TIBCO BusinessEvents®

Installation

Software Release 5.1
August 2012

two-second advantage™

Important Information

Contents

Preface

> **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. Please see the readme.txt file for the availability of this software version on a specific operating system platform.**

TIBCO BusinessEvents® allows you to abstract and correlate meaningful business information from the events and data flowing through your information systems, and take appropriate actions using business rules. By detecting patterns within the real-time flow of events, TIBCO BusinessEvents can help you to detect and understand unusual activities as well as recognize trends, problems, and opportunities. TIBCO BusinessEvents publishes this business-critical information in real time to your critical enterprise systems or dashboards. With TIBCO BusinessEvents you can predict the needs of your customers, make faster decisions, and take faster action.

TIBCO BusinessEvents
The Power to Predict®

Topics

Changes from the Previous Release of this Guide

This section itemizes the major changes from the previous release of this guide.

Supported Hardware and Software

Information about supported hardware and software is now located only in the product readme file.

Migration Topics

The migration topics have been updated.

- Information about migrating database concepts from 3.x to 5.x is now provided.

- Information about migrating decision tables from 3.x to 5.x is now provided in this guide (and is removed from the *TIBCO BusinessEvents Decision Manager User's Guide*.

- Other general updates are made as required for migration to 5.1.

See the following for details:

- Chapter 4, Migrating Projects from Earlier Versions, page 35
- Chapter 5, Property Migration Reference, page 67

Eclipse P2 Provisioning

TIBCO BusinessEvents Studio is compatible with the Eclipse P2 provisioning system. The section Using an Existing Eclipse (or TIBCO Business Studio) Installation on page 19 has been updated with instructions to install the TIBCO BusinessEvents Studio repositories on an existing Eclipse installation. The list of required dependencies has also been updated.

Miscellaneous

- A short section explains a requirement for use of TIBCO Administrator. See If Deploying with TIBCO Administrator, Install it First on page 4

Other Changes

- The full version of TIBCO Hawk was required for the machine-level monitoring feature available in TIBCO BusinessEvents Monitoring and

Management. Now the limited version provided with TIBCO Runtime Agent is sufficient. The documentation has been updated accordingly.

However, the full version of TIBCO Hawk is required to use the Hawk channel.

- Instructions to enable the `studio-tools` utility on Solaris x86 have been added. See Configuring the Studio-tools Utility on Solaris x86 on page 23.

- Instructions to uninstall the software in console mode have been added. See Uninstall in Console Mode on page 17.

- The documentation now addresses the needs of partial installers as well as full installers.

- The chapter on installation FAQs and troubleshooting section has been removed because the content was no longer relevant for the current release.

TIBCO BusinessEvents Express

The TIBCO BusinessEvents Express edition provides more limited functionality than the TIBCO BusinessEvents Standard Edition. Some content in this documentation is not relevant to users of TIBCO BusinessEvents Express. Such content includes but is not limited to any chapters and major sections that contain a note indicating that the content does not apply to TIBCO BusinessEvents Express.

Minor references to unsupported features may not be called out in the text. Use the following general guidelines to understand what is and is not supported in these cases:

- Only In Memory object management (OM) is supported. Therefore all functionality that requires Cache OM, such as use of a backing store, is not available. Berkeley DB OM is also not supported with the TIBCO BusinessEvents Express edition.

- Only the TIBCO BusinessEvents Decision Manager add-on is supported with the TIBCO BusinessEvents Express edition in this release. Other add-on products are not supported.

Related Documentation

This section lists documentation resources you may find useful.

TIBCO BusinessEvents and Add-On Product Documentation

The following diagram shows the main documents in the TIBCO BusinessEvents documentation set, and the documentation sets for the optional add-on products.
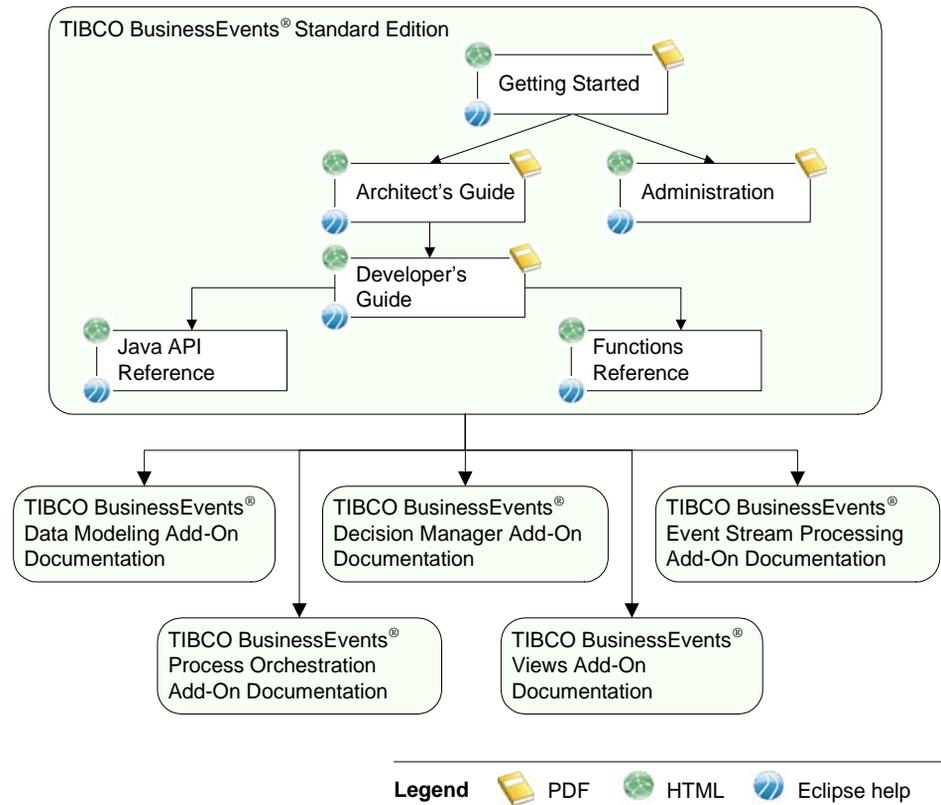
Each set also contains an installation guide, release notes, and a readme file.

TIBCO BusinessEvents Documentation

TIBCO BusinessEvents Studio, the design-time UI, is supported on Windows and Linux. The documentation set for TIBCO BusinessEvents is as follows.

- *TIBCO BusinessEvents Installation*: Read this manual for instructions on site preparation, installation, upgrading from an earlier release, and project migration.

- *TIBCO BusinessEvents Getting Started*: After the product is installed, use this manual to learn the basics of TIBCO BusinessEvents: project design, cache OM, and backing store. This guide explains the main ideas so you gain understanding as well as practical knowledge.

- *TIBCO BusinessEvents Architect's Guide*: If you are architecting an application using TIBCO BusinessEvents, read this guide for overview and detailed technical information to guide your work.

- *TIBCO BusinessEvents Developer's Guide*: Use this guide when you implement a project design in TIBCO BusinessEvents Studio. It covers topics such as project-level tasks, resource-level tasks, debugging, and integration with TIBCO ActiveMatrix BusinessWorks. It also explains how to configure the CDD file for different object management options, and set up a backing store.

- *TIBCO BusinessEvents Administration*: This book explains how to configure, deploy, monitor, and manage a TIBCO BusinessEvents application and the data it generates using TIBCO BusinessEvents Monitoring and Management component, TIBCO Administrator, or at the command line. It includes authentication and authorization topics.

- Online References:

  — *TIBCO BusinessEvents Java API Reference*: This online reference is available from the HTML documentation interface. It provides the Javadoc-based documentation for the TIBCO BusinessEvents API.

  — *TIBCO BusinessEvents Functions Reference:* This reference is available from the HTML documentation interface. It provides a listing of all functions provided with TIBCO BusinessEvents, showing the same details as the tooltips available in TIBCO BusinessEvents Studio.

- *TIBCO BusinessEvents 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.

TIBCO BusinessEvents Event Stream Processing

This TIBCO BusinessEvents add-on is available separately, and includes the TIBCO BusinessEvents Query Language features and the Pattern Matcher Service.

- *TIBCO BusinessEvents Event Stream Processing Installation*: Read this brief manual for installation instructions. A compatible version of TIBCO BusinessEvents must be installed before you install any add-on.

- *TIBCO BusinessEvents Event Stream Processing Query Developer's Guide*: This manual explains how to use the object query language to query various aspects of the running system For details on configuring and deploying query agents, see *TIBCO BusinessEvents Developer's Guide*.

- *TIBCO BusinessEvents Event Stream Processing Pattern Matcher Developer's Guide*: This manual explains how to use the pattern matcher language and engine to correlate event patterns in a running system.

- *TIBCO BusinessEvents Event Stream Processing 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.

TIBCO BusinessEvents Decision Manager

This TIBCO BusinessEvents add-on is available separately. It incorporates the Decision Manager decision modeling business user interface (supported on Windows and Linux), and the Rules Management Server (supported on all platforms supported by TIBCO BusinessEvents).

- *TIBCO BusinessEvents Decision Manager Installation*: Read this brief manual for installation instructions. A compatible version of TIBCO BusinessEvents must be installed before you install any add-on.

