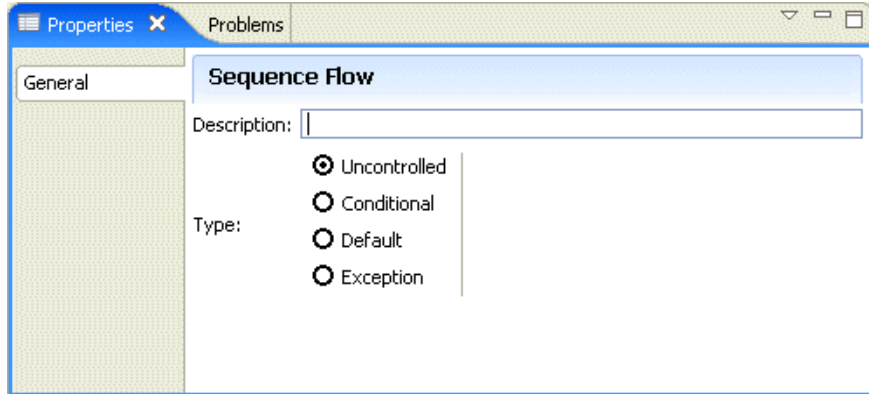
Task A Add a Timer Sequence Flow

1. Open the **Hiring** Process that you created in [Tutorial 1: Creating a Simple Process](#).
2. Add a new Activity **Remind Interviewer** from the **Review Application** Activity and connect it with a Sequence Flow:

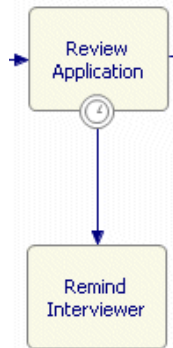


3. Right-click the Sequence Flow that you created and select **Properties View**.

- The properties of the Sequence Flow are displayed, including the **Type** of Sequence Flow:



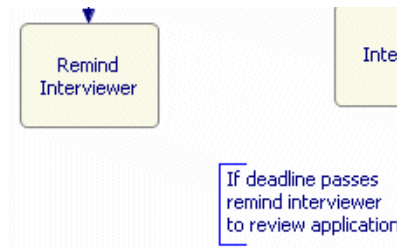
- Select **Exception** and an **Exception Type** of **Timer**. This means that this Sequence Flow is followed based on a time-based expression supplied when the Process is implemented. In this case, if a specific time limit is exceeded, the interviewer is sent a reminder to review the application.
- The Sequence Flow now looks like this:



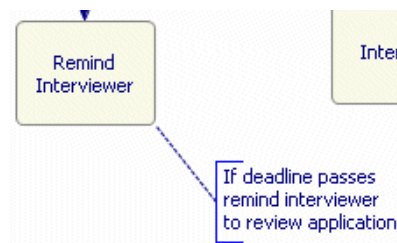
Task B Add Notes and Associations

To annotate your Process, you can add notes and associate them with an object as described in this section.

1. Click the **Note** tool and add the following note to the **Remind Interviewer** Activity. You can enter the text in the Properties view:



2. You can associate this note with the **Remind Interviewer** by selecting the **Association** tool, then clicking the note and then the **Remind interviewer** Activity:



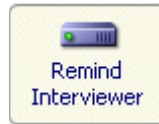
3. Add notes to the Sequence Flow coming out of the **Accept?** Gateway to indicate the Yes and No paths.

Task C Configure Service and User Activities

Some activities can be performed automatically (for example, an automated email reminder) and others must be performed by a user (such as conducting an interview). In TIBCO Business Studio, automatic activities are called "service activities" and manual activities are called "user activities."

1. Right-click the **Remind Interviewer** Activity that you created and select **Properties View**.
2. The properties of the Activity are displayed, including the **Activity Type**, which is **Task** by default.
3. Because the sending of the reminder email is an Task that could be automated, select **Service**.

- The **Remind Interviewer** Activity changes appearance to indicate that it represents a Service Task:



- Repeat this for the **Interview Activity**, but make it a User Task.

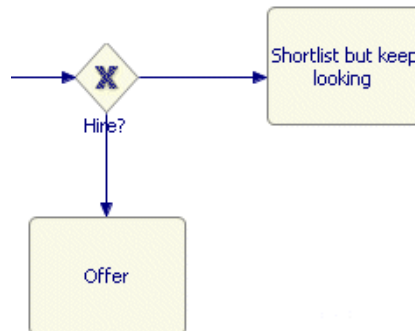


Note that you can also create a User Task by right-clicking the Activity and selecting **Task Type > User Task**.

Task D Add an Exclusive Gateway

At the end of the interview, a decision is made as to whether to hire the candidate. However, in this case it is not a simple yes-no decision. We will construct a Gateway to represent the exclusive choice of three options.

- Add a Gateway to represent the conclusion of the interview. Give it the name **Hire?** and position it to the right of the **Interview** Activity.
- Add a flow from the **Interview** Activity to the newly-added Gateway.
- Add two new Activities and flows that connect them to the Gateway as follows:



- Add a Sequence Flow from the Gateway back to the **Regret Letter** Activity. This indicates that the result of the Interview is one of the three results that flow from the **Hire?** Gateway.

Task E Add an Activity Loop

Some Activities may need to be repeated. For such Activities you can use a loop. In our example, the **Remind Interviewer** Activity may need to be repeated.

1. Right-click the **Remind Interviewer** Activity and select **Properties View**.
2. The properties of the Activity are displayed, including the **Activity Markers**.
3. Select **Loop**.
4. The Activity changes to show that it contains a loop:

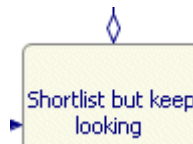


Task F Add Conditional Flows

In our example, we don't want to endlessly keep looking for candidates. If we identify a likely candidate, we need to begin the hiring process again.

Similarly if we create a shortlist, we may decide to make an offer to one of the short-listed candidates.

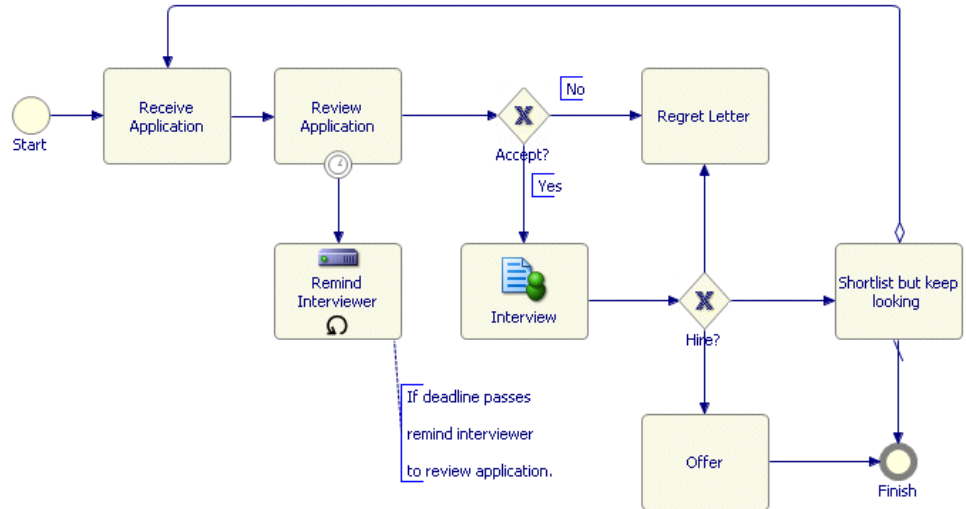
1. Add a Sequence Flow that connects the **Shortlist but keep looking** Activity back to the **Receive Application** Activity. You may need to reposition the flow to make the process diagram legible.
2. Right-click the Sequence Flow that you created and select **Properties View**.
3. The properties of the Sequence Flow are displayed, including the **Type** of Sequence Flow.
4. Select **Conditional** (this can be completed by the Implementer. A diamond is added to the source of the Sequence Flow to indicate that it is conditional:



5. In the Properties view, in the **Name** field of the Sequence Flow, enter a description of the condition. This is to help the Implementer with the technical implementation of the condition.
6. Add an End Event to the right of the **Offer** Activity, label it and connect it with a Sequence Flow.

7. Add a Sequence Flow from the **Shortlist but keep looking** Activity to the End Event.
8. Save the Process.

The process diagram that you created should look similar to this:



Summary

In this tutorial we explored some of the advanced features of the Process Editor, including features that form the complete set of BPMN. Although this is a reasonable approximation of the hiring process, it could be extended further. For example after making an offer there could be another process that starts. Also the interview Activity could be broken down into further steps that could be represented as a Sub-Process.

Tutorial 3 - Deploying to the TIBCO iProcess Modeler

This tutorial shows how to take the Process defined in the previous tutorial and deploy it to the TIBCO iProcess Modeler.

In the previous tutorials, we created a Process that approximated a hiring process in an organization. Because we did not specify a destination environment when we created the Process, only basic BPMN validation was performed when we saved it. If we want to deploy this Process to the TIBCO iProcess Modeler, we need do the following:

- [Set the Destination Environment and Correct Validation Errors](#)
- [Export the Process from TIBCO Business Studio](#)
- [Import the Process into the TIBCO iProcess Modeler](#)

Task A Set the Destination Environment and Correct Validation Errors

1. Go to the [Properties View](#) for the Hiring Process and click the Advanced tab.
2. Select the **TIBCO iProcess Modeler** as the **Destination Environment**. The Hiring Process is validated for potential import into the TIBCO iProcess Modeler. Note that a red "x" appears in the Project Explorer. This is because the Process cannot be imported into the TIBCO iProcess Modeler in its current state.
3. Several errors are reported in the [Problems View](#).
4. From the Problems view, correct the errors and warnings as follows:
 - Several errors are generated because the Process cannot have Default or Conditional Sequence Flows on Activities (they must flow from a Gateway). Change the Sequence Flows from the **Shortlist but keep looking** Activities to **Uncontrolled**.
 - Several warnings are generated because the Activities must be either User, Service or Sub-Processes. Right-click each error and select **Quick Fix** to change the each of these Activities.
5. Save the Package and check to Problems view to ensure that all the validation errors have been corrected.

Task B Export the Process from TIBCO Business Studio

Export the Process and its containing Package as follows:

1. Select the Package that contains the **Hiring** Process.

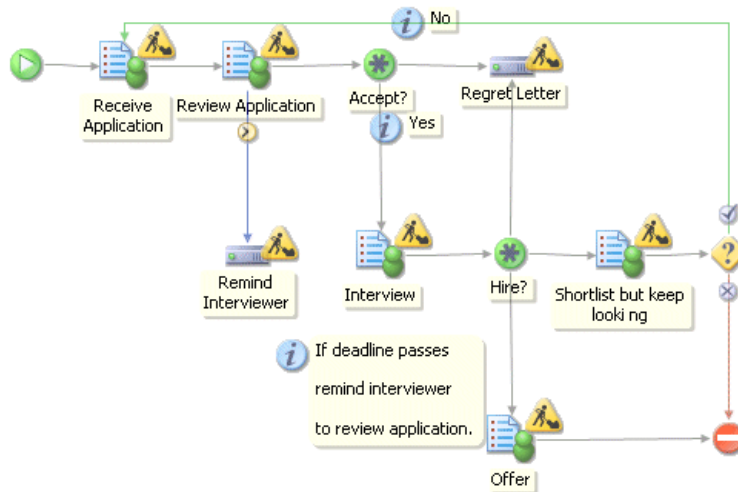
2. Select **File > Export**. The **Export** dialog is displayed.
3. Select **TIBCO iProcess Modeler XPDL** and click **Finish**.
4. The exported Process appears in the Project Explorer under **Exports > iProcess Modeler XPDL** and in the file system in your workspace in the `\projectname\Exports\iProcess Modeler XPDL` directory.

