



# TIBCO ActiveMatrix BusinessWorks™

## Getting Started

*Version 5.15.0  
September 2021*



# Contents

<b>TIBCO ActiveMatrix BusinessWorks Getting Started</b> .....	<b>1</b>
Introduction .....	2
Overview of Example Process .....	2
Prerequisites .....	4
Starting TIBCO Designer and Saving Your Project .....	5
TIBCO Designer Main Window .....	7
Creating the FileTest Process .....	10
Testing the FileTest Process .....	16
Using BusinessWorks Engine Command Line to Run a TIBCO ActiveMatrix BusinessWorks Project .....	17
<b>TIBCO Product Documentation and Support Services</b> .....	<b>19</b>
How to Access TIBCO Documentation .....	19
How to Contact TIBCO Support .....	20
How to Join TIBCO Community .....	20
<b>Legal and Third-Party Notices</b> .....	<b>21</b>



# TIBCO ActiveMatrix BusinessWorks Getting Started

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

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

## Topics

---

- [Introduction, page 2](#)
- [Prerequisites, page 4](#)
- [Starting TIBCO Designer and Saving Your Project, page 5](#)
- [TIBCO Designer Main Window, page 7](#)
- [Creating the FileTest Process, page 10](#)
- [Testing the FileTest Process, page 16](#)
- [Using BusinessWorks Engine Command Line to Run a TIBCO ActiveMatrix BusinessWorks Project, page 17](#)

## Introduction

---

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

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 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 TIBCO BusinessWorks terminology and basic concepts. It is not necessary to learn all aspects of BusinessWorks, but you should at least read Chapter 1 of *TIBCO BusinessWorks Concepts*. That chapter introduces much of the terminology that will be used in this tutorial. [TIBCO Designer Main Window on page 7](#) is a summary of key concepts you should be familiar with.



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 TIBCO 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](#)

## Prerequisites

---

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

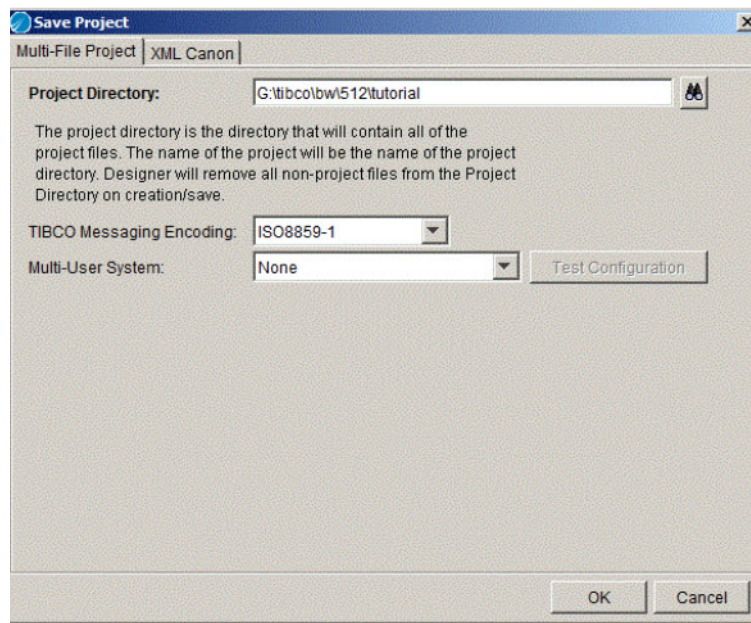
1. Install all components of TIBCO Runtime Agent (TRA) on your system.
2. Install all components of TIBCO ActiveMatrix BusinessWorks on your system.

## Starting TIBCO Designer and Saving Your Project

---

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

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 TIBCO 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.



