TIBCO ActiveMatrix BusinessWorks™

Getting Started

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Contents

TIBCO ActiveMatrix BusinessWorks™ Getting Started

This document steps you through the process of designing and testing a simple ActiveMatrix BusinessWorks™ project.

For more information about designing and testing ActiveMatrix BusinessWorks processes, see *TIBCO ActiveMatrix BusinessWorks™ Process Design*.

Introduction

This tutorial steps you through the creation of a simple ActiveMatrix BusinessWorks project. The goal of this tutorial is to introduce you to the ActiveMatrix BusinessWorks project lifecycle. The phases of the project lifecycle are similar to standard project phases:

Procedure

1. Design – determining the requirements of the system, developing a prototype solution to your business needs.
2. Testing – running the system to determine that it works properly and meets the project's requirements.

The project in this tutorial is fairly simple so that you can focus on how to use ActiveMatrix BusinessWorks within each phase of the project lifecycle. Once you complete the tutorial, you should be more comfortable applying the methodology to your own projects.

Before starting this tutorial, you should become familiar with ActiveMatrix BusinessWorks terminology and basic concepts. It is not necessary to learn all aspects of ActiveMatrix BusinessWorks, but you should at least read the "Business Integration" section of *TIBCO ActiveMatrix BusinessWorks™ Concepts*. That topic introduces much of the terminology that will be used in this tutorial. TIBCO Designer Main Window is a summary of key concepts you should be familiar with.

Note: Once a project has been developed and tested, you can deploy it using TIBCO Administrator™. The *TIBCO Administrator User's Guide* describes deployment and includes a tutorial that uses the project created in this manual.

Overview of Example Process

The project you will create watches a directory for a specific file. When the file changes, a new file is created that contains the contents of the original file plus the time the change was made to the original file. The new file is named after the change that occurred (create.txt, modify.txt, or remove.txt). If you modify the file multiple times, the new file overwrites the existing modify.txt.

With this simple project, you will perform many of the same tasks that are required for larger, more complex projects. This tutorial is not intended to illustrate every aspect of ActiveMatrix BusinessWorks, so only a small subset of the available activities will be used.

The tutorial steps you through the following tasks:

- Starting TIBCO Designer and Saving Your Project
- Creating the FileTest Process
- Testing the FileTest Process

Activation

TIBCO ActiveMatrix BusinessWorks requires activation via a license in order to start. Licenses can be generated in the TIBCO Software Downloads site at https://www.tibco.com/downloads. For complete details on activating TIBCO products, see the TIBCO Activation Service documentation at https://docs.tibco.com/products/tibco-activation-service.

Important: TIBCO ActiveMatrix BusinessWorks will shut down when you reach the end date of your entitlement to the product, and will not restart until you replace your license file with one that contains a new entitlement end date. It is recommended that you do so well in advance of your entitlement end date to avoid business disruption.

Activation is configured during the installation of TIBCO ActiveMatrix BusinessWorks™ or as a post-installation step. See *TIBCO ActiveMatrix BusinessWorks™ Installation Guide* for details.

Prerequisites

To perform the tasks in this tutorial, you must have installed and configured the ActiveMatrix BusinessWorks software properly.

Procedure

1. Install all components of TIBCO Runtime Agent™ on your system.
2. Install all components of ActiveMatrix BusinessWorks on your system.

Starting TIBCO Designer and Saving Your Project

To start TIBCO Designer and save your project, follow these steps:

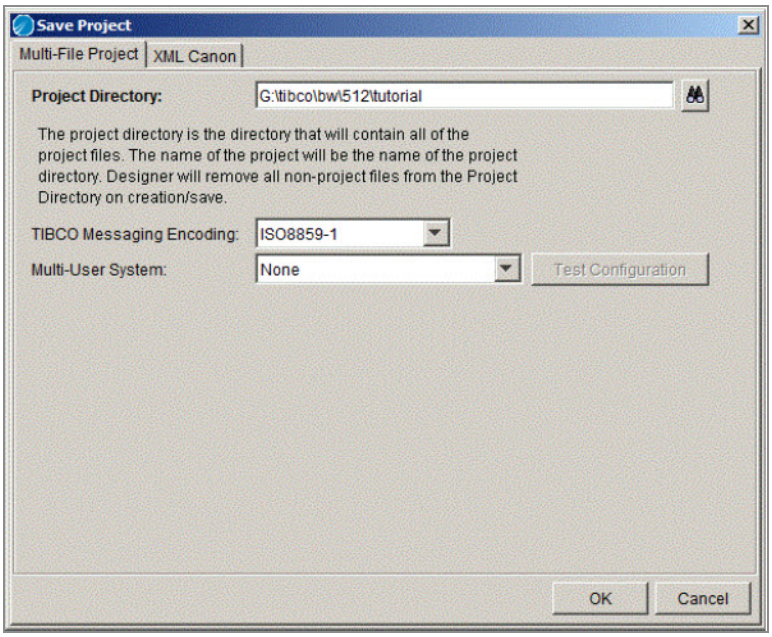
Procedure

1. From the **Start** menu, choose **All Programs > TIBCO > TIBCO Designer <version> > Designer <version>**.

   The TIBCO Designer Startup window appears.
2. Choose **New Empty Project**.

   The TIBCO Designer main window appears, with the Save Project dialog on top.
3. In the Save Project dialog, make sure that the Multi-File Project tab is selected.
4. In the Project Directory field, click the **Browse** button to locate the directory in

which you wish to save the project. Locate the ActiveMatrix BusinessWorks installation directory, and create a new subdirectory named tutorial. Click **OK** to return to the Save Project dialog.



5. Click **OK** to create the new project.

You are now ready to create a process definition using TIBCO Designer. The next section gives an overview of TIBCO Designer. If you would like to start process design right away, skip the overview and start with Creating the FileTest Process.

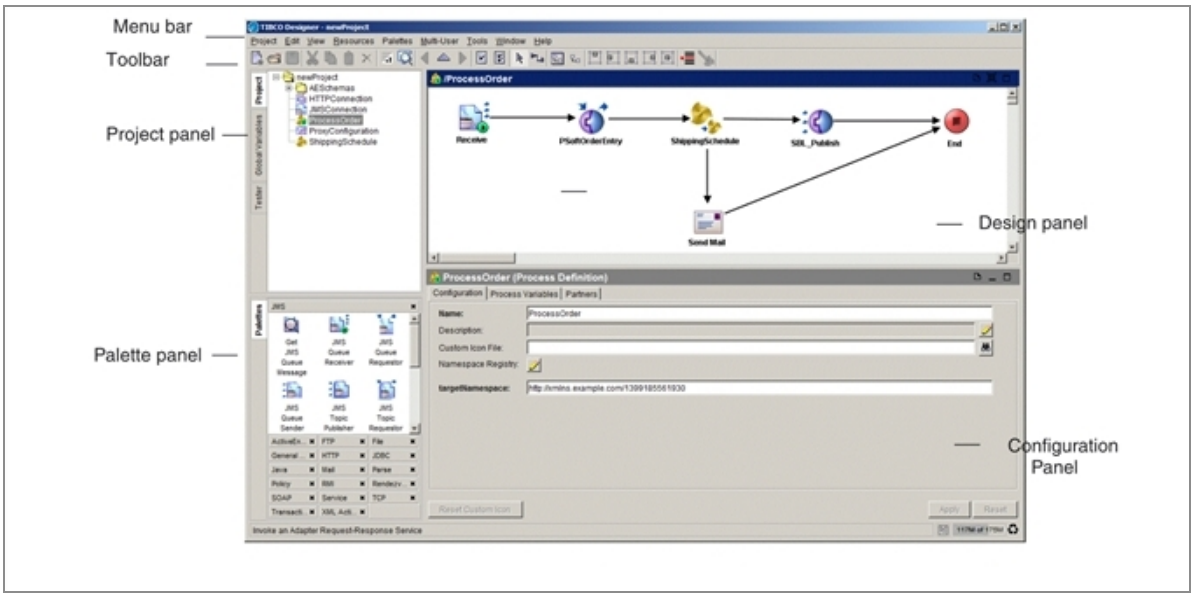
For more information about TIBCO Designer, see TIBCO Designer Main Window. The *TIBCO Designer™ User's Guide*, available from the **Help > Designer Help** menu, gives additional information, including an introduction to the display preferences.