Task C Import the Process into the TIBCO iProcess Modeler

Import your TIBCO Business Studio Process as you would any other Process (see the *TIBCO iProcess Modeler: Procedure Management Guide* for more information). See [Object Mappings - TIBCO iProcess Modeler on page 78](#) for information about how TIBCO Business Studio objects are mapped into TIBCO iProcess objects.

Open the Process in the TIBCO iProcess Modeler and complete its detailed implementation. Then execute and test the Process.

1. Start the TIBCO iProcess Client.
2. In the Procedure Manager, select the Library into which you want to import the Process.
3. Select **Procedure Management > Load From** and browse for the .xpdl file of the Package that contains the Hiring Process. Click OK.
4. Information about the Package and Procedures is displayed. Click **Load**.
5. The imported Procedure looks like this:



Creating Data Fields

Data Fields identify the inputs and outputs of an Activity. For example, an Activity called "Process Student Course Request" could require a form with the list of courses the student wants to take as input. The availability is checked and a form that lists the courses they are enrolled in is output.

To create a new Data Field, do the following:

1. In the Project Explorer, expand the Package where you want to add a Data Field.
2. Right-click **Data Fields** and select **New Data Field**. The **New Data Field** dialog is displayed.
3. The dialog displays the name of the **Project** and **Package** where the Data Field will be created. If you want to change either, click the **Project** or **Package** button to browse.

Data Fields can be created at either the Package level or at the Process level. Creating them at the Package level enables them to be shared amongst Processes. Select the **Process** check box and specify a Process if you want to create the Data Field at the Process level.

Click **Next**.

4. Specify the **Name**, **Type**, and **Initial Value** of the Data Field and click **Finish**.
The Data Field that you created appears in the Project Explorer.

Associating Data Fields with Activities

By associating a Data Field with an Activity you can identify the inputs and outputs of the Activity.

To associate a Data Field with an Activity do the following:

1. In the Process Editor, highlight the desired Activity.
2. In the Properties view, click the **Parameters** tab.
3. Click **Add...** to browse for the desired Data Field(s). To select more than one Data Field, use either the **Ctrl** key (to select several individual Data Fields) or the **Shift** key (to select a range of Data Fields).
4. Click **OK**.
5. The Data Field you selected is displayed in the Properties view.

Creating Participants

Participants are used to identify who or what performs an Activity.

To create a new Participant, do the following:

1. In the Project Explorer, expand the Package where you want to add a Participant.
2. Right-click **Participants** and select **New Participant**. The **New Participant** dialog is displayed.
3. The dialog displays the name of the **Project** and **Package** where the Participant will be created. If you want to change either, click the **Project** or **Package** button.

Participants can be created at either the Package level or at the Process level. Creating them at the Package level enables them to be shared amongst Processes. Select the **Process** check box and specify a Process if you want to create the Data Field at the Process level.

Click **Next**.

4. Specify the **Name** and **Type** (see [Participants on page 38](#)) of the Participant and click **Finish**.

The Participant that you created appears in the Project Explorer.

Associating Participants with Activities

By associating a Participant with an Activity you can identify who or what performs the Activity.

To associate a Participant with an Activity do the following:

1. In the Process Editor, highlight the desired Activity.
2. Either:
 - In the Properties view, browse for the desired Participant and click **OK**.
 - Right-click the Activity, select **Participant**, browse for the Participant and click **OK**.
3. The Participant you selected is displayed in the Properties view and also when you hover the pointer over the Activity in the Process Editor.

Chapter 2 **Concepts and Definitions**

This section of the help defines concepts and terminology related to TIBCO Business Studio.

Standards Support

TIBCO Business Studio supports several industry standards, namely [Business Process Modeling Notation \(BPMN\)](#) and [XML Process Definition Language \(XPDL\)](#).

Business Process Modeling Notation (BPMN)

BPMN is a graphical notation developed by the Business Process Management Initiative (BPMI) for representing the steps and flow of business procedures. The TIBCO Business Studio [Process Editor](#) supports the core set of this notation and the [Properties View](#) supports the complete set.

For more information, see <http://www.bpmn.org>.

XML Process Definition Language (XPDL)

XPDL is used to represent the underlying structure of a business process to TIBCO Business Studio. Packages are stored in XPDL format. Normally, you do not use XPDL directly, but indirectly by creating a business process using the [Process Editor](#) or by creating a Package.

Process Components

Process components represent reusable building blocks that encapsulate the management of a particular item in a business process. The process components form a reusable library that you can call upon in different contexts. For example, you might have an item to "verify the caller's address/contact details" in the business process for taking out an insurance policy. This could be implemented as a Sub-Process and this particular Process Component could also be used in the context of renewing an insurance policy.

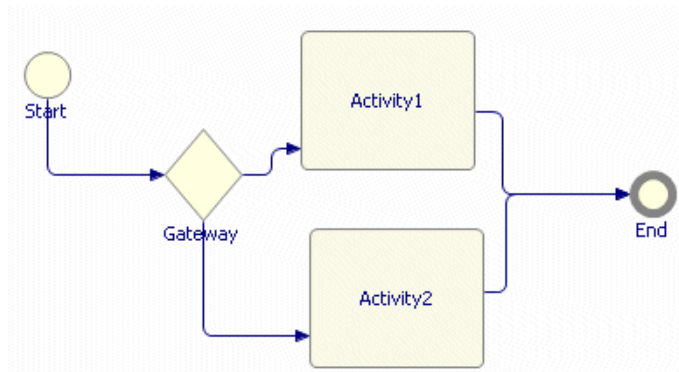
Flow Objects

Flow Objects are the main category of BPMN objects used to define the business process. They include:

- [Activities](#)
- [Events](#)
- [Gateways](#)

Example

The following process contains a Start Event, a Gateway, two Activities and an End Event:



Activities

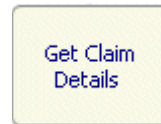
An **Activity** represents work that a company or organization performs using business processes. An Activity can be atomic (it is not broken down into a finer level of detail) or non-atomic. Atomic Activities are represented in the Process Editor by [Tasks](#). For more information, see <http://www.bpmn.org>.

When creating the TIBCO Business Studio Process, each time a different person, group, role, or system does something, an Activity is added to the Process.

Activities may be triggered by events such as the receipt of an email, phone call or workflow item, and may involve making a judgement on the presented facts and performing an action (such as entering data to a computer system, phoning someone in the same or different organization, and so on).

Tasks

A Task in a process diagram represents an atomic Activity (one that cannot be further broken down). It looks like this in the Process Editor:

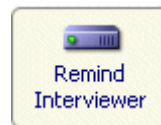


If the Activities can be broken down into finer steps, they should be represented as [Sub-Processes](#).

User Tasks are those that require human interaction. A User Task in TIBCO Business Studio looks like this:



Service Tasks can ideally complete without human interaction (for example, an automatic email notification). A Service Task in TIBCO Business Studio looks like this:



The Activity Type and Task Type are set in the **Properties** view. [Activity Markers](#) are also set in the **Properties** view and are indicated by symbols within the Task.

Sub-Processes





Some Activities can contain further steps, or Sub-Processes. Activities that contain a Sub-Process look like this in a Process Editor:



For more information about how Processes can be reused, see [Re-using Processes on page 54](#).

Activity Markers

Activity Markers indicate parts of the BPMN complete set that you can select on the Properties of the Activity. The currently selected Activity Marker is indicated by the following symbols on the Activity:

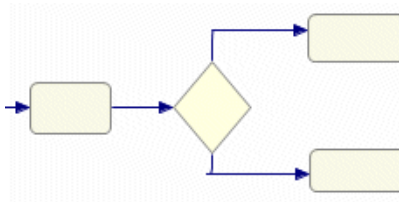
- **Multiple**  - Indicates a Task or Sub-Process that is replicated a fixed number of times.
- **Loop**  - Indicates a Task or Sub-Process that may have more than one instance, depending on the conditions of the Loop. When the condition is placed before the Activity, the Loop is in effect a While loop; after the Activity it functions like an Until loop.
- **Compensation**  - occurs outside the Normal Flow of the Process and is event-based.
- **Ad-hoc**  - These Activities occur when needed.

Events

An Event in a process is something that happens, for example the start of the Process.

Gateways

Gateways are a control mechanism for the Sequence Flow in the process. They are represented by a diamond:



Although the Gateway resembles a decision box in a flow chart, Gateways are used for branching, merging, forking and joining as well as for conditional decisions.

As shown on the Properties view of a Gateway, these are the different types of Gateway that you can create:

Exclusive (XOR)

In an Exclusive Gateway, there are several paths through which the Process can continue, but only one is actually chosen when the Process is run. There are two types of Exclusive Gateway:

- Exclusive (Data Based) - The Sequence Flow is chosen based on an expression using data from the Process. This type of Gateway is indicated in the Process as follows:



- Exclusive (Event Based) - The Sequence Flow is chosen based upon an external event (for example, a JMS message).

Inclusive (OR)

In an Inclusive Gateway used as a fork, each output Sequence Flow is independently evaluated according to an expression. This means that anywhere from zero to the maximum output Sequence Flows can be taken. In practice, you should either provide a default Sequence Flow or ensure that at least one Sequence Flow evaluates to True.

When used as a Merge, any upstream Sequence Flows are synchronized, but the Gateway does not wait for all Sequence Flows.

Complex

A Complex Gateway is used to fork or merge depending on how an expression evaluates. When used as a Decision, the expression determines which of the outgoing Sequence Flow are chosen for the Process to continue.

When used as a Merge, the expression determines which of the incoming Sequence Flows is required for the Process to continue.

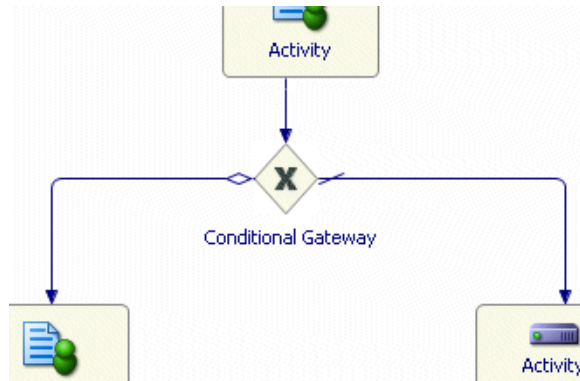
Parallel (AND)

A Parallel Gateway is used to fork or merge several parallel paths (synchronization). When several Sequence Flows enter a parallel gateway, the process flow waits until all arrive at the gateway before continuing. This type of gateway is indicated in the Process as follows:



Example

The following shows a typical Conditional Gateway:



There is one uncontrolled input Sequence Flow to the Gateway, and conditional and default output Sequence Flows. This example is compatible for export to the TIBCO iProcess Modeler (see [Import the Process into the TIBCO iProcess Client on page 62](#)).