- *TIBCO BusinessEvents Decision Manager User's Guide*: This manual explains how business users can use decision tables and other decision artifacts to create business rules. It also covers configuration and administration of Rules Management Server, which is used for authentication, authorization, and approval processes.

- *TIBCO BusinessEvents Decision Manager 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.

TIBCO BusinessEvents Data Modeling

This TIBCO BusinessEvents add-on is available separately. It contains state models and database concept features.

- *TIBCO BusinessEvents Data Modeling Installation*: Read this brief manual for installation instructions. A compatible version of TIBCO BusinessEvents must be installed before you install any add-on.

- *TIBCO BusinessEvents Data Modeling Developer's Guide*: This manual explains data modeling add-on features for TIBCO BusinessEvents. The database concepts feature enables you to model TIBCO BusinessEvents concepts on Database tables. The state modeler feature enables you to create state machines.

- *TIBCO BusinessEvents Data Modeling 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.

TIBCO BusinessEvents Process Orchestration

This TIBCO BusinessEvents add-on is available separately. It provides CEP functionality within the context of a BPM process, enabling you segregate different CEP rule sets within the flow of a BPM process.

- *TIBCO BusinessEvents Process Orchestration Installation*: Read this manual for instructions on site preparation and installation. A compatible version of TIBCO BusinessEvents must be installed before you install any add-on.

- *TIBCO BusinessEvents Process Orchestration Developer's Guide*: This guide explains how configure and deploy business processes whose actions are carried out using TIBCO BusinessEvents project resources.

- *TIBCO BusinessEvents Process Orchestration 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.

TIBCO BusinessEvents Views

This TIBCO BusinessEvents add-on is available separately. It includes graphical dashboard components for run-time event monitoring.

- *TIBCO BusinessEvents Views Installation*: Read this manual for instructions on site preparation and installation. A compatible version of TIBCO BusinessEvents must be installed before you install any add-on.

- *TIBCO BusinessEvents Views Getting Started*: After the product is installed, use this manual to learn how to use TIBCO BusinessEvents Views to create and run a dashboard using a step-by-step tutorial.

- *TIBCO BusinessEvents Views Developer's Guide*: This guide explains how to use TIBCO BusinessEvents Views to create meaningful metrics that are presented to business users in real-time for proactive decision making.

- *TIBCO BusinessEvents Views User's Guide*: This book explains how to monitor metrics in TIBCO BusinessEvents TIBCO BusinessEvents Views and how to represent the business processes graphically.

- *TIBCO BusinessEvents Views 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.

Accessing TIBCO BusinessEvents Functions Reference Documentation

Reference documentation for functions, including those used in add-ons, is available in the HTML documentation interface for the TIBCO BusinessEvents documentation set, and as tooltips in TIBCO BusinessEvents Studio. To use the HTML-based functions reference from the file system do the following:

1. Browse to *BE_HOME*/doc/standard/html and click **index.htm**. The HTML documentation interface appears.

2. In the left panel, browse to Online References and in the right panel choose TIBCO BusinessEvents Functions Reference. The reference opens in a new tab.

3. Click the navigation links to browse to the functions as desired.

Other TIBCO Product Documentation

You may find it useful to refer to the documentation for the following TIBCO products:

- TIBCO ActiveSpaces®
- TIBCO Hawk®
- TIBCO Rendezvous®

- TIBCO Enterprise Message Service™
- TIBCO ActiveMatrix BusinessWorks™

Typographical Conventions

The following typographical conventions are used in this manual.

Table 1   General Typographical Conventions

Convention	Use
ENV_NAME *TIBCO_HOME* *BE_HOME*	TIBCO products are installed into an installation environment. A product installed into an installation environment does not access components in other installation environments. Incompatible products and multiple instances of the same product must be installed into different installation environments. An installation environment consists of the following properties: • **Name** Identifies the installation environment. This name is referenced in documentation as *ENV_NAME*. On Microsoft Windows, the name is appended to the name of Windows services created by the installer and is a component of the path to the product shortcut in the Windows Start > All Programs menu. • **Path** The folder into which the product is installed. This folder is referenced in documentation as *TIBCO_HOME*. TIBCO BusinessEvents installs into a directory within a *TIBCO_HOME*. This directory is referenced in documentation as *BE_HOME*. The default value of *BE_HOME* depends on the operating system. For example on Windows systems, the default value is `C:\tibco\be\5.1`.
`code font`	Code font identifies commands, code examples, filenames, pathnames, and output displayed in a command window. For example: Use `MyCommand` to start the foo process.
`bold code font`	Bold code font is used in the following ways: • In procedures, to indicate what a user types. For example: Type **`admin`**. • In large code samples, to indicate the parts of the sample that are of particular interest. • In command syntax, to indicate the default parameter for a command. For example, if no parameter is specified, `MyCommand` is enabled: MyCommand [**`enable`** | disable]

Table 1   General Typographical Conventions (Cont'd)

Convention	Use
italic font	Italic font is used in the following ways: • To indicate a document title. For example: See *TIBCO ActiveMatrixBusinessWorks Concepts*. • To introduce new terms For example: A portal page may contain several *portlets*. Portlets are mini-applications that run in a portal. • To indicate a variable in a command or code syntax that you must replace. For example: `MyCommand` *PathName*
Key combinations	Key name separated by a plus sign indicate keys pressed simultaneously. For example: Ctrl+C. Key names separated by a comma and space indicate keys pressed one after the other. For example: Esc, Ctrl+Q.
	The note icon indicates information that is of special interest or importance, for example, an additional action required only in certain circumstances.
	The tip icon indicates an idea that could be useful, for example, a way to apply the information provided in the current section to achieve a specific result.
	The warning icon indicates the potential for a damaging situation, for example, data loss or corruption if certain steps are taken or not taken.

Table 2   Syntax Typographical Conventions

Convention	Use
[ ]	An optional item in a command or code syntax. For example: `MyCommand [optional_parameter] required_parameter`
|	A logical OR that separates multiple items of which only one may be chosen. For example, you can select only one of the following parameters: `MyCommand param1	param2	param3`

Table 2   Syntax Typographical Conventions

Convention	Use
{ }	A logical group of items in a command. Other syntax notations may appear within each logical group.
	For example, the following command requires two parameters, which can be either the pair `param1` and `param2`, or the pair `param3` and `param4`.
	`MyCommand {param1 param2}	{param3 param4}`
	In the next example, the command requires two parameters. The first parameter can be either `param1` or `param2` and the second can be either `param3` or `param4`:
	`MyCommand {param1	param2} {param3	param4}`
	In the next example, the command can accept either two or three parameters. The first parameter must be `param1`. You can optionally include `param2` as the second parameter. And the last parameter is either `param3` or `param4`.
	`MyCommand param1 [param2] {param3	param4}`

Connecting with TIBCO Resources

This section provides links to helpful TIBCO resources.

How to Join TIBCOmmunity

TIBCOmmunity is an online destination for TIBCO customers, partners, and resident experts, a place to share and access the collective experience of the TIBCO community. TIBCOmmunity offers forums, blogs, and access to a variety of resources. To register, go to http://www.tibcommunity.com.

How to Access TIBCO Documentation

You can access TIBCO documentation here:

http://docs.tibco.com

How to Contact TIBCO Support

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

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

http://www.tibco.com/services/support

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

https://support.tibco.com

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

Chapter 1   **Installation Guidelines**

This chapter provides information to ensure a successful installation of the TIBCO BusinessEvents software.

TIBCO BusinessEvents Express This guide is also used to document installation of the TIBCO BusinessEvents Expresss edition. The TIBCO BusinessEvents Express edition supports only In Memory object management. Content that requires cache functionality does not apply to TIBCO BusinessEvents Express edition.

Topics

TIBCO BusinessEvents Components and Add-on Products

This section lists the product components and add-on products.

TIBCO BusinessEvents Standard Edition Components

TIBCO BusinessEvents Standard Edition provides the following components.

- **TIBCO BusinessEvents Studio** Eclipse-based component for designing TIBCO BusinessEvents projects.

- **TIBCO BusinessEvents DataGrid** Used for cache functionality. Cannot be separately installed or uninstalled.

- **Monitoring and Management** A configurable web-based user interface for monitoring and managing TIBCO BusinessEvents clusters.

- **Eclipse Platform** A provided Eclipse platform. If you do not use the provided Eclipse installation, you must have a preexisting Eclipse installation, at the supported release level. See Using an Existing Eclipse (or TIBCO Business Studio) Installation on page 19 for more information.

- **Documentation** TIBCO BusinessEvents documentation. The doc folder contains an HTML and a PDF folder. If you do not install documentation, this folder is not included in the installation.

- **Runtime** The runtime engine. Cannot be separately installed or uninstalled.

- **Rules Management Server (RMS)** A lightweight server component for managing the repository of projects. It also includes the client component, WebStudio, which is a web-based user interface that allows business users to create and manage business rules in a web browser.

TIBCO BusinessEvents Express Edition Components

TIBCO BusinessEvents Express edition provides the following components.

- **TIBCO BusinessEvents Studio** Eclipse-based component for designing TIBCO BusinessEvents projects.