TIBCO Designer Main Window

The TIBCO Designer main window has these components:

- Menu bar and menus.
- Toolbar icons.
- Four panels, which are (starting in the top left corner and continuing clockwise):
  - Project tree panel

- Design panel
- Configuration panel
- Palette panel



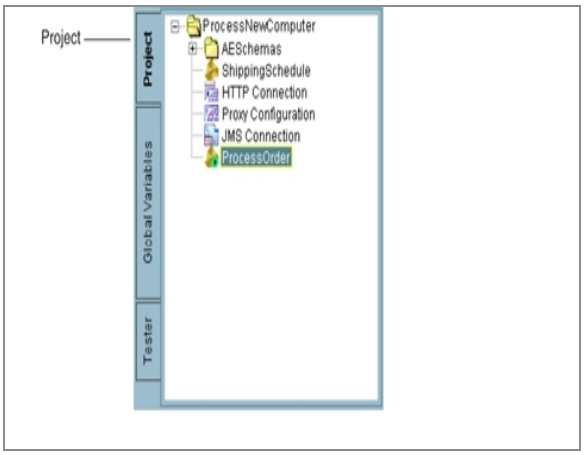
The following sections explain each panel.

Projects

A project consists of objects that contain the functionality needed for your enterprise integration. This includes services (producers and consumers of information), any business logic that may be applied to that information, and deployment information.

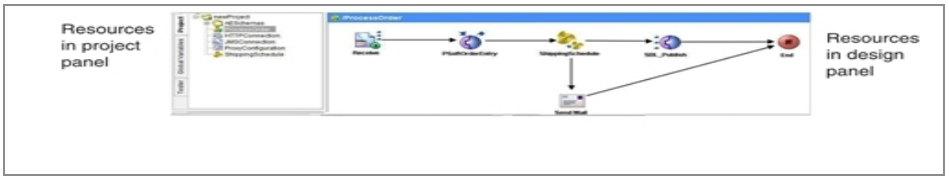
Each TIBCO Designer window contains one and only one project, which is represented as the top-level folder in the window.

The ProcessNewComputer project, shown below in the project tree panel, includes two process definitions, a PeopleSoft adapter (PSoft_ReqRep), a Siebel adapter (SBLAccount), and several other resources.



Resources

Resources are the components of a project. A TIBCO Designer resource corresponds to an object in a TIBCO application, such as FTP Put activity, a process definition, or a specific adapter instance.



Resources can be complex and contain other resources, much like a folder can contain other folders on your computer's file system. For example, an adapter instance may contain multiple folders with multiple publisher or subscriber resources. A process definition contains multiple activities.

Resources can also be simple. In the illustration above, PSoft_OrderEntry is a simple resource.

Activities

Resources used in process design are called activities. You can create a process flow linking activities with transitions. You can have multiple transitions from one activity to others, and each transition can be conditional.

Palettes

A palette provides access to resources. You drag and drop resources from the palette in the palette panel into the design panel to add them to your project.

TIBCO Designer contains a number of native palettes. In addition, each TIBCO application you install adds one or more palettes to ActiveMatrix BusinessWorks during installation.

Which palette is displayed depends on the resource selected in the project tree and on your preferences.

Creating the FileTest Process

This section guides you through creating a simple process definition. The process, which will be named FileTest, polls a directory for a specified file and writes a new file to the same directory each time the file changes. The new file's name includes the type of change that occurred to the original file (create, modify, or remove). The new file's content is the same as the polled file's content, but the time of the change in the file is appended to the end of the file. The time of the file change is represented as the number of milliseconds since January 1, 1970.