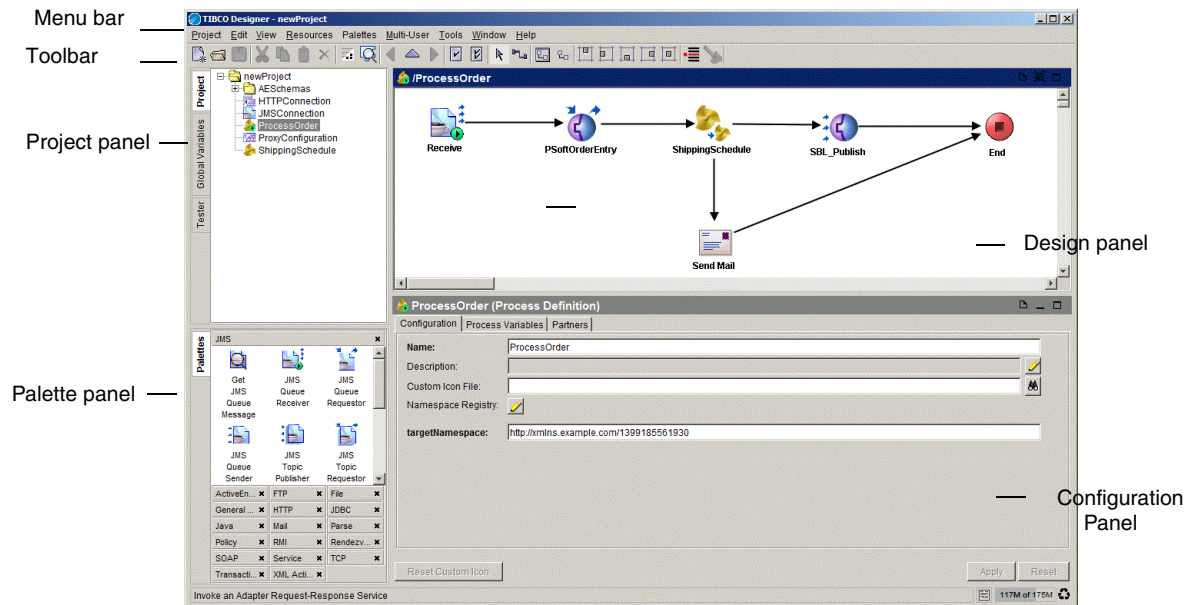
You are now ready to create a process definition using TIBCO Designer. The next section gives an overview of TIBCO Designer. If you would like to start process design right away, skip the overview and start with [Creating the FileTest Process on page 10](#).

**See Also** For some introductory information on TIBCO Designer, see [TIBCO Designer Main Window on page 7](#). 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



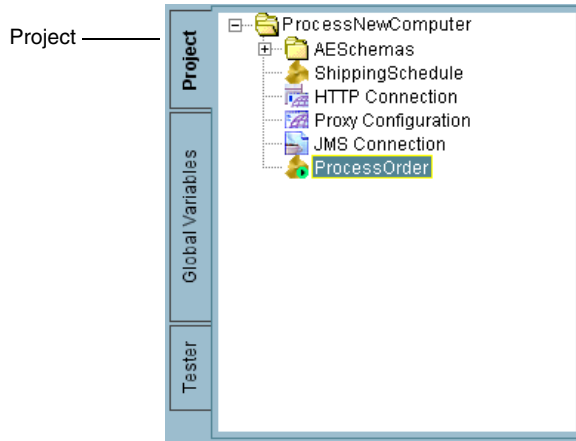
The following sections explain each panel.

## 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.

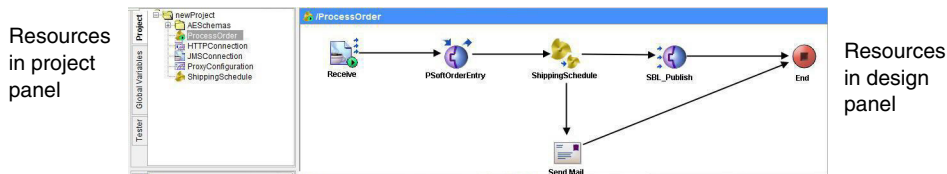
Each TIBCO Designer window contains one and only one project, which is represented as the top-level folder in the window.