- **Monitoring and Management** A configurable web-based user interface for monitoring and managing TIBCO BusinessEvents clusters.

- **Eclipse Platform** A provided Eclipse platform. If you do not use the provided Eclipse installation, you must have a preexisting Eclipse installation of a supported version. See Using an Existing Eclipse (or TIBCO Business Studio) Installation on page 19 for more information.

- **Documentation** TIBCO BusinessEvents documentation. The doc folder contains an HTML and a PDF folder. If you do not install documentation, this folder is not included in the installation.

- **Runtime** The runtime engine. Cannot be separately installed or uninstalled.

Add-on Products

When you install TIBCO BusinessEvents Standard Edition, you can also install any add-on products you have purchased. Add-ons available in this release are shown below.

- TIBCO BusinessEvents Data Modeling

- TIBCO BusinessEvents Event Stream Processing

- TIBCO BusinessEvents Decision Manager

- TIBCO BusinessEvents Process Orchestration

- TIBCO BusinessEvents Views

Install all add-ons (except TIBCO BusinessEvents Process Orchestration) that are at the same version as TIBCO BusinessEvents. Do not install add-ons before you have installed TIBCO BusinessEvents. (You can, however, install TIBCO BusinessEvents and add-ons at the same time, as explained in the installation instructions.)

For TIBCO BusinessEvents Express edition, only TIBCO BusinessEvents Decision Manager is supported.

Installation Overview

⚠️ **The version of TIBCO BusinessEvents and all add-on products except TIBCO BusinessEvents Process Orchestration must match**.

Add-ons, all except TIBCO BusinessEvents Process Orchestration, must be at the same version as TIBCO BusinessEvents in order to work correctly. When you upgrade TIBCO BusinessEvents, you must also upgrade the add-on products in use to the same version. Similarly, you cannot install a later version of an add-on onto an earlier version of TIBCO BusinessEvents.

If Deploying with TIBCO Administrator, Install it First

If TIBCO Administrator is used to deploy TIBCO BusinessEvents applications, you must install TIBCO Runtime Agent and TIBCO Administrator (on machines where you will deploy TIBCO BusinessEvents applications) before you install TIBCO BusinessEvents.

If TIBCO BusinessEvents is the first TIBCO product installed, it will not be found by TIBCO Administrator.

This requirement does not apply on machines where TIBCO BusinessEvents will be used for design-time activities only.

Using Oracle Coherence as Alternative Cache Provider

Only TIBCO BusinessEvents DataGrid is provided with TIBCO BusinessEvents. Alternatively, you can use a supported version of Oracle Coherence, for which you must have a license that is appropriate for your usage.

Using OpenSSH for TIBCO BusinessEvents Monitoring and Management

TIBCO BusinessEvents Monitoring and Management (MM) is a provided component. It is one of the options available for deployment, monitoring, and management. (If TIBCO Administrator is used in your environment, you can use it instead.)

OpenSSH is one of the options available to enable MM to perform remote start and deployment of TIBCO BusinessEvents engines running on Microsoft Windows. See the product readme for supported versions of the third party software.

Copssh is another option that can be used. Note that only versions 3.1.3 and 3.1.4 are supported.

Required and Optional Products and Supported Platforms

For details about supported platforms, related TIBCO software, and third party products, see the product readme file in the *TIBCO_HOME*/`release_notes` directory.

Installation History Log Files

Installation and uninstallation history is kept in log files in the `.TIBCO` directory within the installer's user (or home) directory.

The folder names use this format:

`install_month-day-year.time`

`uninstall_month-day-year.time`

The installation log files record environment details such as the user that invoked the installer, hostname, operating system details, and so on.

TIBCO Home and Default Installation Directory

The installer prompts you to specify the TIBCO home (*TIBCO_HOME*) where you want to install TIBCO BusinessEvents. Each TIBCO home is a separate environment. You can install the same software into different environments safely, for example, for test, QA, and staging purposes. You can install multiple TIBCO products into the same environment or into different ones. See Using Multiple TIBCO Homes on page 6.

A TIBCO home has a name and a directory on disk. The directory is the root directory for all TIBCO products you want to install into this TIBCO home.

When installing multiple TIBCO products into a single TIBCO Home, ensure that all the products are compatible.

Microsoft Windows

The default installation location is the *TIBCO_HOME* where all TIBCO products are installed. Typically, *TIBCO_HOME* is `c:\tibco`.

The Start menu path to the executable files includes the environment as follows:

Start > TIBCO > *TIBCO_HOME* **> TIBCO BusinessEvents 5.1**

The name is also appended to the name of Windows services created by the installer.

UNIX

The default installation directory depends on who performs the installation:

• For root users, the default installation directory is `/opt/tibco`.

• For non-root users, the default installation directory is `/<myhome>/tibco`, where *<myhome>* is the home directory of the user.

Using Multiple TIBCO Homes

It is possible that certain versions of TIBCO software products installed on your computers may not work well together. You may also want to install multiple versions of the same product on the same machine, for example if you are testing the current release while using the prior release in production. To avoid any issues, one solution is to install each product in its own TIBCO home, under a common parent directory, for example called tibco. In the following example, `be_40`, `be_50`, `bw_59` and `administrator_57` are all separate TIBCO homes:

```
tibco/
      be_40/
            be
      be_50/
            be
      bw_59/
            bw
      administrator_57/
            administrator
```

Using an Existing Eclipse (or TIBCO Business Studio™) Installation

Using the bundled Eclipse software is recommended. However, you can optionally use an existing Eclipse installation. You can, for example, use the Eclipse installation provided with TIBCO Business Studio business modeling software. This option is not available with partial installers (commonly used for service pack releases).

Limiting Access to TIBCO BusinessEvents Installations

Here is another case for using an existing Eclipse installation. In some enterprises, users are given limited access to software, such as TIBCO BusinessEvents. All users, however, require full rights to the Eclipse installation because certain files are written during normal use of BusinessEvents Studio. In this case you must install Eclipse separately, in areas where users have permission to write.

See .

Upgrading TIBCO BusinessEvents

⚠️   **Before You Upgrade**   Read Chapter 4, Migrating Projects from Earlier Versions, on page 35.

Standard Upgrade Procedures

Software from TIBCO uses three numbers to indicate whether the release is major, minor or a patch. For example, 5.0.0 indicates a major release, 5.4.0 indicates a minor release and 5.3.3 indicates a service pack release.

The installer for a service pack release performs an automatic upgrade. For example, the installer would automatically upgrade TIBCO BusinessEvents 5.3.0 to 5.3.1 by overwriting the contents of the 5.3 directory.

If you are upgrading TIBCO BusinessEvents to a new major or minor version, it is strongly recommended that you uninstall the earlier version of the product first and perform a fresh installation (full product installers only).

Installing Over the Same Version

Note that if you are reinstalling over the same version, if any files are currently locked (that is, in use), the installer marks the file for deletion in the install location. After installation if the installer prompts you to reboot your system, you must reboot before using the software.

Chapter 2   **TIBCO BusinessEvents Installation**

This chapter describes how to install this release using TIBCO Universal Installer.

Topics

Installation Guidelines

The sections below provide guidelines for installing on Windows and UNIX platforms.

If deploying with TIBCO Administrator   Install it on machines where you will deploy TIBCO BusinessEvents applications before you install TIBCO BusinessEvents. See If Deploying with TIBCO Administrator, Install it First on page 4.

Windows Installation Guidelines

All 32-bit installers are supported on 64-bit platforms as 32-bit software.

Installer Account

You must have administrator privileges for the machine on which the software is installed.

If you do not have administrator privileges, the installer exits. You must then log out of the system and log in as a user with the required privileges, or request your system administrator to assign the privileges to your account.

Installing from a Network Drive

If you intend to install the product from a network drive, you must ensure that the account used for installation has permission to access the network drive.

Installing on Windows 2000 Terminal Server

There are two modes in terminal server, `Execute` and `Install`. By default all users are logged on in `Execute` mode, which allows them to run the applications. When you want to install the software for use by everyone, the Administrator should change to `Install` mode.

The best way to install the software on Windows 2000 Terminal Server is to use the Add/Remove Programs control panel applet, because this automatically sets the mode to `Install` during the installation and then back to `Execute` at the end.

Alternatively, you can manually change your mode to `Install` by typing `C:\> change user /install`

Change back to execute by typing `C:\> change user /execute`

Check your current mode by typing `C:\> change user /query`

If you install in the `Execute` mode, the installation registry is maintained in your user home directory. If you install in the `Install` mode, the installation registry is maintained in the *%SystemRoot%* folder.

UNIX Installation Guidelines

Installer Account

The software can be installed by a regular (non-root) user and super-user (root). Different users can install the same product at different locations

Permissions

The user performing the installation must have Read Write Execute permissions on all files and directories, after the file is unpacked. The file structure after unpacking must be identical to the structure that was packed.

> **Installation of TIBCO BusinessEvents add-on products must be performed by the same user who installed TIBCO BusinessEvents** Dependency checking will not work correctly unless the same user installs all dependent products.

Windowing Environment

A windowing environment such as CDE (that is, X11 Windows) is required to run the installer in GUI mode. It is not required for a console installation or silent installation.