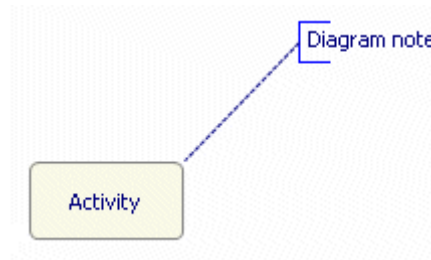
Connecting Objects

You can create a relationship between Flow Objects or between Flow Objects and other information using the following Connecting Objects:

- [Associations](#)
- [Sequence Flows](#)

Associations






An Association is a connection from a Note to a Flow Object (for example, an Activity) used to make a Process more readable:



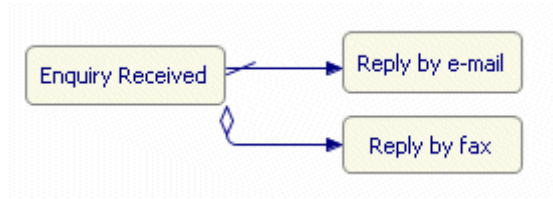
Associations are not preserved during export to the TIBCO iProcess Modeler.

Sequence Flows

Sequence Flows indicate the order in which Activities will be performed. You can set up Sequence Flows between [Flow Objects](#). When you create a Sequence Flow, you can highlight it, right-click and select one of the following types of Sequence Flow:

-  Default Flow - Shows the default flow from a Gateway or Activity.
-  Conditional Flow - Shows a flow that is only followed if the associated condition is met.
-  Uncontrolled Flow - Indicates a flow that does not have a condition associated with it (the default).
- Exception Flow - Can be either a standard Exception Flow  or a Timer Flow .

Example



In this example, an enquiry is responded to either by email (the default), or depending on a condition, by fax.

Project Objects

Before you can create business processes, you must create a [Project](#) and a [Package](#).

Project

Projects help to facilitate sharing and organization of resources. Each Project has a corresponding directory in the file system (specified when you create the Project).

Package

A **Package** consists of one or more **Business Processes**. The Package and any Processes stored in it are saved in **.xpdI** format. You can Export a package and its Processes and then import them into the TIBCO iProcess Modeler for implementation.

Process

TIBCO Business Studio allows you to create a Process that models actual and future business processes in your organization. Each Process contains one or more [Activities](#), which are linked together via Sequence Flows.

Data Fields

Data Fields are used to represent the data that is used internally in a Process as either input to or output from an Activity. For example, suppose an Activity is to identify a list of suitable candidates for an available position. You can create Data Fields to represent the pool of candidates going into the Activity and the suitable candidates that have been identified.

There are several types of Data Field:

- **String** - string value
- **Float** - decimal number
- **Integer** - integer value
- **Datetime** - combination of date/time
- **Boolean** - true or false

Parameters

Parameters are similar to Data Field but are either input to or output from an external source. For example, during simulation Parameters are either created by TIBCO Business Studio or imported from a file. Parameters can be any of the following types:

- **String** - string value
- **Float** - decimal number
- **Integer** - integer value
- **Datetime** - combination of date/time
- **Boolean** - true or false

Participants

Participants are used to identify who or what performs an Activity. For example, in a hiring process, a person (Human Participant) interviews the candidate and an email system (System Participant) sends out an automatic follow-up reminder. There are several types of Participant:

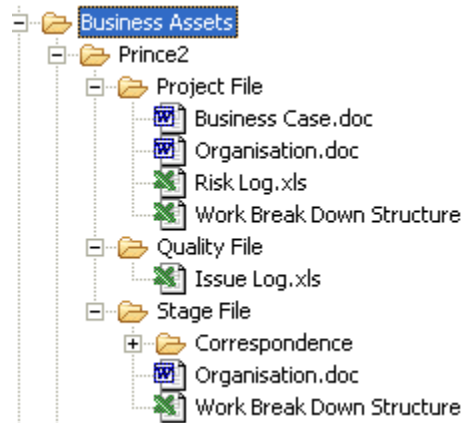
- **Role** - identifies the role responsible for performing an Activity. For example, in a financial institution there may be roles such as Reconciler, Manager, and so on.
- **Organizational Unit** - identifies the department or unit within an organization that performs an Activity. For example, Legal, Marketing and so on.
- **Human** - identifies a specific person or user that performs an Activity.
- **System** - identifies an activity that is performed by the system.

Business Assets

Business Assets include any documents, spreadsheets, and so on that are relevant to the project.

Prince2 Assets

TIBCO Business Studio provides Assets to support Prince2 project management methodology. To add these to your Project, expand the Project, right-click **Business Assets** and select **Create Prince2 Template**. For example:



You can add a new Stage File by right-clicking **Business Assets > Prince2** and selecting **New Stage File**.

Ad-hoc Assets

Ad-hoc Assets include Microsoft Office documents and image files not recognized as Project Management Assets. You can add Business Assets by right-clicking and selecting **New > Folder** or **New > File**, and selecting the appropriate **Parent Folder**.

To view the folder or files you have created, go to the Navigator view. In the Navigator view, you can also drag files and folders to different locations.

Swimlanes

Swimlanes consist of [Lanes](#) and [Pools](#).



Currently only one Pool per Process is supported. Sequence Flow can cross the boundaries of Lanes.

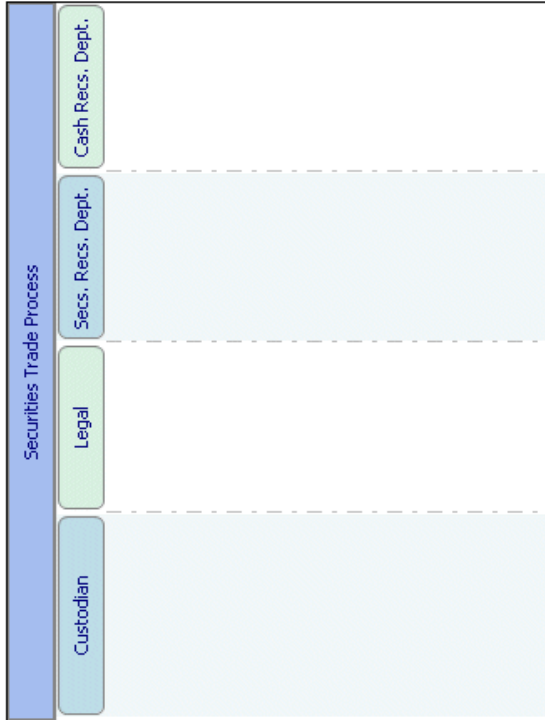
Lanes

A Lane is a subdivision of a Pool that is used as a container for partitioning Processes. How you use Lanes is specific to your business. A Lane can be **Normal** or **Closed**. The contents of a Normal Lane are visible. The contents of a Closed Lane are not visible and are used for "black-box" Processes where you do not know the details of the contained Processes.

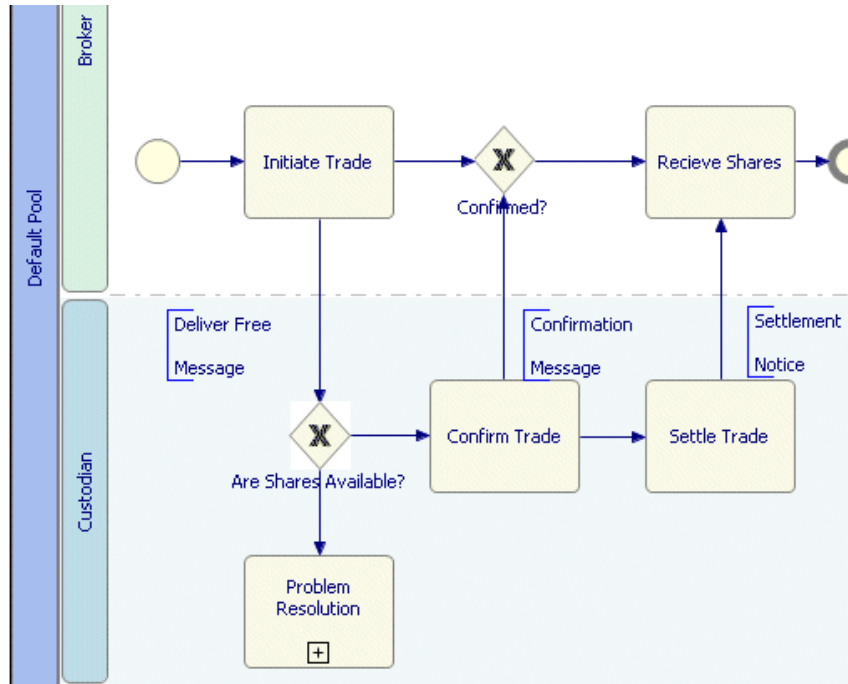
Important If you delete a Lane in **TIBCO Business Studio**, all the objects in that Lane are also deleted.

Examples

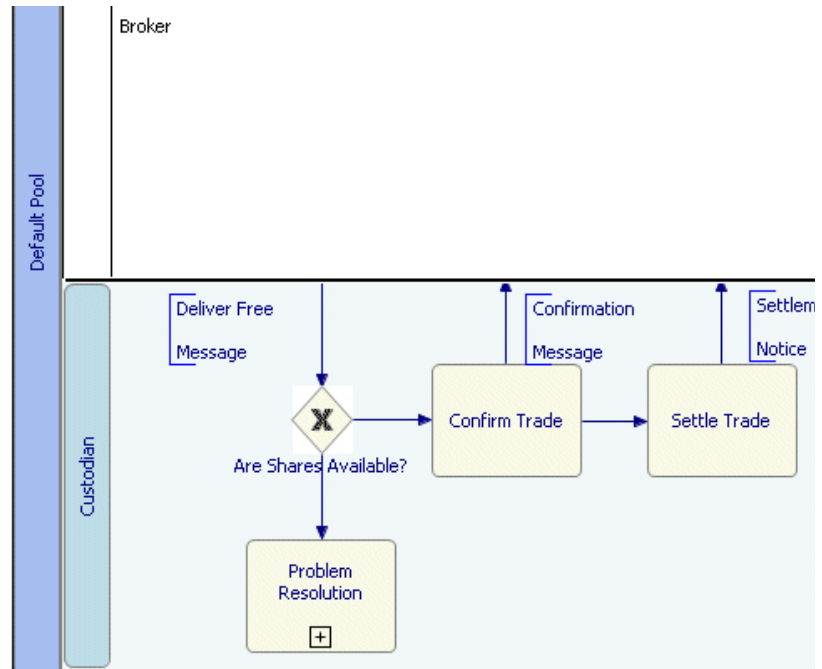
Suppose the back office of a financial institution has a Process in which the Securities Reconciliations Department, the Cash Reconciliations Department, the Legal Department and a custodian are all involved. When defining this process, they can be represented by lanes within the pool:



Sequence Flow can connect objects in different Lanes:



The previous example shows a securities trade between a Broker and a Custodian. The same trade could be represented as follows:



This shows the Custodian Lane in a Normal state and the Broker Lane in a Closed state. The trade might be represented this way because it is documenting the Custodian's part in the trade and the Custodian has no knowledge of the internal processes of the Broker.