The tutorial uses a variable file name to illustrate how to use the ActiveMatrix BusinessWorks mapping capabilities.

Note: Before you start to design the process, create a directory. Then create text file with some simple content (for example, "The cherry blossoms are beautiful.") in the directory. The file will be needed by the File Poller activity. This example uses the directory c:\tibco\test and the file PolledFileTest.txt

To create the FileTest process, follow these steps:

Procedure

1. In TIBCO Designer, select the project name (for example tutorial) in the project panel.
2. In the palette panel, select the **Process palette**.

   If no palettes are in the palette panel, click the Switch Palette Mode  icon to display the palettes.
3. From the palette panel, drag a Process Definition resource into the design panel.
4. In the configuration panel, type the name FileTest in the **Name** field to rename the

process. Then click **Apply**.

5. Save your project by choosing **Project > Save** from the menu.

For more information about processes, see *TIBCO ActiveMatrix BusinessWorks™ Concepts* and *TIBCO ActiveMatrix BusinessWorks™ Process Design*.

To add activities to the process, follow these steps:

Procedure

1. Select **FileTest** process in the project tree.

   The Start and End activities should be displayed in the design panel.

2. Find the File palette in the palette panel and select it.

   > **Tip:** If the File palette is not one of the available palettes, choose **Palettes > Activities > File** to make the palette available.

3. Drag a **File Poller** activity into the design panel (but not on top of the Start activity).

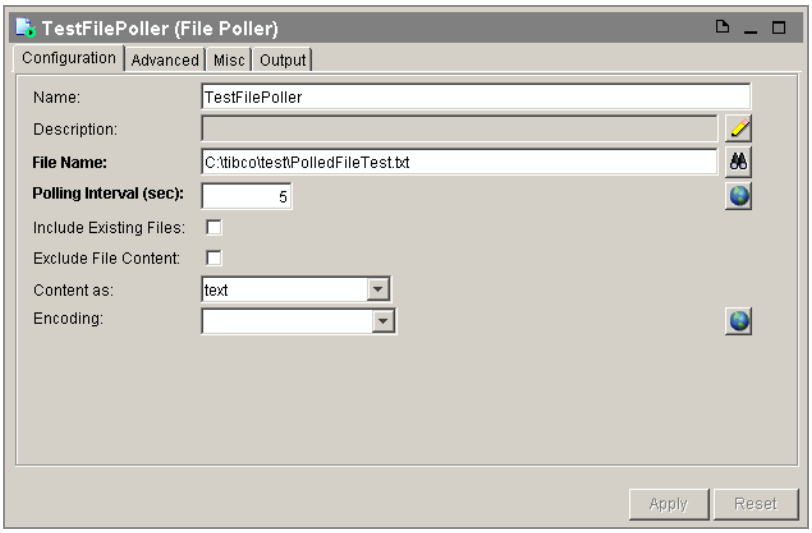
   The Start activity is replaced by the File Poller activity.

4. With the File Poller still selected, enter the following values in the configuration panel:

   a. Name the File Poller TestFilePoller.

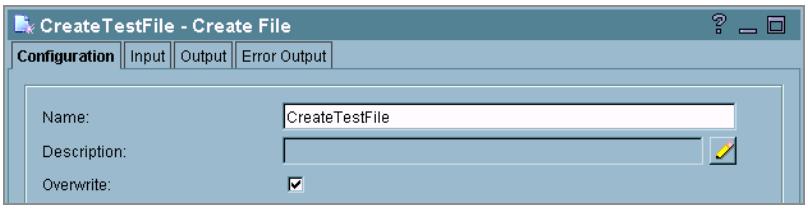
   b. Click the **Browse** button to the right of the File Name field and select the file you want to poll. Use the Select File dialog to locate the directory and file you created.

   c. Leave the Polling Interval, Include Existing Files, and Exclude File Content fields as they are. Select text in the drop-down list in the Content as field, and select the appropriate encoding for your operating system in the Encoding field.