> For platforms that support 64-bit mode, post installation configuration is required. See Configuration for 64-bit Mode on page 32.
>
> For HP-UX platforms, also see HP-UX on page 33.

Installing TIBCO BusinessEvents

If using an existing Eclipse installation See Using an Existing Eclipse (or TIBCO Business Studio) Installation on page 19 for steps you may want to take before installing TIBCO BusinessEvents.

After installation is complete Perform any post-installation tasks as required. See Chapter 3, Post Installation Tasks, on page 27.

Installing Multiple TIBCO BusinessEvents Products at One Time You can install multiple products at one time by extracting the product archive files to the same temporary directory. For example, you can install TIBCO BusinessEvents and one or more add-ons together. Or if you have already installed TIBCO BusinessEvents, you can install multiple add-ons together.

Multiple Install Does Not Work in Silent Mode Note that this technique works in the GUI and Console modes but not in Silent mode. In Silent mode, the silent installation file is overwritten with the last product that you extract, and installs only the last extracted product.

Install in GUI Mode

The following procedure explains how to install the software in GUI mode.

1. Prepare to install as follows:

   a. Log in to the system on which you want to install TIBCO BusinessEvents.

   b. Extract the TIBCO BusinessEvents product archive file to a temporary directory then navigate to that directory. You can also extract the product archive files for all TIBCO BusinessEvents add-on products that you are installing to the same temporary directory. See the Tip section above,

2. Run the TIBCO Universal Installer executable (**TIBCOUniversalInstaller***).

3. Review the information in the Welcome dialog. If you are installing multiple add-ons, they are listed in this dialog. Click **Next**.

4. The License Agreement dialog displays. Review the terms of the license agreement and, if you agree to them, click **I accept the terms of the license agreement**. Then click **Next** to continue with the installation. If you are also installing add-on products, you must accept each license separately.

   (If you do not agree to the terms of the license agreement, click **Cancel** to exit from the installation process.)

5. Select or create a TIBCO home. For more details and guidelines see TIBCO Home and Default Installation Directory on page 5. Do one of the following:

   — Select **Use an Existing TIBCO_HOME** and select a home from the list.

      For a service pack, select the TIBCO home used by the prior release.

   — Create a new TIBCO home. Browse to and select a directory, and provide a name for the home.

      The name cannot contain special characters such as "*", "?", ">", "<", ":", "|", "/", "\", or quotes (").

   Click **Next**.

6. For full installers only, you can customize the installation as follows.

   (If you don't want to customize the installation just click Next without checking the Customize Installation checkbox and go to step 5.)

   a. Check the **Customize Installation** check box.

   b. Optionally select only the components you want to install. See TIBCO BusinessEvents Standard Edition Components on page 2 for guidelines.

   c. Click **Next**.

   d. A dialog appears where you can specify the location of a different Eclipse installation from the version provided with TIBCO BusinessEvents. Do one of the following.

   — Do not check the Use my own Eclipse installation check box. Just click **Next** to accept the provided Eclipse installation. (This is the recommended approach).

   — Check the **Use my own Eclipse installation** check box. Specify the location of your Eclipse installation in the Eclipse Installation Location field, and click **Next**. Also see Using an Existing Eclipse (or TIBCO Business Studio) Installation on page 19 for additional configuration required to use your own installation.

7. The installer performs some basic checks and if it finds any problems with the Eclipse configuration that you specified, it displays messages. If you are installing TIBCO BusinessEvents before your own copy of Eclipse, you can ignore the messages and continue the installation.

8. The installer configures your installation choices, then the Pre-Install Summary dialog displays. Review the information in the dialog and make sure that it is correct.

   If you want to change any of your choices, click **Back** to step back through the dialogs to the appropriate point. You can then restart the installation process from that point.

If you are satisfied with your choices, click **Install**.

The installer now performs the necessary installation tasks.

9. You may be prompted to replace files already on disk that are newer than the installation files.

— In the case of a fresh installation of the add-on over a prior fresh installation of a full installer version of the add-on or of TIBCO BusinessEvents, such messages are harmless: overwrite all existing files.

— In the case of files you have changed: if you want to save settings in any existing files, first save a backup of the files to a different name, and then replace the original files with the newly installed files. After installation configure the newly installed files using information from the prior version's file backups, as needed.

10. When installation has completed, the Post Install Summary dialog displays. Click **Finish** to exit from the installer. There is a slight delay while the installer deletes temporary files.

Install in Console Mode

The following procedure explains how to install the software in console mode.

1. Open the physical media or download the TIBCO BusinessEvents product package.

2. Extract the TIBCO BusinessEvents product archive file to a temporary directory.

3. Using a console window, navigate to the temporary directory that contains the universal installer and run the installer using this command line:

   ```
   TIBCOUniversalInstaller -console
   ```

4. Complete the installation by responding to the console window prompts, which are similar to those described in the GUI mode instructions.

Install in Silent Mode

The following procedure explains how to install the software in silent mode. Any errors that occur during installation are listed in the installation log file (see the *User_Home/*.TIBCO directory.

Configure the Installation Responses

A configuration file,
`TIBCOUniversalInstaller_`*productAcronym_relVersion*`.silent`, is provided with
the universal installer. Copy the file to another name (but keep the `.silent`
extension) and use it to configure your installation choices.

You must edit the file in a text editor and provide all non-default values as needed
before launching the silent installation. For example, ensure that the
`installationRoot` and `createNewEnvironment` attributes are set correctly. The
file includes comments to help you set the installation properties.

> Ensure that the `installationRoot` and `createNewEnvironment` specified in the
> configuration file do not exist already.

Save the configuration file to the same directory where the universal installer file
is located. It is recommended that you back up the original file or save your
edited file to a different name. This file is known as the response file.

Install in Silent Mode

1. Extract the TIBCO BusinessEvents product archive file to a temporary
   directory.

2. Using a console window, navigate to the temporary directory that contains the
   universal installer.

3. To run the installer execute the following command, replacing *myfile* with your
   response file name:

   ```
   TIBCOUniversalInstaller -silent -V responseFile="myfile.silent"
   ```

   You can rename the
   `TIBCOUniversalInstaller_`*productAcronym_relVersion*`.silent` file to
   `TIBCOUniversalInstaller.silent` and run the command without
   specifying the .silent file name as:

   ```
   TIBCOUniversalInstaller -silent
   ```

   A line similar to the following is written to the installer log file when
   installation completes:

   ```
   The installation has completed. Please check the log file for
   additional information.
   ```

Verifying the Installation

TIBCO BusinessEvents and TIBCO BusinessEvents add-on product installations can be verified as follows.

Verifying TIBCO BusinessEvents Installation

After installation of TIBCO BusinessEvents and any of its add-on products, verify the installation as follows.

To verify if the installation is successful, first check the file `tibco_universal_installer.userid_install.log`, which is located in the `.TIBCO` directory of the user performing the installation:

Errors in this file, or the existence of error files under this folder, indicates installation problems. Error files have the following format:

`antTask_ERROR_log_post-install_`*mm-dd-yyy*`.`*n*`.log`

If the log files do not indicate any errors, then open a simple example project in TIBCO BusinessEvents Studio, and also run the example at the command line. The example readme files explain how to run the examples at the command line, from the installed location. Check for errors on the command line or user interface. Absence of errors, and a normal engine start up indicate successful installation.

Verifying Add-On Product Installations

To verify that add-ons are installed, look for the list of add-ons in the folder *TIBCO_HOME*`/_installInfo`. Every successfully installed add-on has a corresponding XML file under this folder.

You can also check the install log file to confirm which add-ons are installed.

Uninstalling TIBCO BusinessEvents

> **Service Pack Releases** In the case of a service pack release, this procedure uninstalls the entire TIBCO BusinessEvents installation, not just the service pack. It is not possible to uninstall only the service pack.

Uninstall in GUI mode

To uninstall TIBCO BusinessEvents in the GUI mode, do the following:

1. Do one of the following to start the uninstaller:

   — Navigate to the *TIBCO_HOME*/tools/universal_installer directory and run the TIBCOUniversalInstaller program.

   — (Windows) From the Start menu, select **Start > All Programs > TIBCO >** *TIBCO_HOME* > **Uninstall**.

   — (Windows) Use Add/Remove Programs from the Control Panel.

2. The Welcome screen appears. Click **Next**.

3. Do one of the following:

   — To uninstall only a selection of products in this TIBCO home, click **Custom Uninstall**. Select the product or products you want to uninstall. Then click **Next**. See TIBCO BusinessEvents Standard Edition Components on page 2 for guidelines.

   — To uninstall all TIBCO products in this TIBCO home (that were installed using the universal installer), click **Typical Uninstall**. Then click **Next**.

4. The Pre-Uninstall Summary screen appears. Click **Uninstall**. Uninstallation proceeds and then you see the Post-Uninstall Summary.

5. Click **Finish** to close the uninstaller window.

6. If you are prompted to do so, restart the computer.

   You may also want to manually delete any remaining files in the installation directory to completely remove the product.

For information on the uninstallation log files, see Installation History Log Files on page 5.