Pools

A Pool is used as a container for partitioning Processes in ways that make sense for your business. They are used in conjunction with Lanes.



Currently only one Pool per Process is supported.

Chapter 3

Tasks

This section of the help describes some of the common tasks that you perform using TIBCO Business Studio, including:

- [Migrating Processes Created in Previous Versions](#)
- [Creating Business Processes](#)
- [Re-using Processes](#)
- [Source Controlling Processes](#)
- [Integrating with the TIBCO Staffware Process Suite](#)
- [Integrating with Aris Software](#)
- [Exporting Procedure Documentation](#)

Migrating Processes Created in Previous Versions

Processes created in previous version of TIBCO Business Studio must be migrated to the current version before they can be opened. To migrate a Process, select it, right-click and select **Migrate to Latest Version**.

Creating Business Processes

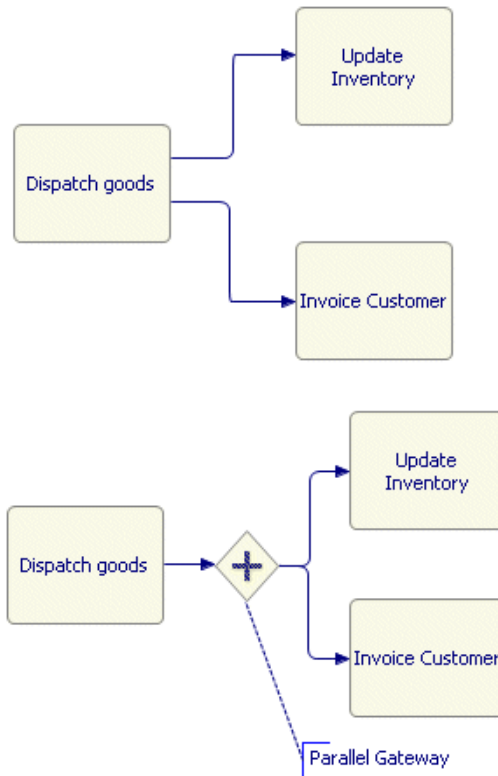
This section describes some typical workflow patterns¹ and how you can implement them in a TIBCO Business Studio Process.

Forking

It is likely that when creating your Process you want an Activity to lead to two or more other Activities to be performed in parallel (concurrently). For example, when a customer order is dispatched, the inventory is updated and an invoice sent to the customer.

1. Barros, Kiepuszewski, ter Hofstede, van der Aalst
(<http://is.tm.tue.nl/research/patterns/>)

BPMN uses the term “fork” to refer to the dividing of a path into two or more parallel paths. In TIBCO Business Studio, there are two ways to create a fork in the Process, either with two outgoing, uncontrolled Sequence Flows from an Activity or with a Parallel Gateway:



You specify that a Gateway is Parallel by selecting the **Gateway Type** on the Properties view.

These two methods of forking achieve the same result.

Combining Sequence Flow

There are several ways to combine Sequence Flows:

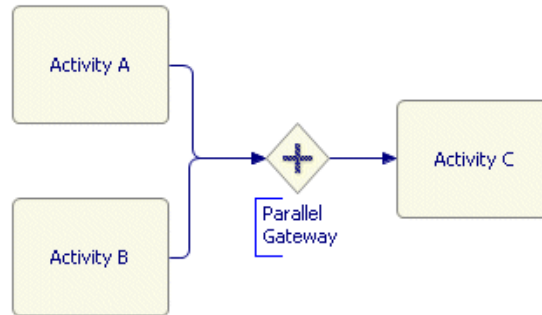
- [Joining](#)
- [Merging](#)

If the flow should take one or more different paths, [Decisions](#) might be required.

Joining

Joining represents the merging or synchronizing of two or more parallel paths in the Process. Use a join for example, if Activity A and B must be completed before Activity C can begin.

This is achieved in TIBCO Business Studio by using a Parallel Gateway as follows:



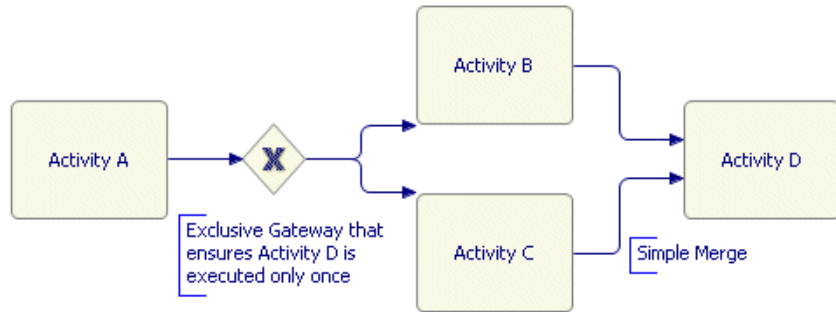
You specify that a Gateway is Parallel by selecting the **Gateway Type** on the Properties view.

Merging

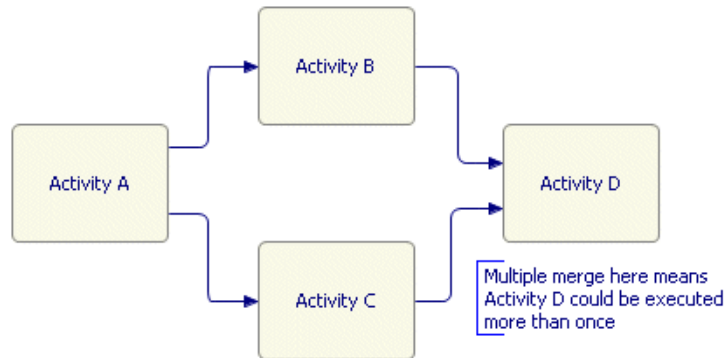
There are three types of Merge:

- **Simple Merge** - alternative paths are combined, but only one of the input Sequence Flows is possible at runtime, so the target Activity is performed only once.
- **Multiple Merge** - multiple Sequence Flows are combined, but without any control on the input to the target Activity (as a result, the target Activity could be performed more than once).
- **Complex Merge** - multiple Sequence Flows merge at a Complex Gateway. You specify a condition in the Gateway that controls which or how many Flows proceed through the Gateway.

A Simple Merge is accomplished in TIBCO Business Studio like this:

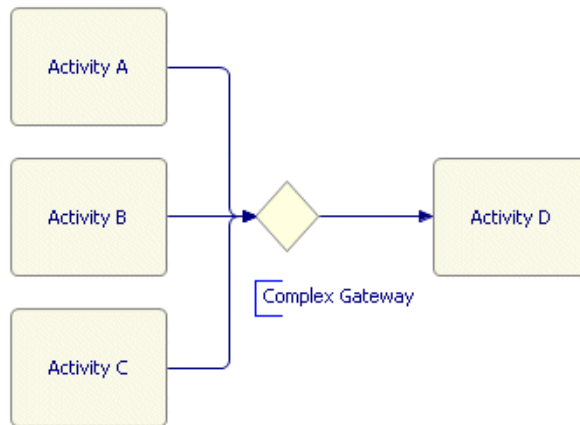


A Multiple Merge looks like this:



The key difference between these two types of merge is that a Simple Merge has flow control upstream in the Process, so the target Activity (Activity D) is executed only once. With a Multiple Merge, however, there is no flow control upstream and the target Activity may be executed more than once.

A Complex Merge looks like this:



The condition associated with the Complex Gateway specifies what is required to pass the Gateway. For example, it could specify that any two of Activities A, B or C must be completed before proceeding with Activity D. Another alternative would be for Activity A and either Activity B or C to complete before Activity D can begin.

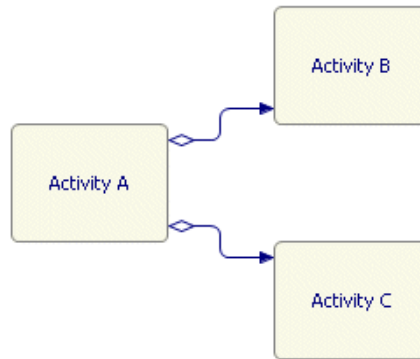
Decisions

Decisions points in the Process are achieved with Gateways. There are several types of decisions:

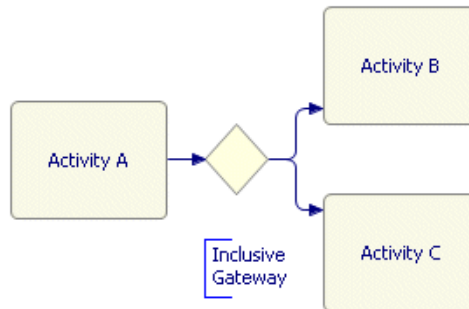
- [Multiple Choice](#)
- [Exclusive Choice](#)

Multiple Choice

There are two ways to provide for a multiple choice type decision, either with conditional Sequence Flows, or with an Inclusive Gateway:



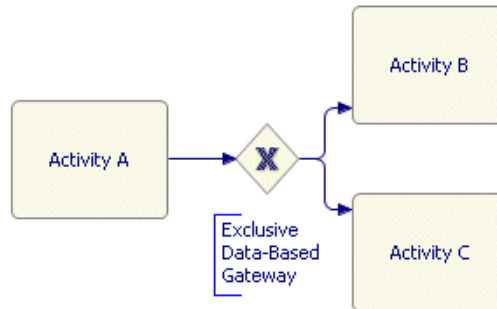
In the previous example, the conditions on the Sequence Flows determine whether Activity B, C or both are chosen.



When an Inclusive Gateway is used, Boolean conditions on the outgoing Sequence Flows determine which Activity is chosen.

Exclusive Choice

An exclusive choice is represented by using an Exclusive Data-Based Gateway:



In this example, either Activity B or C is chosen, depending on a Boolean condition associated with each outgoing Sequence Flow.

Re-using Processes

When identifying the [Process Components](#) you require for your business process, it is important to analyze the entire business. One way to do this is by thinking in terms of the products, services and resources (by considering the specifications for each).

To facilitate the re-use of Process Components, an Activity (or several Activities) can call another Process that you have already defined. A Process that is called by another Process is called a Sub-Process. If the main Process is imported into the TIBCO iProcess Modeler, any Sub-Processes are imported as sub-procedures.

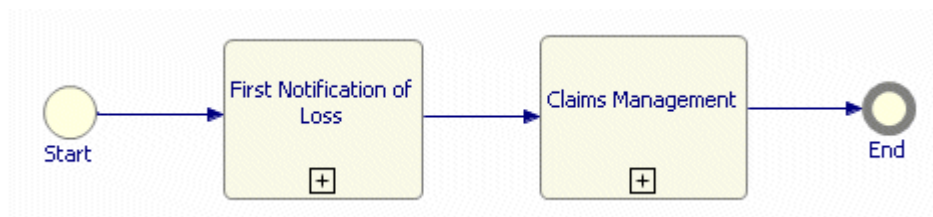
Calling a Sub-Process

To call a Sub-Process, do the following:

1. In the Process Editor, click the Activity from which you want to call a Sub-Process.
2. In the [Properties View](#), select **Sub-Process** for the **Activity Type**.
3. Browse for the location and name of the Process you want to call as a Sub-Process.