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 TIBCO 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 TIBCO BusinessWorks mapping capabilities.



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:

1. In TIBCO Designer, select the project name (e.g. `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.

**See Also** For introductory information about processes, see *TIBCO BusinessWorks Concepts*. For detailed information about processes, see the *TIBCO ActiveMatrix BusinessWorks Process Design Guide*.

### To add activities to the process, follow these steps:

1. Select the `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.

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).

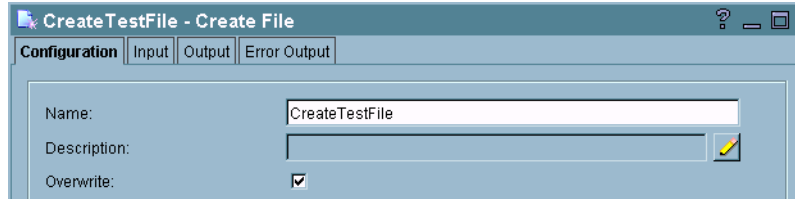
The Start activity is replaced by the File Poller activity.

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.

The screenshot shows the configuration window for the 'TestFilePoller (File Poller)' activity. The 'Configuration' tab is selected. The 'Name' field contains 'TestFilePoller'. The 'File Name' field contains 'C:\tibco\test\PolledFileTest.txt'. The 'Polling Interval (sec)' is set to 5. The 'Include Existing Files' and 'Exclude File Content' checkboxes are unchecked. The 'Content as' dropdown is set to 'text'. The 'Encoding' dropdown is empty. There are 'Apply' and 'Reset' buttons at the bottom right.


- d. Click the **Apply** button.
5. Drag a Create File activity into the design panel and place it to the right of TestFilePoller.

- Name the Create File activity `CreateTestFile`, and click the Overwrite check box, then click the **Apply** button.



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



- In the toolbar, select the Transition icon .
- 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:




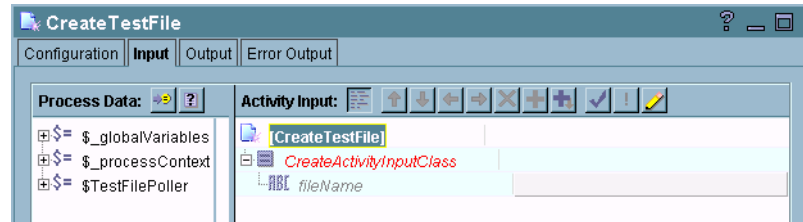
- Choose **Project > Save** from the menu.

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:

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:

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.

TIBCO 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.

TIBCO 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.

See also For more information on using test mode, see the *TIBCO ActiveMatrix BusinessWorks Process Design Guide*.

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

---

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



To run a TIBCO ActiveMatrix BusinessWorks project using the TIBCO 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



Use option `"-name <descriptive name>"` in the command line for providing each engine a descriptive name, when starting the TIBCO 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 TIBCO 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 the TIBCO Community.

## How to Access TIBCO Documentation

Documentation for TIBCO products is available on the [TIBCO Product Documentation](#) website, mainly in HTML and PDF formats.

The [TIBCO 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](#) 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 TIBCO 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™**: *TIBCO Runtime Agent supplies a number of TIBCO and third-party libraries used by TIBCO ActiveMatrix BusinessWorks*
- **TIBCO Administrator™**: *TIBCO Administrator is the monitoring and managing interface for new-generation TIBCO products such as TIBCO 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 Contact TIBCO Support

Get an overview of [TIBCO Support](#). You can contact TIBCO Support in the following ways:

- For accessing the Support Knowledge Base and getting personalized content about products you are interested in, visit the [TIBCO Support](#) website.
- For creating a Support case, you must have a valid maintenance or support contract with TIBCO. You also need a user name and password to log in to [TIBCO Support](#) website. If you do not have a user name, 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, visit [TIBCO Community](#).