Uninstall in Console Mode

To uninstall TIBCO BusinessEvents in the console mode, do the following:

1. Open a console window and navigate to the directory:

   TIBCO_HOME/`tools/universal_installer`

2. Run the TIBCOUniversalInstaller in console mode using the command:

   `TIBCOUniversalInstaller -console`

3. Respond to the prompts on the console window to uninstall the software.

Using an Existing Eclipse (or TIBCO Business Studio) Installation

This section is optional, for those using an existing eclipse installation instead of one provided with TIBCO BusinessEvents.

Using an existing Eclipse (or TIBCO Business Studio) installation is possible only for releases with full installers. It is not possible for releases with partial installers, such as service pack releases.

TIBCO BusinessEvents Studio is compatible with the Eclipse P2 provisioning system. You can choose to install TIBCO BusinessEvents Studio on an existing Eclipse installation using one of the following approaches:

- Executing the script install_studio_repo available at *BE_HOME*/studio/repo. See Install Using the Script install_studio_repo on page 20 for details.

- Using Ant to run the build file available at *BE_HOME*/studio/repo. See Install Using Ant on page 21 for details.

- Copying the links and updating the .ini files manually. This is applicable only when installing on an existing basic Eclipse installation and not on TIBCO Business Studio. See Install Manually by Copying Links and Updating .ini Files on page 22 for details.

Eclipse Requirements and Installation Guidelines

TIBCO recommends using the Eclipse software bundled with the TIBCO BusinessEvents software. However, if you prefer to use your existing Eclipse software installation, or want to install Eclipse separately, or want to install TIBCO BusinessEvents for use with the TIBCO Business Studio business modeling software product, you must update the existing Eclipse installation with the required plug-ins. You can do this before or after installing TIBCO BusinessEvents.

The Eclipse requirements are:

- Eclipse release 3.7.2

- Eclipse Delta Pack 3.7.2

- Eclipse Modeling Framework (EMF) release 2.7.2

- Eclipse Graphical Editing Framework (GEF) release 3.7.2

- Eclipse Process Framework (EPF) Richtext Feature release 1.5.1.4

- Model Development Tools (MDT) UML release 3.2.1

- Eclipse Web Tools Platform (WTP) release 3.3.2

Perform the following tasks to ensure that the dependencies required by Eclipse and TIBCO BusinessEvents are installed and available:

1. Download the files listed in Eclipse Requirements and Installation Guidelines, page 19 from the Eclipse Foundation web site.

   This step is optional if the script install_studio_repo is used as described in Install Using the Script install_studio_repo, page 20.

2. If you have not already done so, install the Eclipse release.

3. Extract the other components (Delta Pack, EMF, GEF, MDT, and WTP) to the top-level directory of your Eclipse installation.

4. Install TIBCO BusinessEvents (and one or more add-on products if required) as explained in Installing TIBCO BusinessEvents on page 12. Remember to select the **Use my own Eclipse installation** check box.

> The TIBCO BusinessEvents products can be installed before installing the Eclipse software. Ensure that all of them are installed before proceeding to the next step.

5. Choose one of the following approaches to install TIBCO BusinessEvents Studio:

   — Install Using the Script install_studio_repo, page 20

   — Install Using Ant, page 21

   — Install Manually by Copying Links and Updating .ini Files, page 22

Install Using the Script install_studio_repo

This option is available only if the Eclipse Platform feature is installed when installing TIBCO BusinessEvents. If the Eclipse Platform feature is not installed, you can use Ant to install TIBCO BusinessEvents Studio as described in Install Using Ant on page 21.

When you install TIBCO BusinessEvents (and one or more add-ons), the TIBCO BusinessEvents Studio repositories are installed under *BE_HOME*/studio/repo. For each of the installed products, a folder with the product name is created under *BE_HOME*/studio/repo.

Scripts are provided with the repositories to install on an existing Eclipse installation. Using a console window, navigate to *BE_HOME*/studio/repo and run the following command (on Windows):

```
install_studio_repo.bat <absolutePathOf_YourEclipse>/eclipse.exe
```

The script performs the following tasks:

- installs the TIBCO BusinessEvents Studio repositories for all the installed products.

- checks if the dependencies are available. If they are not available, the script downloads the dependencies from the Eclipse download site.

> If the dependencies are not available, you must ensure that the machine has network connectivity to enable to script to download the required files. This may take a while to complete.

- Updates the following properties in *Your_Eclipse*/`eclipse.ini` file:

  -D`BE_HOME`=*path to BE_HOME*

  -D`studio.wrapper.tra.file`=<path to
  BE_HOME>/studio/eclipse/configuration/studio.tra

  -D`JDK_LIB`=*TIBCO_JAVA_HOME*/lib

> The script uses JRE 1.6 that is provided with TIBCO BusinessEvents. To use a different JDK, edit the property `DJDK_LIB` and specify the absolute path of the JDK that is to be used.

The script throws an error with an appropriate message if the Eclipse executable or the eclipse.ini files are missing.

Once the execution is completed, start Eclipse and open the BusinessEvents Perspective to access the TIBCO BusinessEvents Studio features.

Install Using Ant

This option does not require the Eclipse Platform feature to be installed when installing TIBCO BusinessEvents. Ensure that Ant is installed and available in your environment.

Install TIBCO BusinessEvents Studio on an existing Eclipse installation by executing the command:

```
ant -buildfile install_studio_repo.xml
-DappBinary=<absolutePathOf_YourEclipse>/eclipse.exe
-DappIni=<absolutePathOf_YourEclipse>/eclipse.ini
```

The script performs the tasks described in Install Using the Script install_studio_repo, page 20. Once the execution is completed, start Eclipse and open the BusinessEvents Perspective to access the TIBCO BusinessEvents Studio features.

Install Manually by Copying Links and Updating .ini Files

This approach can be used to install on any existing standard Eclipse installation only.

This approach does not support installing TIBCO BusinessEvents Studio on TIBCO Business Studio.

1. Copy the files `TIBCOBusinessEvents-Studio-plugins.link` and `TIBCOBusinessEvents-EclipsePlatform-plugins.link` from *BE_HOME*/`studio/eclipse/dropins_configuration` to *Your_Eclipse*/`links`.

2. Configure the *Your_Eclipse*/`eclipse.ini` file as follows:

   — Ensure that the VM setting is done for Java 1.6 JVM. Path should appear in a new line:

   `-vm`

   path to JRE 1.6

   — Add the following properties to `-vmargs`, each on a new line

   `-DBE_HOME=`*path to BE_HOME*

   `-Dstudio.wrapper.tra.file=<path to BE_HOME>/studio/eclipse/configuration/studio.tra`

   `-DJDK_LIB=`*path to JRE 1.6*`/lib`

3. Change directory to the *Your_Eclipse* location and run the command:

   `eclipse -clean -initialize`

4. Run the command `eclipse`.

   Running this command loads Eclipse with the BusinessEvents Studio plug-ins.

Configuring the Studio-tools Utility on Solaris x86

This section is optional and provides information on how to enable studio-tools on Solaris x86.

You must have access to a Linux installation as the TIBCO BusinessEvents Studio plugins required to enable the studio-tools utility are shipped with the Linux installer.

1. Install TIBCO BusinessEvents (and one or more add-on products, as required) on the Solaris x86 machine as explained in Installing TIBCO BusinessEvents on page 12.

2. Download and install Eclipse 3.7.2 for Solaris Sparc available on the Eclipse download site.
   (http://archive.eclipse.org/eclipse/downloads/drops/R-3.7-201106131736/download.php?dropFile=eclipse-SDK-3.7-solaris-gtk-x86.zip)

3. Copy the following files from a Linux installation to the corresponding location in the Solaris installation:
   — TIBCO BusinessEvents Studio plugins available under *BE_HOME*/studio/plugins
   — *BE_HOME*/studio/bin/studio-tools.tra

4. On Solaris installation location, create the folder
   BE_HOME/eclipse-platform/eclipse/ and copy the following from the
   respective locations on the Linux installation:

   — *BE_HOME*/eclipse-platform/eclipse/dropins/TIBCOBusinessEvents
     -Studio-plugins.link

   — *BE_HOME*/eclipse-platform/eclipse/dropins/eclipse/plugins/*em
     f*

   — *BE_HOME*/eclipse-platform/eclipse/dropins/eclipse/plugins/*um
     l*

   — *BE_HOME*/eclipse-platform/eclipse/dropins/eclipse/plugins/jav
     ax.xml_1.3.4.*.jar

   — *BE_HOME*/eclipse-platform/eclipse/plugins/org.apache.commons.
     codec_1.3.0.*.jar

   — *BE_HOME*/eclipse-platform/eclipse/plugins/org.apache.commons.h
     ttpclient_3.1.0.*.jar

   — *BE_HOME*/eclipse-platform/eclipse/dropins/eclipse/plugins/org
     .apache.xerces_2.9.0.*.jar

   — *BE_HOME*/eclipse-platform/eclipse/dropins/eclipse/plugins/org
     .apache.xml.resolver_1.2.0.*.jar

   — *BE_HOME*/eclipse-platform/eclipse/dropins/plugins/org.apache.
     xml.serializer_2.7.1.*.jar

5. Edit the file studio-tools.tra and specify the appropriate environment
   paths for the variables *TIB_HOME*, *BE_HOME*, *TIB_JAVA_HOME*, and
   JVM_LIB_PATH.