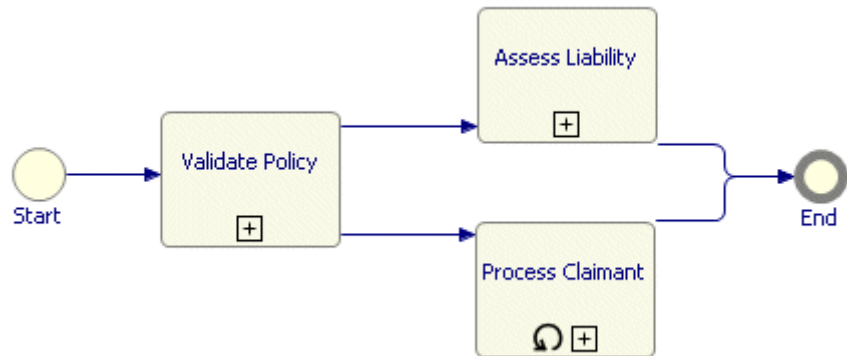
Example

The following example demonstrates how Sub-Processes are used in an insurance environment:



This is the top-level Process. Because of its **Destination Environment** setting, this Process is not executed in the TIBCO iProcess Engine. The **Destination Environment** is set when [Creating a Process](#) or in the Properties view of the Process.

Each of the Activities in the Process call Sub-Processes that are executed in the TIBCO iProcess Engine (its **Destination Environment**). For example, the Sub-Process called from the Claims Management Activity could look like this:



This Sub-Process is executed in the TIBCO iProcess Engine, and calls other Sub-Processes. Note the following about this Sub-Process:

- The Validate Policy Sub-Process can be re-used. For example, when a customer calls to renew their policy, the first step of the Renewal Process could be to confirm that they have an existing policy. The Validate Policy Activity could be re-used for this purpose in the Renewal Process.
- The Process Claimant Activity has a **Loop** Activity Marker, that indicates that the Activity is repeated for each Claimant.
- The *actual* Sub-Process called by the Assess Liability Activity is a manual Process. However, the *to be* Sub-Process (planned for the future), could be implemented as an automatic Process that consists of a series of questions used to determine liability. Simulation could be used to demonstrate the performance and cost-savings of migrating the Assess Liability Activity to an automatic Process.

Expanding a Sub-Process

An Activity that calls a Sub-Process looks like this:



To expand the Sub-Process associated with this Activity, do the following:

1. In the Process Editor, select the Activity that calls the Sub-Process.
2. In the Properties view, select the General tab.
3. Click **Open Sub-Process**:

Invocation of Sub-Process: ([Open Sub-Process](#))

Sub-Process location:

Sub-Process name:

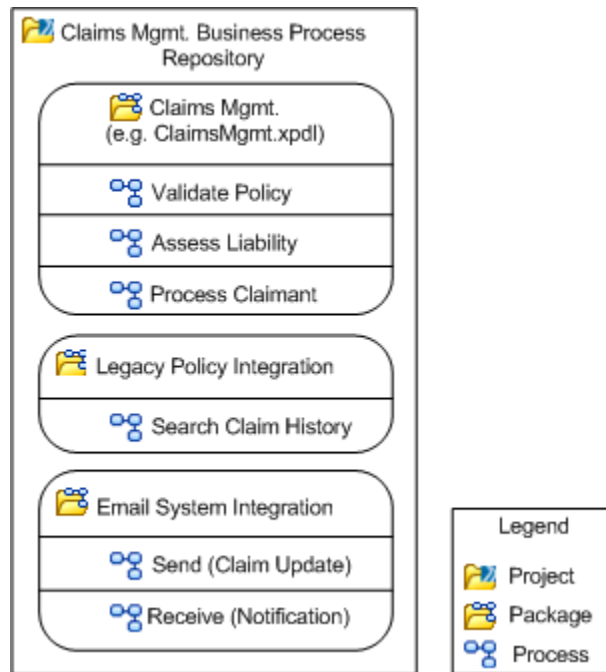
4. The Sub-Process opens in the Process Editor.

How Projects, Packages and Processes Support Reuse

- **Project** - The container for all project life cycle artifacts.
- **Packages** - A mandatory container for Processes and their infrastructure (**Participants** and **Data Fields**). Can be organized along project or departmental lines, depending on business requirements.
- **Processes** - model actual and future business processes in your organization. Processes can be shared between Packages so libraries of process components can be created and reused.

Example

The following example shows a Project and the associated Packages and Processes used in an insurance environment.



In this example, the Validate Policy Process might call a Sub-Process in another Package (for example, the Search Claim History Process). This Sub-Process is in the same Project in this example, but it could be located in a different Project.

Importing a TIBCO Business Studio/TIBCO iProcess Modeler Package

Processes and the Packages that contain them are stored in **.xpdl** format. The easiest way to import a Process and the Package that contains it is by dragging the **.xpdl** file of the package onto the desired location in the [Navigator View](#).

Alternatively, you can do the following:

1. Select **File > Import**.
2. In the **Import** dialog, select either
 - **TIBCO Business Studio XPDL Package** or
 - **TIBCO iProcess Modeler XPDL Package**
 and click **Next**.
3. Depending on which option you selected in the previous dialog, enter the following:

TIBCO Business Studio - Click **Browse** to select the Extensible Stylesheet Language file to be used for the import and click **Finish**.

TIBCO iProcess Modeler - Do the following:

- a. Click **Browse** to select the **From Directory** where the XPDL file you want to import is located.
 - b. Click **Browse** to select the **Into** folder where you want the imported package to be placed.
 - c. Select **Overwrite existing resources without warning** if you want to automatically overwrite any existing Packages or Processes with the same name.
 - d. Click **Finish**.
4. The Package/Processes that you have imported are shown in the Project Explorer.

Source Controlling Processes

One problem that occurs when dealing with Processes across their normal lifecycle (from creation, testing, rollout to maintenance) is how to know that a given Process created by the Analyst, elaborated by the Implementer and signed off by the process owner is exactly the one that is in use in a given environment (for example, a development, user-acceptance or production environment).

Particularly in large/complex projects where data is shared or modified by several people, a source control system becomes necessary. Most enterprises have one or more products for source configuration management (SCM). This may be a commercial product such as Perforce, Rational's Clearcase or an open source solution such as:

- Concurrent Versions System (CVS) (<http://www.nongnu.org/cvs/>) or
- Subversion (<http://subclipse.tigris.org/>).

TIBCO does not provide its own SCM product, preferring to integrate with the Enterprise's choice for SCM. The Eclipse feature for integrating with such an SCM product is known as the Team Synchronization (see the [Eclipse help](#)). Since Eclipse provides CVS by default, the following section describes how to use Subversion; you should contact your SCM vendor for commercial plug-ins.

Using Subversion with TIBCO Business Studio

This section describes how to use the Eclipse software update mechanism to install Subclipse and use it for source control. Subclipse is an Eclipse plug-in that adds Subversion integration to the Eclipse environment.



This section assumes that you or your Subversion administrator have installed an SVN server (see <http://subclipse.tigris.org/>).

1. Select **Help > Software Updates > Find and Install**.
2. Select **Search for new features to install** and click **Next**.
3. Click **New Remote Site**, add the Subclipse update URL (currently **http://subclipse.tigris.org/update_1.0.x**) and click **OK**.
4. Click **Finish**. Eclipse searches for updates.
5. Follow the installation prompts to install Subclipse. Complete instructions are available at <http://subclipse.tigris.org/install.html>.

6. Right-click an existing project that contains items you wish to source control. Select **Team > Share Project**. Obtain the URL for the Repository Location from your Subversion administrator.

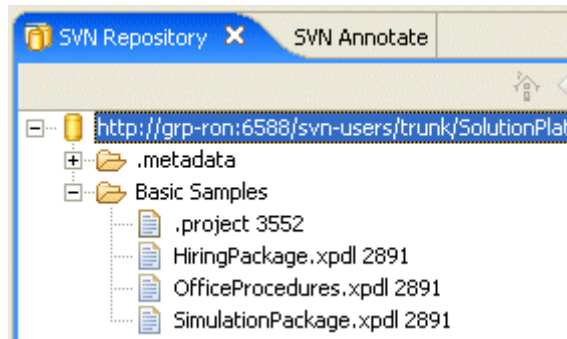
Creating a Project from an Existing Project in Source Control

1. Select **File > Import**. The Import wizard is displayed.
2. Select **Checkout projects from SVN** and click **Next**.
3. Set up the repository with the assistance of your Subversion administrator, (this should point to the parent directory to the one containing the Project folder) and click **Next**.
4. Select the Project folder and click **Next**.
5. Select the method for checking out the Project and click **Next**.
6. Either use the default workspace or click **Browse** to check out the Project elsewhere.
7. Click **Finish**. The Project is checked out to your workspace.

Browsing SVN Repositories

You can browse SVN repositories as follows:

1. Select **Window > Open Perspective > Other**.
2. Select **SVN Repository Exploring**.
3. This opens a perspective from which you can browse SVN repositories. For example:



Integrating with the TIBCO Staffware Process Suite

If after modeling your business process, you plan to execute it in the TIBCO iProcess Engine, you must perform the following steps:

- [Correct any Validation Errors](#)
- [Export the Process from TIBCO Business Studio](#)
- [Import the Process into the TIBCO iProcess Client](#)

Task A Correct any Validation Errors

1. Go to the [Properties View](#) for the Process and click the Advanced tab.
2. Select the **TIBCO iProcess Modeler** as the **Destination Environment**.
3. Save the Package you want to export.

The Process is validated for potential import into the TIBCO iProcess Modeler and any errors are reported in the [Problems View](#). For more information about the validation that is performed, see [Process Validation on page 77](#).

To correct a problem do one of the following:

- Right-click the problem and select **Quick Fix** (if enabled for the current problem). This gives you the option of having TIBCO Business Studio automatically correct the problem for you.
- Right-click the problem and select **Show in Process Editor**. This displays the Process in the Process Editor, allowing you to manually correct the problem.

Task B Export the Process from TIBCO Business Studio

TIBCO Business Studio can export Packages/Processes in XPDL format which can be read by the TIBCO iProcess Modeler.

To export a Process, do the following:

1. Select the Packages you want to export.
2. Select **File > Export**. The **Export** dialog is displayed.
3. Select **TIBCO iProcess Modeler XPDL** and click **Next**.
4. Change your package selection if required.

5. Select a destination for the export by either:
 - Selecting **Project** (to put the export in the **Exports\iProcess Modeler XPDL** sub-directory within your Project directory), or
 - Selecting **Path:** and clicking **Browse...** to specify a directory for the export.
6. Click **Finish**.

Task C Import the Process into the TIBCO iProcess Client

Import your TIBCO Business Studio Process as you would any other Process (see the *TIBCO iProcess Modeler: Procedure Management Guide* for more information). See [Object Mappings - TIBCO iProcess Modeler on page 78](#) for information about how the TIBCO Business Studio objects are mapped into TIBCO iProcess objects.