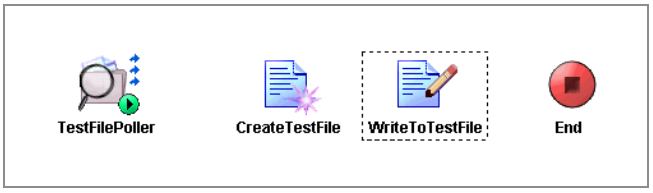


d. Click the **Apply** button.

5. Drag a **Create File** activity into the design panel and place it to the right of TestFilePoller.
6. Name the Create File activity CreateTestFile, and select the **Overwrite** check box, then click the **Apply** button.



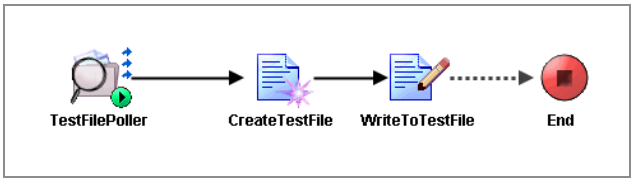
7. Drag a **Write File** activity into the design panel and place it to the right of the CreateTestFile activity (before the End activity).
8. Name the Write File activity WriteToTestFile, then click the **Apply** button.



9. In the toolbar, select the Transition icon .
10. Select the **TestFilePoller** process starter and drag a transition to the CreateTestFile activity. Connect the CreateTestFile and WriteToTestFile and the

WriteToTestFile and End activities in the same manner.

The result should appear as follows:



11. Choose **Project > Save** from the menu.

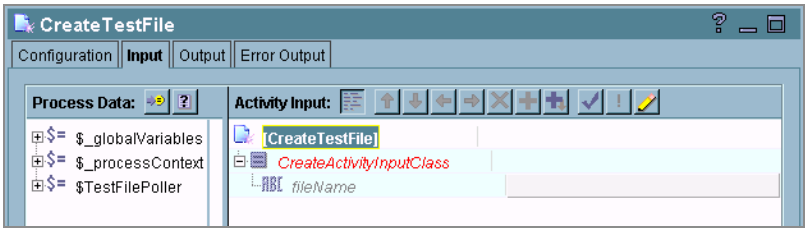
The process now includes appropriately connected activities. However, no information about the name and content of the files is included. To set those, you use the TIBCO Designer mapping facilities.

The goal in this exercise is to create a file that has the name File<changeType>.txt, where <changeType> is the type of change that occurred to the original file (create, modify, or remove). The contents of the changed file is then written to the new file, and the time the change in the file occurred is appended to the end of the contents. For example, if the text in the changed file is "The cherry blossoms are beautiful." the content of the new file will be "The cherry blossoms are beautiful. 1017163931036"

To map the data flow between activities, follow these steps:

Procedure

1. Choose the Select icon in the toolbar, if it is not already selected.
2. Select the **CreateTestFile** activity and choose the Input tab in the configuration panel. Expand the CreateActivityInputClass item in the activity input tree by clicking on the plus sign (+) to the left of the item.



Each activity's output is available to subsequent activities in the process definition. You can use data from previous activities to specify the input of the current activity. For example, you can use the content of the original text file as the content of the new text file.

The left panel of the Input tab contains a list of data from all activities preceding the current activity in the process diagram. Each activity's name appears with a dollar sign ($) in front of it to indicate that this is a process variable.

The right panel of the Input tab lists the current activity's input.

3. Click the plus (+) sign next to the process variable $TestFilePoller in the Process Data panel and expand the schema tree containing the output of the TestFilePoller process starter.
4. In the right panel, select the **fileName** element in the Activity Input pane, then click the XPath Formula Builder (pencil) icon.
5. In the XPath Formula Builder dialog that appears, follow these steps:
    a. Select the **Functions** tab, open the String folder, select **concat**, and drag it into the XPath Formula panel.