6. Edit the file TIBCOBusinessEvents-Studio-plugins.link and specify the
   location of the TIBCO BusinessEvents Studio plugins.

7. Copy the wrapper executable from *TIBCO_HOME*/tools/wrapper/wrap (or
   wrap64) to *BE_HOME*/studio/bin/studio-tools.

8. Change directory to *BE_HOME*/eclipse-platform/eclipse and run the
   command:

   ```
   eclipse -clean -initialize
   ```

Enabling the Generate Deployable Feature on Solaris

IThe Generate Deployable menu option does not work when Rules Management Server is running on HPUX, AIX, and Solaris except the Solaris SPARC 32-bit platform. For Solaris SPARC 32-bit the following configuration changes are required:

1. Following the detailed instructions in the section , download and install the Eclipse packages for Solaris platform.

2. Import and install the TIBCO BusinessEvents Studio plug-ins from a Linux installation of TIBCO BusinessEvents. TIBCO BusinessEvents Studio plug-ins are located under *BE_HOME*/studio/eclipse/plugins.

3. In the *BE_HOME*/rms/bin/be-rms.tra file, add the following to the classpath using the tibco.env.STD_EXT_CP setting:

   BE_HOME/eclipse-platform/eclipse/plugins

   BE_HOME/studio/eclipse/plugins

Chapter 3 **Post Installation Tasks**

This chapter explains some post-installation steps you may have to perform in your installation.

Also see Chapter 4, Migrating Projects from Earlier Versions, on page 35 for additional procedures you may have to do after installation.

Topics

Post Installation Tasks for All Platforms

This section explains changes that are required in the circumstances shown.

Also see Check and Update JVM Settings in Properties Files on page 29 in case it pertains to your situation.

Migrating Projects

For all projects created using prior releases, you must perform migration steps. After you migrate, you must also rebuild the EAR files for the projects, as is always the case when you upgrade. See Chapter 4, Migrating Projects from Earlier Versions, on page 35 and carefully follow all instructions.

Re-Initialize Studio Plug-ins Registry after Add-on Software Installation

When you install add-on products after installing TIBCO BusinessEvents, you need to ensure that the correct plug-ins contributed by the add-ons are initialized. To do this, re-initialize the studio plug-ins registry before you start using TIBCO BusinessEvents Studio, as explained next.

To Re-Initialize Studio Plug-ins

1. Open a command prompt

2. Change directory to *BE_HOME*/`studio/eclipse`.

3. Run the command

   ```
   studio -clean -initialize
   ```

Check and Update JVM Settings in Properties Files

This task is required for full installations. It is not typically required for service pack installations. It is valid on all platforms.

Check the engine properties file to ensure that all settings are appropriate for your platform.

Set the Heap Size as Needed

By default, the initial (–Xms) and maximum (–Xmx) heap size are set to 1GB for both TIBCO BusinessEvents and TIBCO BusinessEvents Decision Manager. Change the settings as needed to meet your requirements. For TIBCO BusinessEvents, the settings are in the *BE_HOME*/bin/be-engine.tra file. For TIBCO BusinessEvents Decision Manager they are in the *BE_HOME*/decisionmanager/eclipse/DecisionManager.ini file.

For example, if you want to run both TIBCO BusinessEvents Decision Manager and TIBCO BusinessEvents on a machine with 1GB memory, you might reduce the initial heap size setting (–Xms):

```
java.extended.properties=-server –Xms512m -Xmx1024m
```

As another example, if you use a machine with more memory, and you work with very large tables in TIBCO BusinessEvents Decision Manager, you might increase the TIBCO BusinessEvents Decision Manager heap size accordingly.

It can also be helpful to set the MaxPermSize as follows:

```
-XX:MaxPermSize=128m
```

Platform-Specific Settings

Some of the JVM settings do not work for all platforms, and some platforms use additional, platform-specific parameters. For example:

For 64 bit Sun JVM for Intel or AMD on Linux, use

```
JVM_LIB_PATH=%TIB_JAVA_HOME%/lib/amd64/server/libjvm.so
```

For 64 bit Sun JVM for Intel or AMD on Windows, use:

```
JVM_LIB_PATH=%TIB_JAVA_HOME%/lib/amd64/server/libjvm.dll
```

For AMD on Windows and 32 bit Sun JVM for Intel use:

```
JVM_LIB_PATH=%TIB_JAVA_HOME%/lib/i386/server/libjvm.dll
```

The IBM AIX platform uses parameters common to all JVMs, but does not use the -d64 parameter. AIX also uses additional parameters (using the format, *–Xparameter*).

Refer to the appropriate JVM reference manuals for the platform in question. For example, for AIX you could refer to the following resources.

http://www.ibm.com/developerworks/java/jdk/aix/j564/sdkguide.aix64.html

http://www.ibm.com/developerworks/java/jdk/aix/j532/sdkguide.aix32.html

Note that on AIX, you can determine the mode in which JVM is running using the following simple Java program:

```
System.getProperty("com.ibm.vm.bitmode");
```

It returns the following values:

```
* 32 - the JVM is running in 32-bit mode
* 64 - the JVM is running in 64-bit mode
```

All UNIX Installations — Directory Permissions

- This task is required for full installations. It is not typically required for service pack installations.

- This step is required on all UNIX platforms.

- If you use TIBCO BusinessEvents Decision Manager, refer to its installation guide for additional actions.

This section explains what directory permissions must be set to enable users to use the system.

Permissions for TIBCO BusinessEvents Directories

All TIBCO BusinessEvents users must have read, write, and execute permissions for the following directories:

```
bin Directory
$TIBCO_HOME/be/5.1/bin
```

For example, if TIBCO BusinessEvents has been installed in `/opt/tibco`, the user who installed TIBCO BusinessEvents should execute the following commands:

```
% chmod 777 /opt/tibco/be/5.1/bin/
```

(Other changes can be made using the `chown` command as needed.)

You can verify ownership and permissions using the long listing command, `ls -l`.

Configuration for 64-bit Mode

The following platforms allow you to run TIBCO BusinessEvents in 64-bit mode. See the product readme for versions supported:

- AIX
- HP-UX Itanium
- HP PA-RISC
- Linux
- Solaris 10 SPARC
- Solaris 10 X86

An additional step is required for the HP-UX platforms. See HP-UX on page 33).

For Microsoft Windows, a 64-bit installer is available from the download site.

To Configure for 64-bit Mode

1. Open all TRA files for editing. Do this for TIBCO BusinessEvents and for each add-on product used:

   BE_HOME/bin/be-engine.tra
   BE_HOME/bin/be-jdbcdeploy.tra
   BE_HOME/bin/be-migration.tra
   BE_HOME/mm/bin/be-mm.tra
   BE_HOME/rms/bin/be-rms.tra
   BE_HOME/views/bin/be-views.tra

   (be-rms.tra is used with TIBCO BusinessEvents Decision Manager and be-views.tra is used with TIBCO BusinessEvents Views.)

2. In each TRA file do the following:

   a. In the `tibco.env.STD_EXT_CP` property, find `%RV_HOME%/lib` and replace it with **`%RV_HOME%/lib/tibrvj.jar`**.

   b. Ensure that the `JVM_LIB_PATH` variable points to the appropriate JVM Server DLL or SO. For example:

      For 64 bit Sun JVM for AMD on Linux, use:
      `JVM_LIB_PATH = %TIB_JAVA_HOME%/lib/amd64/server/libjvm.so`

      For 64 bit Sun JVM for AMD on Windows, use:
      `JVM_LIB_PATH =%TIB_JAVA_HOME%/bin/amd64/server/libjvm.dll`

   c. To increase the heap size used by the engine, modify the values of –Xms and –Xmx in the `java.extended.properties` parameter. For example, some common values are as follows:

```
-d64 -XX:MinHeapFreeRatio=52  -XX:MaxHeapFreeRatio=90 -XX:GCTimeRatio=19

-Xms1024m -Xmx1024m -javaagent:%BE_HOME%/lib/cep-base.jar -XX:MaxPermSize=256m
-XX:+UseParNewGC -XX:+UseConcMarkSweepGC
```

   The TRA files are self-documented with guidelines.

HP-UX

If you are using an HP-UX platform, open the `be-engine.tra` file and remove the following entry from the property `java.extended.properties` property:

`-javaagent:%BE_HOME%/lib/cep-instrumentation.jar`

(If this property is present, the executable fails to launch.)

Enabling 64-bit Properties

By default, the 32-bit `java.extended.properties` are enabled.

Comment the 32-bit `java.extended.properties` and enable the 64-bit `java.extended.properties` in the TRA files in these folders:

BE_HOME/bin/be-engine.tra

BE_HOME/mm/bin/be-mm.tra

BE_HOME/rms/bin/be-rms.tra

Chapter 4 **Migrating Projects from Earlier Versions**

Also see for non-project related actions required for various situations.

Read this chapter carefully and follow all migration steps that apply to your case.

Topics

Project Migration Overview

This chapter includes migration of add-on products, so that all migration information is available in one place.