Open the Process in the TIBCO iProcess Modeler and complete its detailed implementation. Then execute and test the Process.

Integrating with Aris Software

You can import processes created with Aris 6.2 software into TIBCO Business Studio. First, you must use the XML Export Wizard in Aris 6.2 to create an XML file. Then use the Import Wizard in TIBCO Business Studio to import the XML into TIBCO Business Studio.



- Only eEPC (Extended event-driven process chain) type processes created using the Aris Toolset, Aris 6.2 can be imported.
- Regardless of whether you have selected processes from several different groups in Aris, they are imported under one Package in TIBCO Business Studio.

For more information, see [Object Mappings - Aris Software on page 83](#).

Exporting from Aris

To export the Aris data, do the following:

1. Log in to the Aris database that contains the data you want to export.
2. Highlight the group or Business Processes that you want to export.
3. Right-click and select **Export/Import > XML Export**. The **Select Attribute Language** dialog is displayed.
4. Select the language and click **Next**. The **Select Export File** dialog is displayed.
5. Browse for the location for the Export.
6. Click **Finish** to complete the export.

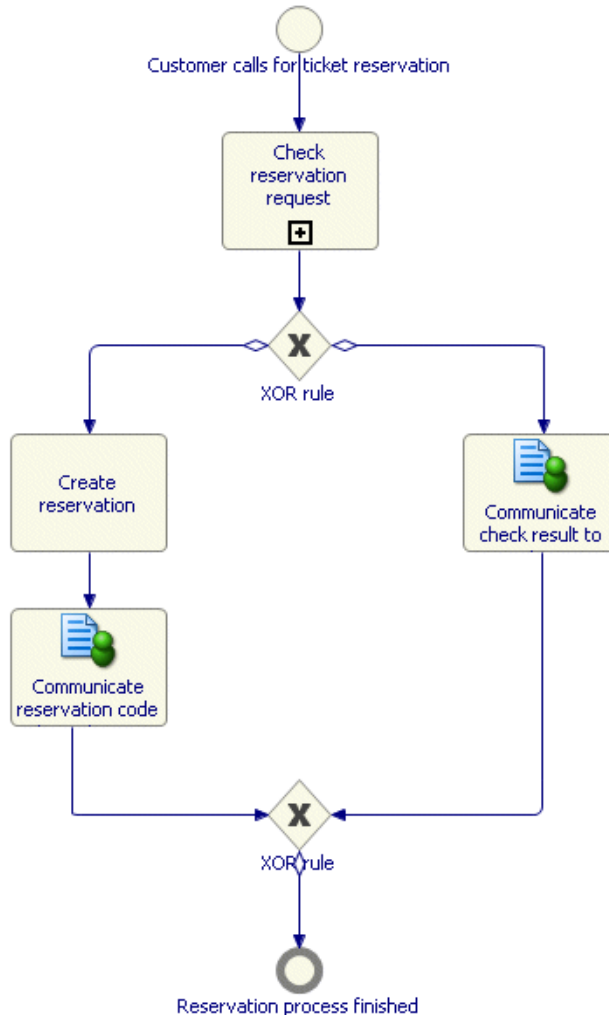
Importing Aris into TIBCO Business Studio

To import an Aris XML file into TIBCO Business Studio, do the following:

1. Select **File > Import**. The Import Wizard is displayed.
2. Select **ARIS XML** and click **Next**.
3. Browse for the Directory where the Aris XML file is located.
4. Browse for the Project folder into which you want to import the ARIS XML file and click **Finish** to complete the import.

Example

In Aris Version 6.2, in the **Demo62** database, there are several examples of eEPC processes. The following example shows the TIBCO Business Studio import of the Aris example process **Ticket Reservation** (in **Movie Palace > Business processes > Customer service > Ticket reservation**).



Exporting Procedure Documentation

From within TIBCO Business Studio you can export information about your Process and the Package that contains it to an **.html** file.

To export documentation about your Process:

1. Select **File > Export**.
2. Select **Procedure Documentation** and click **Next**.
3. Select the Package or Process you wish to export. If you select a Process, the containing Package is exported as well.
4. Select a destination for the export by either:
 - Selecting **Project** (to put the export in the **\Exports\Procedure Documentation** sub-directory within your Project directory), or
 - Selecting **Path:** and clicking **Browse...** to specific a directory for the export.
5. Click **Finish**.
6. The Procedure Documentation is saved to the location you specified. See [Viewing Procedure Documentation](#) for more information.

Viewing Procedure Documentation

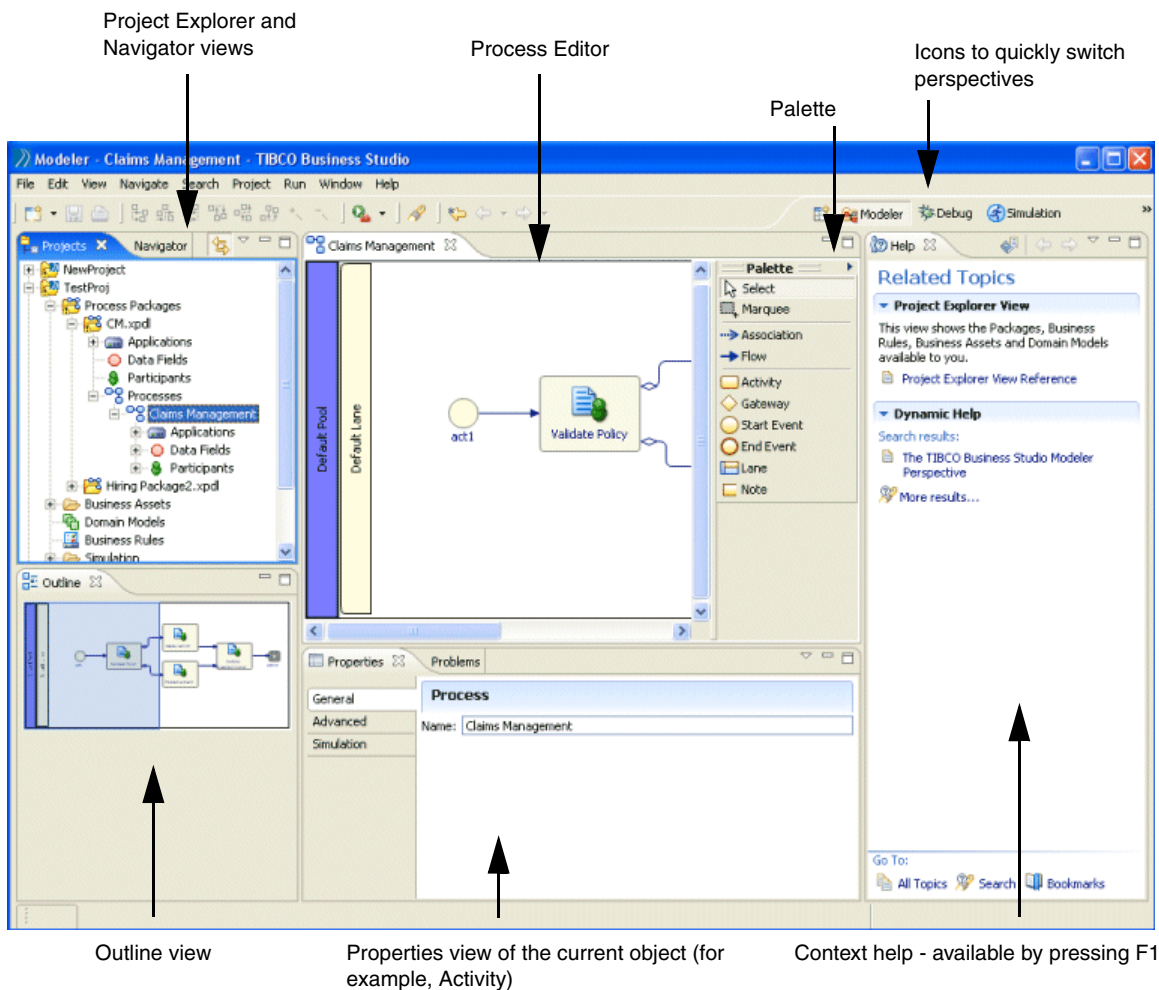
To view Procedure documentation:

1. Export the documentation as described in [Exporting Procedure Documentation](#).
2. In the Project Explorer, expand **Exports > Procedure Documentation**.
3. Right-click the **.html** file for the package and select **Open**.

Chapter 4 Reference

This section of the help describes the major parts of the TIBCO Business Studio user interface, including the perspectives and views that are provided.

These are some of the main components of TIBCO Business Studio:



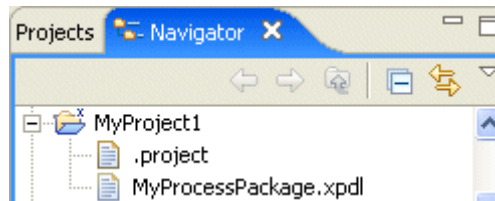
The TIBCO Business Studio Modeling Perspective

In Eclipse, a Perspective includes the views and set of editors that you commonly use for a specific type of work. TIBCO has created several TIBCO Business Studio perspectives that include the views and editors you commonly use when creating business processes. The **Modeling Perspective** includes the following:

- [Navigator View](#)
- [Project Explorer View](#)
- [Problems View](#)
- [Outline View](#)
- [Properties View](#)
- [Cheat Sheets View](#)

Navigator View

This view shows files and folders related to a Project in a hierarchical view.



To display this view, select **Window > Show View > Navigator**.

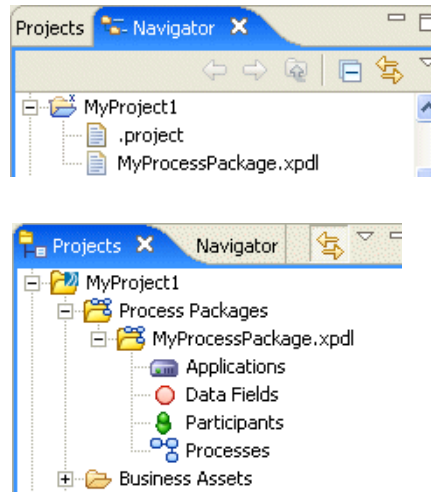
By right-clicking in the Navigator view, you can create new Projects, Packages, folders and files.

You can also drag files from Windows Explorer into the Navigator.

Project Explorer View

This shows a view of the Project in which you can view the **Packages** and **Business Assets**. In contrast to the Navigator view, the Project Explorer view does not differentiate between files and folders; it shows a contextual view of the Project.

For example, the following shows both the Navigator and Project Explorer views of the same Project.



To see this view, select **Window > Show View > Project Explorer**.

Problems View

The Problems view is where the software displays warnings, errors and messages about the resources used in your Project. To see this view, select **Window > Show View > Problems**.