## Legal and Third-Party Notices

---

SOME TIBCO SOFTWARE EMBEDS OR BUNDLES OTHER TIBCO SOFTWARE. USE OF SUCH EMBEDDED OR BUNDLED TIBCO SOFTWARE IS SOLELY TO ENABLE THE FUNCTIONALITY (OR PROVIDE LIMITED ADD-ON FUNCTIONALITY) OF THE LICENSED TIBCO SOFTWARE. THE EMBEDDED OR BUNDLED SOFTWARE IS NOT LICENSED TO BE USED OR ACCESSED BY ANY OTHER TIBCO SOFTWARE OR FOR ANY OTHER PURPOSE.

USE OF TIBCO SOFTWARE AND THIS DOCUMENT IS SUBJECT TO THE TERMS AND CONDITIONS OF A LICENSE AGREEMENT FOUND IN EITHER A SEPARATELY EXECUTED SOFTWARE LICENSE AGREEMENT, OR, IF THERE IS NO SUCH SEPARATE AGREEMENT, THE CLICKWRAP END USER LICENSE AGREEMENT WHICH IS DISPLAYED DURING DOWNLOAD OR INSTALLATION OF THE SOFTWARE (AND WHICH IS DUPLICATED IN THE LICENSE FILE) OR IF THERE IS NO SUCH SOFTWARE LICENSE AGREEMENT OR CLICKWRAP END USER LICENSE AGREEMENT, THE LICENSE(S) LOCATED IN THE "LICENSE" FILE(S) OF THE SOFTWARE. USE OF THIS DOCUMENT IS SUBJECT TO THOSE TERMS AND CONDITIONS, AND YOUR USE HEREOF SHALL CONSTITUTE ACCEPTANCE OF AND AN AGREEMENT TO BE BOUND BY THE SAME.

This document is subject to U.S. and international copyright laws and treaties. No part of this document may be reproduced in any form without the written authorization of TIBCO Software Inc.

TIBCO, the TIBCO logo, the TIBCO O logo, TIBCO Hawk, TIBCO Rendezvous, TIBCO Runtime Agent, TIBCO ActiveMatrix BusinessWorks, TIBCO Administrator, TIBCO Designer, TIBCO ActiveMatrix Service Gateway, TIBCO BusinessEvents, TIBCO BusinessConnect, and TIBCO BusinessConnect Trading Community Management are either registered trademarks or trademarks of TIBCO Software Inc. in the United States and/or other countries.

Java and all Java based trademarks and logos are trademarks or registered trademarks of Oracle Corporation and/or its affiliates.

All other product and company names and marks mentioned in this document are the property of their respective owners and are mentioned for identification purposes only.

This software may be available on multiple operating systems. However, not all operating system platforms for a specific software version are released at the same time. See the readme file for the availability of this software version on a specific operating system platform.

THIS DOCUMENT IS PROVIDED "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, OR NON-INFRINGEMENT.

THIS DOCUMENT COULD INCLUDE TECHNICAL INACCURACIES OR TYPOGRAPHICAL ERRORS. CHANGES ARE PERIODICALLY ADDED TO THE INFORMATION HEREIN; THESE CHANGES WILL BE INCORPORATED IN NEW EDITIONS OF THIS DOCUMENT. TIBCO SOFTWARE INC. MAY MAKE IMPROVEMENTS AND/OR CHANGES IN THE PRODUCT(S) AND/OR THE PROGRAM(S) DESCRIBED IN THIS DOCUMENT AT ANY TIME.

THE CONTENTS OF THIS DOCUMENT MAY BE MODIFIED AND/OR QUALIFIED, DIRECTLY OR INDIRECTLY, BY OTHER DOCUMENTATION WHICH ACCOMPANIES THIS SOFTWARE, INCLUDING BUT NOT LIMITED TO ANY RELEASE NOTES AND "READ ME" FILES.

This and other products of TIBCO Software Inc. may be covered by registered patents. Please refer to TIBCO's Virtual Patent Marking document (<https://www.tibco.com/patents>) for details.

Copyright © 2001-2022. TIBCO Software Inc. All Rights Reserved.