Many of the actions you must take to migrate projects to the current release depend on the version you are migrating from, and the features you use. Some manual steps are required. More manual steps are required for earlier versions than for 4.x projects due to the changes in architecture.

Read the rest of this section and then check the section for the release from which you are migrating:

- If you are upgrading from 5.0 to 5.1, the CDD model needs to be refreshed. See Migration from 5.0 to 5.1 on page 39 for details.

- If you are upgrading from 4.0, first upgrade to 4.0.1 and then migrate to 5.1. See Migrating 4.x Projects on page 43, and referenced sections.

- If you are upgrading from 3.x, you can migrate directly to 5.0 and then to 5.1. Follow the manual steps as required. See Migrating 3.x Projects on page 50, and referenced sections.

- If you are upgrading from a version earlier than 3.0, first upgrade to the latest 3.x version, following directions in the 3.x documentation.

No migration steps are required for JDBC backing store implementations or data. JDBC backing store was first made available in 3.0.1 Hotfix 6.

Check Release Notes

In all cases, check all sections in the Release Notes and take action accordingly. Release notes for all products in the same TIBCO home are located in the *TIBCO_HOME*/release_notes directory.

Migrating from Coherence to TIBCO BusinessEvents DataGrid Cache Provider

TIBCO DataGrid cache provider feature replaces Coherence as the built-in cache provider in version 5.0.0. A set of core Coherence functions has been renamed (and additional internal changes have been made) so that these functions can be used with either the Coherence or the TIBCO BusinessEvents DataGrid cache provider. The renamed functions are in the Standard catalog `Cluster.DataGrid` category. See Table 3, Mapping of Coherence Functions to TIBCO BusinessEvents DataGrid Functions, on page 42 for details.

> **Not all Coherence functions are available for use with TIBCO BusinessEvents DataGrid** When you migrate to the current release with TIBCO BusinessEvents DataGrid as the cache provider, certain Coherence functions are not migrated. In particular, the functions in the following categories are not migrated: Standard/Coherence/Constants, Standard/Coherence/Extractors, Standard/Coherence/Filters, Standard/Coherence/Query

> If you are concerned that your projects may require some recoding, contact your TIBCO representative for more details.

A TIBCO BusinessEvents Studio refactoring operation, and a TIBCO BusinessEvents Studio Tools command line option are available to do the function migration for specific purposes other than general migration. See Migrating Core Coherence Functions for the TIBCO BusinessEvents Studio option and see Migrating Core Coherence Functions at the Command Line for the command-line option, both in *TIBCO BusinessEvents Developer's Guide*.

Fixing Errors Due to Use of Words in Reserved Word List

As TIBCO BusinessEvents develops, the number of reserved words increases. For the current list of reserved words, check Chapter 19, Rule Language Grammar > Keywords and Other Reserved Words, in *TIBCO BusinessEvents Developer's Guide*.

Validation shows errors for use of keywords as identifiers:

```
Reserved keyword, cannot be used as an identifier
```

To Resolve the Issue If you use any of the listed words as identifiers, resource names, or folder names, change them in your 5.1 project.

For Berkeley DB Object Management Users Only

Berkeley DB OM, formerly called Persistence OM, is an older form of data persistence. Support for this option is removed in version 5.1.

You can migrate to Cache OM with backing store.

There is no direct migration path from the Berkeley DB OM database to a JDBC backing store. Migration is a two stage procedure:

1. As needed, upgrade using the latest 3.x or 4.x version of TIBCO BusinessEvents. Those versions have a utility to migrate the data to the legacy backing store schema, the Oracle Types backing store schema.

2. Migrate from the Berkeley DB database to the legacy Oracle Types backing store. To complete this step, follow instructions in the *TIBCO BusinessEvents Installation* guide for the version you are using for this step of the migration.

3. Migrate from the Oracle Types backing store to the JDBC backing store, following instructions in Oracle Types to JDBC Backing Store Migration on page 63.

4. Migrate the project to 5.1.

   — If you are using the latest 5.x version, see Migration from 5.0 to 5.1 on page 39.

   — If you are using the latest 4.x version, see Migrating 4.x Projects on page 43.

   — If you are using the latest 3.x version, see Migrating 3.x Projects on page 50.

Migration from 5.0 to 5.1

This section provides information about the manual tasks that need to be performed when migrating from 5.0 to 5.1. See if you are migration older projects to 5.1.

Changes to the CDD File

Import your project into a 5.1 workspace and edit the CDD file to remove the newly added element `<enabled>false</enabled>` from under the backing store entries for the cluster tab.

Entries related to the load balancer and process-groups can remain as is.

Migration from 5.0 to 5.1 for Add-on Products

In addition to migration content for TIBCO BusinessEvents, migration of add-on products is documented in this chapter for your convenience.

TIBCO BusinessEvents Views

Automatic Changes

Migrates About This Chart text The About this Chart property has been removed from charts. When projects from the prior release are migrated to the current release, the text from those properties is appended to the chart description.

Manual Changes

Changes to Logo Image and Branding Image Handling The method of including branding images has been improved. Images are now stored in the TIBCO BusinessEvents Studio project. To migrate to the new method do the following.

1. Open the project in TIBCO BusinessEvents Studio, and select **File > Import > File System**. Use the Eclipse dialog to locate the image file or files you want to use, and import them into a project folder. `/Dashboards/Images` is the recommended location.

Edit the Login and Header resources. In the ImageURL field, browse to the project folder where the imported graphic is located and select it.

Migration from 4.x to 5.1

All changes listed in the section need to be performed in addition to the changes described below.

Manual Change

When migrating 4.x projects, edit the CDD file and set the cluster level property `be.engine.cluster.as.discover.url` with a valid value (for example, `tibpgm://9995/`) preferably inside a property group "tibas".

> No migration steps are required for JDBC backing store implementation or data

Automatic Changes

The migration utility automatically does the following:

Migrates core Coherence functions to product neutral ones A set of core Coherence functions has been renamed so that these functions can be used with either the Coherence or the TIBCO BusinessEvents DataGrid cache provider. Not all Coherence functions are migrated. See for important information.

Migrates the channel driver type Driver type is migrated from the 4.0 format to the current format.

Migrates HTTP channel settings HTTP channel tuning settings are now maintained in the channel resource instead of the processing unit (PU) area of the CDD. During the migration process, you specify the CDD and within it the PU whose settings you want to migrate. Settings from the selected PU are applied to all HTTP channels.

Migrates CDD file namespaces Namespace is changed to the following: `http://tibco.com/businessevents/configuration/5.0`.

Migrates entity metadata properties to CDD domain object override settings In earlier versions, entity-specific configuration for cache and backing store was done using metadata properties (also known as extended properties). It is now done in the CDD only. The migration utility moves all relevant metadata property settings to the equivalent settings in the CDD Domain Objects Overrides area. An override is added for each entity type. You can later remove unnecessary entries as needed. (There is no change to configuration for metadata properties used by the TIBCO BusinessEvents Data Modeling add-on product.)

Migrates localStorage Property to isSeeder property (partial migration) The
property `tangosol.coherence.distributed.localstorage` is migrated to the
cache-provider-neutral property `be.engine.cluster.isSeeder`. However, a
change in design makes this property redundant. Cache storage is now set at the
processing unit level, using a checkbox labeled Enable Cache Storage. It is not
possible to set this checkbox at migration time. Note that without further action, if
the `isSeeder` property is set higher in the order of precedence than the processing
unit, then the `isSeeder` property is used at runtime. However, if the `isSeeder`
property is set lower in the order of precedence than the processing unit, then the
checkbox value is used. To complete migration, remove the `isSeeder` property
and instead use the processing unit setting Enable Cache Storage in the project
CDD file. Note that enabling cache storage on non-cache agents is not
recommended for production. It can be useful for testing and demonstration
purposes.

Site Topology, TIBCO BusinessEvents Version Field The value of the TIBCO
BusinessEvents Version field in Cluster Settings and in Host Settings is updated to
the current version.

**Adds CDD properties for TIBCO BusinessEvents Monitoring and Management
authentication**, which is a new feature in 5.0. The properties are added in these
locations:

- *BE_HOME*/mm/project/emonitor > MM.cdd > `mm-class` agent class >
  properties > `mm/auth` property group

- *ToBeMonitored_Project* > *project*.cdd > Cluster properties > `auth` property group.

The properties are added to all project CDDs if a project has more than one. The
following properties are added, with the default values as shown:

```
be.mm.auth.type=file
be.mm.auth.file.location=BE_HOME/mm/config/users.pwd
java.security.auth.login.config=BE_HOME/mm/config/jaas-config.con
```

Add-on Product
Migration

Migrates TIBCO BusinessEvents Views default skin TIBCO BusinessEvents Views
has a new look-and-feel. The default skin is migrated automatically. If you use
this add-on product, you can view the default skin settings using the view-only
System Elements resource. See *TIBCO BusinessEvents Views Developer's Guide* for
details about how you can use the System Elements when you define your own
color schemes and skins.

Migrates TIBCO BusinessEvents Decision Manager metadata location Metadata information for decision tables was being stored in the (internal) `.beproject` file. Now it is stored in the decision table file itself.