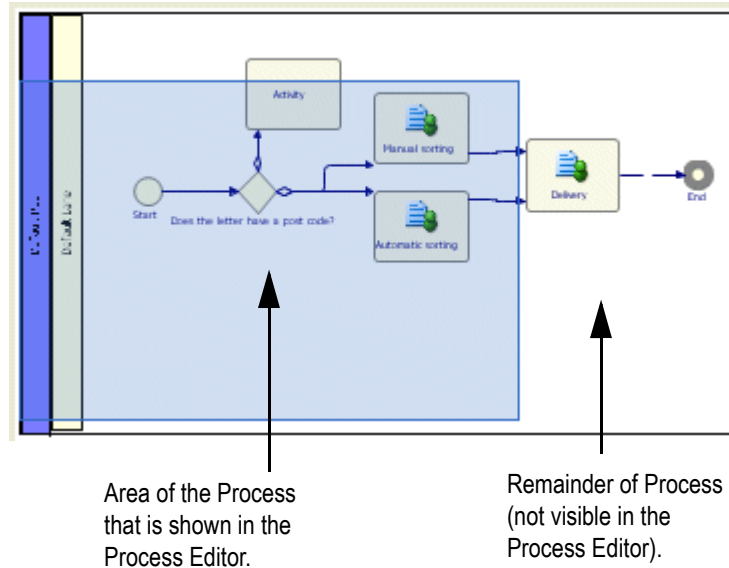
The Problems view also displays error messages that result from validation of your Process. When you save your Process, it is validated for BPMN correctness and for export to the TIBCO iProcess Modeler or for simulation (depending on the **Destination Environment** setting of the Process).

Example

Problems		Properties
0 errors, 10 warnings, 0 infos		
Description	Resource	
BPMN: Element names should be unique for the process. (unnamed)	CM.xpdl	
BPMN: Element names should be unique for the process. (unnamed)	CM.xpdl	
BPMN: Element names should be unique for the process. ("Activity")	MyProcess...	
BPMN: Element names should be unique for the process. ("Activity")	MyProcess...	

Outline View

The **Outline View** allows you to focus on specific areas of a large process. The **Outline View** looks like this:

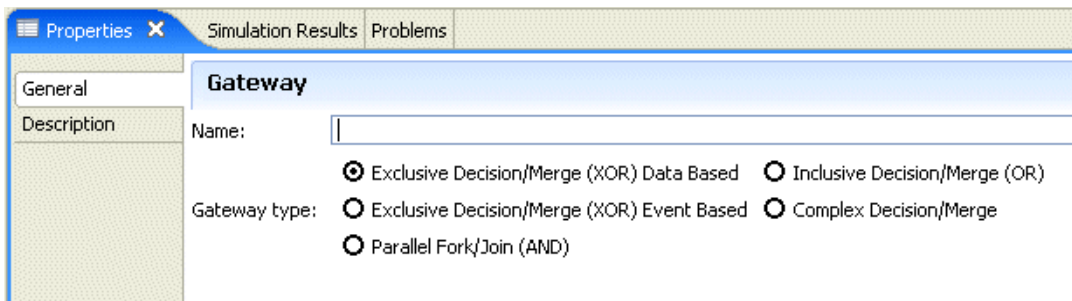


To see this view, select **Window > Show View > Outline**. By positioning the mouse pointer over the shaded area and holding the left mouse button down, you can reposition the shaded area of the **Outline View** and thus see different parts of the process.

Properties View

The **Properties View** shows you detailed information about the currently selected object and allows you to specify the characteristics of an object.

The **Business Process Modeling Notation (BPMN)** complete set is supported by the Properties View. For example, if you are creating a Gateway in your process diagram, you can select the type of Gateway you want in the Properties View:



To see this view, select **Window > Show View > Properties**. To view property information, you must have an object selected.

Process Properties

When you have selected a Process in the Project Explorer, the following Properties are available.



Properties related to simulation are only present when **Simulation** is selected as the **Destination Environment**.

Tab	Property	Description
General	Name	Name of the Process. You can re-name the Process here by entering a new name.

Tab	Property	Description
Advanced	Destination Environments	<p>Enter the target environment for the Process. When you save the Process, validation is performed according to this setting:</p> <ul style="list-style-type: none"> • If you select TIBCO iProcess Modeler, the Process will be validated for future import into the TIBCO iProcess Modeler as well as for BPMN correctness. • If you select Simulation, the Process will be validated for simulation in TIBCO Business Studio as well as for BPMN correctness. • If you do not select a destination environment, basic BPMN validation will be performed.
Simulation	Simulation Parameters	Summary of the simulation data, specifically the weightings and percentages applied to transitions in the Process.

Activity Properties

When you have selected an Activity in the Process Editor, the following Properties are available:

Tab	Property	Description
General	Name	Name of the Activity.
	Description	Description of what the Process does.

Tab	Property	Description
	Activity type	Either Task or Sub-Process (see Activities on page 30). If you select Sub-Process , you must browse to locate the Sub-Process.
	Activity Markers	Select from Multiple , Loop , Compensation , or Ad-hoc . For more information, see Activity Markers on page 32 .
	Participant	Specify the Participant responsible for this Activity (see Participants on page 38).
Parameters	Data Fields	Click Add... to select a Data Field to be used as the input or output to the Activity. You can use the Ctrl and Shift keys to select several Data Fields. Click Remove to clear the selected Data Field from the Activity, or Remove All to clear all Data Fields.
Visualization	Color	Click the button next to Color to select the fill color for the Activity.
Simulation		Select a Duration Distribution , Time unit , and values for the selected distribution. The Activity Cost is calculated and displayed.
Description		Text description associated with the Activity.

Gateway Properties

When you have selected a Gateway in the Process Editor, the following Properties are available:

Tab	Property	Description
General	Description	Description of what the Gateway does.
	Gateway type	Choose the type of Gateway (see Gateways on page 32 for more information).
Description		Text description associated with the Gateway.

Sequence Flow Properties

When you have selected a Sequence Flow in the Process Editor, the following Properties are available:

Tab	Property	Description
General	Description	Description of the Sequence Flow.
	Type	Choose the type of Sequence Flow (see Sequence Flows on page 35 for more information).

Event Properties

When you have selected an Event in the Process Editor, the following Properties are available:

Tab	Property	Description
General	Name	Name of the Event.
Simulation (Start Event only)		You can modify the number and interval of case starts for simulation.

Lane Properties

When you have selected a Lane in the Process Editor, the following Properties are available:

Tab	Property	Description
General	Name	Name of the Event.
	Type	Either a Normal Lane or a Closed Lane (see Lanes on page 40).

Cheat Sheets View





When you first start TIBCO Business Studio, a Welcome Cheat Sheet is displayed. You can view TIBCO Cheat Sheets and other Cheat Sheets by selecting **Help > Cheat Sheets** and selecting from the list.







Process Editor

The **Process Editor** is where you create your business process. It includes a [Palette](#) that contains the tools you use to create your Process.

Palette

You can create your Process using the tools on the Palette. The [Business Process Modeling Notation \(BPMN\)](#) core set is supported by the Palette, which contains the following tools:

Palette Item	Description
 Select	Allows you to select objects.
 Marquee	Allows you to select several objects by drawing a box around them.
 Association	Visually connects a Note to a Flow Object.
 Flow	Adds Sequence Flows to the Process. This shows the order of Activities in a Process.

Palette Item	Description
 Task	Allows you to add a Task to the Project. A Task is considered an atomic Activity because the work it represents cannot be broken down to a finer level of Process Model detail.
 Gateway	Gateways are used to control the divergence and convergence of several Sequence Flows. You can insert Gateways in your Process for branching, forking, merging and joining of flows.
 Start Event	Indicates the beginning of the Process.
 End Event	Indicates the end of the Process.
 Lane	A Lane is a sub-division of a Pool. Pools are used to indicate the Participants in a Process. Within a Pool you can use Lanes to characterize Activities. Note If you delete a Lane in TIBCO Business Studio , all the objects in that Lane are also deleted.
 Note	Adds a note to the Process. Notes are used for explanation/annotation of the Process.

Alignment Tools

For easier alignment of objects in the Process Editor, you can select either or both of the following options:

- **View > Grid** - This allows you to align objects to a grid.
- **View > Alignment Guides** - As you move objects in a Process Editor, a blue line appears when the center of two objects coincide.

You can also align objects that you have selected by choosing options from the **View > Alignment** menu. For example, if you have two Activities selected, you can align them horizontally on their centers by selecting **View > Alignment > Align Middle**. Alternatively you can use the alignment buttons on the toolbar that correspond to the menu options.

Process Validation

When you created your Process you specified the **Destination Environment**. If you specified the TIBCO iProcess Modeler, when you save your Process, TIBCO Business Studio performs validation to ensure that the Process can be imported into the TIBCO iProcess Modeler.

Any error messages resulting from this validation will be displayed in the [Problems View](#) and indicate which parts of your Process need to be changed.

General Rules for Export to the TIBCO iProcess Modeler

Events

- A Start event is mandatory, and you should use only one.
- Start events must not have Sequence Flow input and must have a single uncontrolled output sequence flow.
- Stop events must not have Sequence Flow output.

Process Objects

- All Activities must be either Service, User Activities, or Sub-Processes (see [Activities](#)).
- Conditional Sequence Flows can only be used from a Gateway, and the Gateway must have only one input, only one conditional output sequence flow exiting, and optionally only one default output Sequence Flow. Note that a default Sequence Flow can only be used in conjunction with a Conditional Sequence Flow.
- Event Sequence Flows must only be used from Activities or as the only flow output of a Gateway.
- Parallel Gateways can only have non-conditional Sequence Flows (input and output).
- Ensure there is at least one object other than a diagram note.
- Sub-Processes should be in the same Package as the calling Process.
- The first eight alphanumeric characters of the Process name should be unique.
- The first 15 alphanumeric characters of single-instance Data Field names (or eight characters for arrays) should be unique within the Process and its containing Package.

Correcting Validation Errors

Any problems that result from validation are shown in the Problems view. To correct the problem do one of the following:

- Right-click the problem and select **Quick Fix** (if enabled for the current problem). This gives you the option of having TIBCO Business Studio correct the problem for you.
- Right-click the problem and select **Show in Process Editor**. This displays the Process in the Process Editor, allowing you to correct the problem.


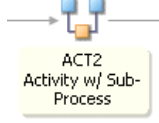


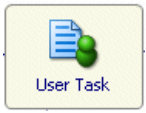

Object Mappings - TIBCO iProcess Modeler

When you import a Process into the TIBCO iProcess Client, the original objects (from the TIBCO Business Studio version) are mapped into objects that the TIBCO iProcess Modeler supports. This section describes the mapping between TIBCO Business Studio and TIBCO iProcess Modeler objects.