       The display in the right panel changes to display a concat XPath expression.
    b. Replace << string1 >> with "c:\tibco\test\File" (include the quotes).
    c. In the left panel, select the **Data** tab, choose the $TestFilePoller/EventSourceOutputTextClass/action element and drag it over << string2 >>. A red box appears over << string2 >> indicating you can release the data over this item and the correct XPath expression will appear.
    d. Add a comma after $TestFilePoller/EventSourceOutputTextClass/action, then add the string ".txt" (include the quotes).

       The expression should look like the following:

```
concat("c:\tibco\test\File",
$TestFilePoller/EventSourceOutputTextClass/action, ".txt")
```

6. Click the **Apply** button to accept the formula and dismiss the XPath Formula Builder by clicking **Close**. Then click the **Apply** button in the Input tab of the activity.
7. Select the **WriteToTestFile** activity, then click the Input tab in the configuration panel.
8. Map the data as follows:
    a. Select $CreateTestFile/CreateActivityOutputClass/fileInfo/fullName and drag it to the

fileName item in the Activity Input pane.

You do not need to use the XPath Formula Builder to map this item because you do not need to use XPath functions. The content of the field is exactly the same as the value of the $CreateTestFile/CreateActivityOutputClass/fileInfo/fullName process variable.

b. In the right panel, select the **textContent** field and click the XPath Formula Builder icon.

c. In the XPath Formula Builder, drag a **concat** function into the XPath formula panel.

d. Add " ", between <<string1>> and <<string2>> so that there is a space between the two strings in the concat function.

e. Click the **Data** tab and drag. $TestFilePoller/EventSourceOutputTextClass/fileContent/textContent over <<string1>>.

f. Drag $TestFilePoller/EventSourceOutputTextClass/timeOccurred over <<string2>>.

The formula should look like this:

```
concat($TestFilePoller/EventSourceOutputTextClass/
  fileContent/textContent," ",$TestFilePoller/
  EventSourceOutputTextClass/timeOccurred )
```

g. Click the **Apply** button to accept the formula and dismiss the XPath Formula Builder by clicking **Close**.

9. Click the **Apply** button on the activity's Input tab, then choose **Project > Save** to save your project.

You are now ready to test the project.

Testing the FileTest Process

You can test the FileTest process directly from TIBCO Designer. This allows you to make sure the process works correctly before you deploy it. Follow these steps:

Procedure

1. Click the Set Breakpoints icon

 .

2. In the window that appears, choose **Select All**, then click **OK**.

   Breakpoints allow you to step through the process. Stepping helps you see what happens when each activity executes.

3. Click the **Tester** tab to the left of the project panel. The test panel replaces the project tree.
4. Click the Start testing viewed process button. 
5. In the process selection window that appears, the FileTest process is selected by default. Click **Load and Start Current**.

   The process is now in Test mode.

6. Make a change to the polled file to start the process.
7. Once the TestFilePoller process starter is highlighted (indicating a process has started), click the Step to next activity icon  to step through the process.

   ActiveMatrix BusinessWorks creates an output file named Filemodify.txt after you have stepped into the WriteToTestFile activity and writes the appropriate text to the file.

   The text should be the text of PolledFileTest.txt and, in a new line, the time, in milliseconds, since January 1, 1970.

   You can click on each activity in the process definition as you step through it. If you click on the Process Data or Output tabs for the activity, you will see the actual process data and output of the activity as the process executes.

8. Next, delete PolledFileTest.txt.
9. Step through the process once more.

   ActiveMatrix BusinessWorks creates a file Fileremove.txt. The content of Fileremove.txt is just the time of modification, because the polled file no longer exists.

10. Click the Stop Test Mode icon  to return to design mode.

    For more information about using test mode, see *TIBCO ActiveMatrix BusinessWorks™ Process Design*.

Using ActiveMatrix BusinessWorks Engine Command Line to Run a ActiveMatrix BusinessWorks Project

In the absence of a GUI environment or a TIBCO Administrator to deploy a ActiveMatrix BusinessWorks project, you can test your project by using command line to run the ActiveMatrix BusinessWorks Engine and view the test results.

Note: To run a ActiveMatrix BusinessWorks project using the ActiveMatrix BusinessWorks Engine command line, provide an absolute path of your project location such as, <BW_HOME>/bin/bwengine<root directory of the BW project>.