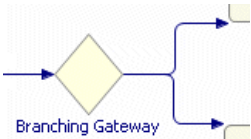

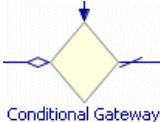
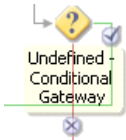
Project Objects

TIBCO Business Studio Object	Corresponding TIBCO iProcess Modeler Object	How to Complete...
Project	None	
Package	None (used when importing to the TIBCO iProcess engine, but no equivalent object)	
Process	Procedure (name taken from the first 8 alphanumeric characters of the Process or created if that name is not unique)	
Sub-Process (Process referenced in an Activity)	Sub-Procedure	Define input and output parameters
Participant	Addressee (Work Item Steps)	Create TIBCO iProcess Engine users/groups
Data Field (Package and Process)	Field (name taken from the first 15 alphanumeric characters of the Process or created if that name is not unique)	Adjust field length/type as required
Parameter	I/O parameter and field	

Activities and Tasks

TIBCO Business Studio Object	Corresponding TIBCO iProcess Modeler Object	How to Complete...
Sub-Process Call from a Task 	Sub-Procedure call from a Step 	Map input and output parameters to Data Fields
Service Tasks 	Enterprise Application Integration (EAI) step with no type set 	Select EAI step type and complete the details
User Task 	Work Item Step 	Define the Work Item Step form
Activity Parameter	Step Annotation/Form Definition on Work Item Step	
Activity Marker	Step Annotation	
Start/End Event	Start/Stop	

Gateways

TIBCO Business Studio Object	Corresponding TIBCO iProcess Modeler Object	How to Complete...
Unconditional Gateway (branching) 	Complex Router 	
Gateway with one input, one conditional output, and optionally one default output 	Condition with the Expression " Undefined " = " Undefined " 	Complete the condition
Gateway with one Exception Sequence Flow output	Event object with Deadline	Complete the deadline details
Parallel Gateway (multiple unconditional input)	Wait	
Default Gateway (multiple unconditional input)	Complex Router	

Connecting Objects

TIBCO Business Studio Object	Corresponding TIBCO iProcess Modeler Object	How to Complete...
Association	None	

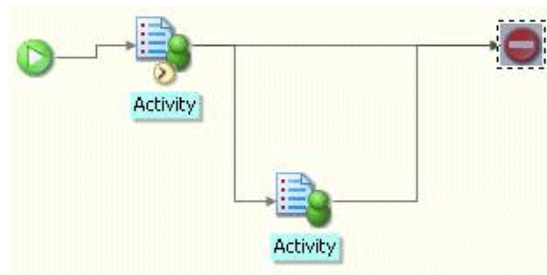
TIBCO Business Studio Object	Corresponding TIBCO iProcess Modeler Object	How to Complete...
Sequence Flows of the Exception type (on an Activity)	Deadlines Link	Complete the deadline details on the source activity
Note	Unattached Annotation (any attached Association is not Preserved)	

Swimlanes

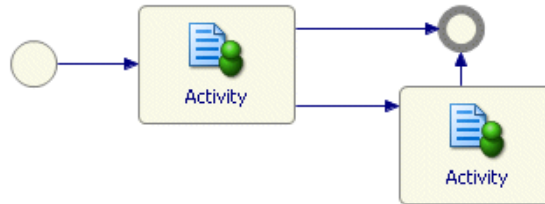
TIBCO Business Studio Object	Corresponding TIBCO iProcess Modeler Object	How to Complete...
Pool	Not mapped	
Lane	Lane (only mapped in TIBCO iProcess Engine 10.3.5 and later)	

Special Considerations - TIBCO iProcess Modeler Import

When importing a Procedure from the TIBCO iProcess Modeler into TIBCO Business Studio, you should consider how implement AND behavior. The following is how AND behavior is implemented in the TIBCO iProcess Modeler:

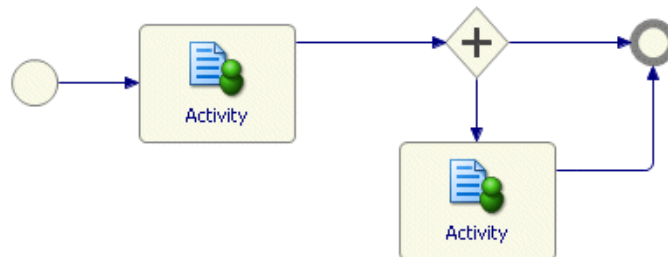


When imported into TIBCO Business Studio, the flow from the first Activity becomes XOR and looks like this:





Furthermore if the Process is simulated, one of the output Sequence Flows becomes **Conditional** and the other **Default**.






To preserve the original AND behavior from the TIBCO iProcess Modeler, you must insert a parallel Gateway as follows:



Object Mappings - Aris Software

When you import a Process from Aris Software into TIBCO Business Studio, the original objects from Aris are mapped into objects that TIBCO Business Studio supports. This section describes the mapping between Aris objects and TIBCO Business Studio objects.

Aris Object	Corresponding TIBCO Business Studio Object
Event 	Depending on the position of the Event, a Start Event, End Event or Description of a Sequence Flow.
Function (User Activity type; eg. )	User Task.

Aris Object	Corresponding TIBCO Business Studio Object
Function (System Activity type; eg. )	Service Task.
AND Rule 	Parallel Gateway.
XOR Rule 	Exclusive Data Based Gateway.
OR Rule 	Inclusive Gateway.
Rule 	Default Gateway.
<ul style="list-style-type: none"> • Organizational Unit Type, Organizational Unit, System Organizational Unit, and so on. • Position Type, Position, Position Description, Person Type, Internal Person, External Person, Group 	Participant (if one per Activity, added to the Activity Properties; otherwise added as a Note with an Association).
D Attribute (ERM), K Attribute (ERM), FK Attribute (ERM), COT Attribute, Technical Term	Data Field.
Non-function object without connections	Note.
Non-function object that is not a recognized data type or participant and has only one connection (incoming or outgoing) to a function object	Note with an Association.

Chapter 5 **Tips and Tricks**

This chapter contains tips for working with the TIBCO Business Studio user interface.

Process Editor

The following tips relate to the Process Editor:

I can't see the Palette.

Make sure you are in the Process Editor and that the Palette is expanded (click the arrow to the right, top of the scroll bar).

How can I create several objects of the same type using the Palette?

Press the **Ctrl** key while adding the objects to your Process. For example, if you want to create several Sequence Flows, press and hold the **Ctrl** key while clicking the Flow tool and adding the Sequence Flows.

How do I align objects in the Process Editor?

There are two features that allow you to better align objects in the Process Editor - **Grid** and **Alignment Guides**. These are both available from the **View** menu when using the Process Editor. **Grid** allows you to snap objects to the grid lines, and **Alignment Guides** shows a centering line when you have aligned two objects.

With several objects selected in the Process Editor you can also select options from the **View > Alignment** menu to control the vertical and horizontal alignment of the objects.

I'm using Grid alignment in the Process Editor and I want to place an object without using the Grid.

Pressing the **Alt** key while moving an object allows you to position it between grid lines.

How can I easily resize an Activity in the Process Editor?

Pressing the **Ctrl** key while resizing one side of an object automatically resizes the opposite side as well.

I can't get my Sequence Flows to look right.

Occasionally when you reposition a Sequence Flow several times you create too many bendpoints and make the flow illegible. To restore a Sequence Flow, click the flow and select **Reset BEndpoints**.

I can't get a Sequence Flow to dock where I want it to dock.

Sequence Flows are docked at the nearest docking point rather than where you attempt to dock them. Try repositioning the middle of the Sequence Flow to change the docking point.

How can I position Sequence Flows using the keyboard?

Highlight the Sequence Flow, then press the **Period** key (.) to move along the endpoints. With a endpoint highlighted, use the arrow keys to position them and change the shape of the flow. When you are done, press the **Return** key.

Workbench

The following tips relate to the Eclipse Workbench:

How can I quickly change Perspectives?

There are buttons in the upper right of the screen so you can change between the Simulation and Modeling perspectives. You can also do this using **Ctrl + F8**.

My windows are a mess. How can I reset them?

Select **Window > Reset Perspective**. This restores the current Perspective to its default.

Problems View


The following tips relate to the Problems view:

How can I correct validation errors?

Either:

- Right-click the problem and select **Quick Fix** (if enabled for the current problem). This gives you the option of having TIBCO Business Studio automatically correct the problem for you.
- or -
- If no quick fix is available, right-click the problem and select **Show in Process Editor**. This displays the Process in the Process Editor, allowing you to manually correct the problem.

In the Problems view I see not only problems for my Process/Project, but problems for all Processes/Projects.

Click  to display the **Filters** dialog. This allows you to customize the problems display. For example, you can select options to display problems for the selected resource only, or for any resource in the same Project.

Index

A

- Activity 30
 - properties 72
- Activity Marker 32
- Ad-hoc Activity Marker 32
- Ad-hoc Asset 39
- Aris software
 - export 63
 - import 63
 - integrating with 63
- Asset 38
 - ad-hoc 39
 - Prince2 39
- Association 35

B

- Business Process Modeling Notation (BPMN) 28
- business processes patterns 47

C

- Cheat Sheets View 75
- Compensation Activity Marker 32
- Connecting Objects 35
 - creating a Package 7
 - creating a Process 9
 - creating a Project 6
 - creating Data Fields 25
 - creating Participants 26
- customer support ix

D

- Data Field 37
 - associating with an Activity 25
 - creating 25
- decision behavior 51

E

- errors 77
 - correcting 78
- Event 32
 - properties 74
- exclusive choice behavior 53
- expanding a Sub-Process 55
- exporting from Aris 63
- exporting procedure documentation 65
- exporting to the TIBCO iProcess Modeler 77

F

- Flow Objects 30
- forking behavior 47

G

- Gateway 32
 - properties 74

I

importing a Package 57
 importing Aris procedures 63

J

joining behavior 49

L

Lane 40
 properties 75
 Loop Activity Marker 32

M

merging behavior 49
 Modeling perspective 68
 Multiple Activity Marker 32
 multiple choice behavior 52

N

Navigator View 68

O

object mapping - Aris Software 83
 object mapping - TIBCO iProcess Modeler 78
 Outline View 70

P

Package 37
 creating 7
 import 57
 Palette 9, 75
 using 11
 Participant 38
 associating with an Activity 26
 creating 26
 Perspective 68
 Pool 43
 Prince2 Asset 39
 Problems View 69, 89
 Procedure documentation 65
 exporting 65
 Process 37
 adding objects to 11
 correcting errors 78
 creating 9
 properties 71
 re-use 54
 selecting objects 12
 validation 77
 working with 11
 Process Component 29
 Process Editor 9, 75
 alignment tools 76
 tips 86
 using 11
 Project 37
 creating 6
 creating in source control 60
 purpose 6
 Project Explorer View 68
 Project Objects 37
 Properties View 70

Q

Quick fixes 78

R

Re-use 54, 56

S

sample Processes 5
 selecting Objects 12
 Sequence Flow 35
 combining 48
 properties 74
 using to connect objects 11
 source control 59, 60
 Sub-Process 31
 calling 54
 expanding 55
 Subversion 59
 support, contacting ix
 SVN Repository
 browsing 60
 Swimlane 40

T

Task 30, 31
 technical support ix
 TIBCO Business Studio
 audience 2
 Modeling perspective 68
 object hierarchy 3
 online help 4
 package import 57
 sample Processes 5
 tutorials 13, 17, 23
 using with Subversion 59
 TIBCO iProcess Modeler
 AND behavior 82
 export 77
 package import 57
 TIBCO Staffware Process Suite
 integrating with 61

V

validation errors
 correcting 78

W

Workbench 88
 workflow patterns 47

X

XML Process Definition Language (XPDL) 28