Replace the following with the appropriate values as per your environment:

- -propFile to use a different .tra file instead of bwengine.tra.
- -name to provide name for the engine.
- -p to specify props.cfg file which contains the engine properties.

Note: Use option "-name <descriptive name>" in the command line for providing each engine a descriptive name, when starting the ActiveMatrix BusinessWorks Engine using the command line. For example, if the descriptive name is "myproject", then a message "Engine myproject started" appears after the engine is started.

The commands to start the ActiveMatrix BusinessWorks Engine with the name option are:

- bwengine <absolute path of the project> -name <name>
- bwengine -propFile <tra file> <absolute path of the project> -name <name>
- bwengine -propFile <tra file> -p <properties file> <absolute path of the project> -name <name>

TIBCO Product Documentation and Support Services

For information about this product, you can read the documentation, contact TIBCO Support, and join TIBCO Community.

How to Access TIBCO Documentation

Documentation for TIBCO products is available on the Product Documentation website, mainly in HTML and PDF formats.

The Product Documentation website is updated frequently and is more current than any other documentation included with the product.

Product-Specific Documentation

The following documentation for this product is available on the TIBCO ActiveMatrix BusinessWorks™ Product Documentation page:

- *TIBCO ActiveMatrix BusinessWorks™ Release Notes*
- *TIBCO ActiveMatrix BusinessWorks™ Administration*
- *TIBCO ActiveMatrix BusinessWorks™ Concepts*
- *TIBCO ActiveMatrix BusinessWorks™ Error Codes*
- *TIBCO ActiveMatrix BusinessWorks™ Getting Started*
- *TIBCO ActiveMatrix BusinessWorks™ Installation*
- *TIBCO ActiveMatrix BusinessWorks™ Palette Reference*
- *TIBCO ActiveMatrix BusinessWorks™ Process Design*

To directly access documentation for this product, double-click the following file:

TIBCO_HOME/release_notes/TIB_<productID>_version_docinfo.html

where *TIBCO_HOME* is the top-level directory in which TIBCO products are installed. On Windows, the default *TIBCO_HOME* is C:\tibco. On UNIX systems, the default *TIBCO_HOME* is /opt/tibco.

Other TIBCO Product Documentation

When working with ActiveMatrix BusinessWorks, you may find it useful to read the documentation of the following TIBCO products:

- TIBCO Designer™: *TIBCO Designer is an easy to use graphical user interface for design-time configuration of TIBCO applications. TIBCO Designer includes online help for each palette.*
- TIBCO Runtime Agent™: *TRA supplies a number of TIBCO and third-party libraries used by ActiveMatrix BusinessWorks*.
- TIBCO Administrator™: *TIBCO Administrator is the monitoring and managing interface for new-generation TIBCO products such as ActiveMatrix BusinessWorks*.
- TIBCO Rendezvous® : *TIBCO Rendezvous software uses messages to enable distributed application programs to communicate across a wide variety of hardware platforms and programming languages.*

How to Access Related Third-Party Documentation

When working with ActiveMatrix BusinessWorks, you may find it useful to read the documentation of the following third-party products:

How to Contact Support for TIBCO Products

You can contact the Support team in the following ways:

- To access the Support Knowledge Base and getting personalized content about products you are interested in, visit our product Support website.
- To create a Support case, you must have a valid maintenance or support contract with a Cloud Software Group entity. You also need a username and password to log in to the product Support website. If you do not have a username, you can request one by clicking **Register** on the website.

How to Join TIBCO Community

TIBCO Community is the official channel for TIBCO customers, partners, and employee subject matter experts to share and access their collective experience. TIBCO Community offers access to Q&A forums, product wikis, and best practices. It also offers access to extensions, adapters, solution accelerators, and tools that extend and enable customers to gain full value from TIBCO products. In addition, users can submit and vote

on feature requests from within the TIBCO Ideas Portal. For a free registration, go to TIBCO Community.

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