Table 3   Mapping of Coherence Functions to TIBCO BusinessEvents DataGrid Functions

4.x Coherence Category Function Name	DataGrid Category Function Name
`C_CacheGetEntityById()`	`CacheGetEntityById()`
`C_CacheLoadConceptByExtId()`	`CacheLoadConceptByExtId()`
`C_CacheLoadConceptById()`	`CacheLoadConceptById()`
`C_CacheLoadConceptIndexedByExtId()`	`CacheLoadConceptIndexedByExtId()`
`C_CacheLoadConceptsByExtId()`	`CacheLoadConceptsByExtId()`
`C_CacheLoadEntity()`	`CacheLoadEntity()`
`C_CacheLoadEventByExtId()`	`CacheLoadEventByExtId()`
`C_CacheLoadEventById()`	`CacheLoadEventById()`
`C_CacheLoadParent()`	`CacheLoadParent()`
`C_CacheName()`	`CacheName()`
`C_CacheReevaluate()`	`CacheReevaluate()`
`C_ClassName()`	`ClassName()`
`C_EnableCacheUpdate()`	`EnableCacheUpdate()`
`C_Index()`	`Index()`
`C_Lock()`	`Lock()`
`C_TransactionProperties`	`TransactionProperties()`
`C_UnLock()`	`UnLock()`

Migrating 4.x Projects

This section outlines how to migrate 4.x projects, after you install TIBCO BusinessEvents 5.1 (as explained in Chapter 1 through Chapter 3 of this guide).

Berkeley DB object management is removed from the product in version 5.1. If you are migrating from Berkeley DB, see For Berkeley DB Object Management Users Only on page 38 for preliminary steps to take in order to change to Cache OM.

Task A   Upgrade 4.0.0 Projects to 4.0.1

If you are running 4.0.0, first upgrade to 4.0.1. Open the 4.0.0 projects in TIBCO BusinessEvents Studio and save them.

Task B   Import Projects in TIBCO BusinessEvents Studio

A command line utility to do the same actions is also provided. After importing using the command line utility an additional procedure is required before you can work with the project in TIBCO BusinessEvents Studio. See Importing a TIBCO BusinessEvents 4.x Project at the Command Line on page 46.

For details about what is migrated, see Migration from 4.x to 5.1 on page 40.

1. After installing TIBCO BusinessEvents 5.1, start TIBCO BusinessEvents Studio using a different workspace from the workspace containing the 4.x projects.

2. Select **File > Import > Existing TIBCO BusinessEvents Studio 4.0 Project** and click **Next**.

3. Browse to and select the project root directory of the 4.x project you are migrating.

4. Do one of the following:

   — Check the **Copy project into workspace** checkbox. This option copies the project into your current workspace.

   — Uncheck the **Copy project into workspace** checkbox and specify an import location.

5. Do one of the following:

   — If your project has no HTTP channels, click **Finish** (this is the only option).

   — If your project has one or more HTTP channels, click **Next**.

6. If you clicked **Next** you see the Select Processing Unit dialog. Select the project CDD, and within it, the processing unit that contains the HTTP properties to be migrated.

All CDD files in the project are touched by the migration (see Migration from 4.x to 5.1 on page 40 for details). However, only the CDD file specified here is used for HTTP channel property migration.

An informational panel displays the settings that will be migrated.
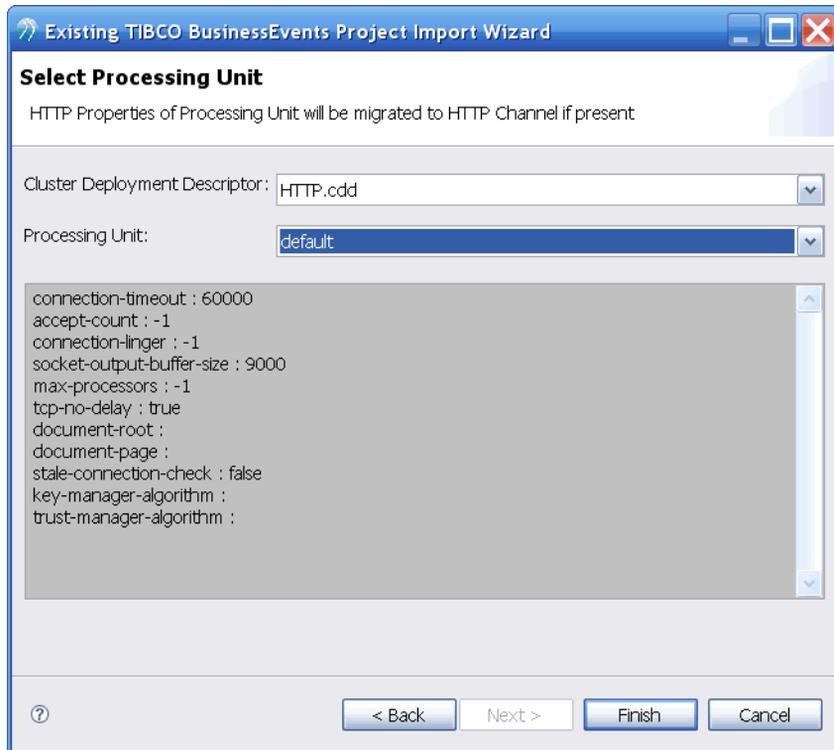
Task C TIBCO BusinessEvents Views CDD Change

If you use the TIBCO BusinessEvents Views add-on product, you may need to update the CDD for changes to the following dashboard agent properties:

4.x Property	5.0 Property
`be.http.docRoot`	`be.agent.dashboard.http.docroot`
	The default is *BE_HOME*/views/web-root

4.x Property	5.0 Property
be.http.docPage	be.agent.dashboard.http.docpage
	The default value is index.html

Because the replacement properties now have default values, you only have to add the properties if you need to set a non-default value.

Do the following depending on your use case:

• If you have not changed the provided 4.x property values, and do not need to use a non-default value in 5.1, remove the 4.x properties from the CDD.

• If you changed the value for one or both of the above properties, rename the property or properties to the 5.1 name (as shown above). Do this in the dashboard agent properties area of the CDD, for all affected dashboard agents (or at a higher level as appropriate to the scope you want to use).

Task D   Choose a Cache Provider and Configure Settings (Cache OM only)

Beginning with TIBCO BusinessEvents 5.0.0, Oracle Coherence is no longer provided with TIBCO BusinessEvents. An internal component, TIBCO BusinessEvents DataGrid, is used by default. See Migrating from Coherence to TIBCO BusinessEvents DataGrid Cache Provider on page 37 for important information about migration of Coherence functions. If you use cache OM, action is required:

• If you want to switch from Oracle Coherence to TIBCO BusinessEvents DataGrid, you must manually reconfigure the CDD file settings. See Chapter 24, Cache OM and Cluster Configuration in *TIBCO BusinessEvents Developer's Guide* for details.

• If you want to continue using Oracle Coherence as the cache provider, you must acquire a licensed copy of Oracle Coherence software and do some configuration. See Enabling Use of Oracle Coherence as the Cache Provider on page 55 for details.

• The property tangosol.coherence.distributed.localstorage is migrated automatically to the cache-provider-neutral property be.engine.cluster.isSeeder. However, a change in design makes this property redundant. Cache storage is now set at the processing unit level, using a checkbox labeled Enable Cache Storage. It is not possible to set this checkbox at migration time. To complete migration, remove the isSeeder property and instead configure cache storage for non-cache agents as needed use the processing unit setting Enable Cache Storage in the project CDD file. Note that enabling cache storage on non-cache agents is not recommended for production. It can be useful for testing and demonstration purposes.

Task E   Migrate Legacy Oracle-only Backing Stores to JDBC Backing Store

The legacy Oracle-only (Oracle Types) backing store is no longer supported. If you were using the legacy Oracle-only (Oracle Types) backing store, you must migrate to the current implementation. See Oracle Types to JDBC Backing Store Migration, page 63.

Task F   (All Cases) Validate the Project in TIBCO BusinessEvents Studio

It is recommended that you validate the project in TIBCO BusinessEvents Studio after migration, to help ensure that the project is correctly configured.

Certain validation checks were added after 4.0. So validating the project may reveal issues that were not caught in the earlier release from which you migrated.

Task G   Rebuild EAR Files

As with any upgrade, you must rebuild all EAR files created with an earlier version.

Importing a TIBCO BusinessEvents 4.x Project at the Command Line

This option is equivalent to the following menu option in TIBCO BusinessEvents Studio: File > Import > TIBCO BusinessEvents > Existing TIBCO BusinessEvents 4.0 Project, explained in Task B, Import Projects in TIBCO BusinessEvents Studio, on page 43.

After you complete the procedures in this section, complete the migration tasks as shown following Task B, as needed for your project.

When you use this command-line (or TIBCO BusinessEvents Studio) option to import 4.x TIBCO BusinessEvents Studio projects, the same migration actions are done as in the UI-based migration. See Migration from 4.x to 5.1 on page 40

Before you can use a 4.x project imported at the command-line in TIBCO BusinessEvents Studio you must do another procedure, explained in To Open a Project Imported at the Command Line in TIBCO BusinessEvents Studio on page 48.

To Import an Existing 4.x Project at the Command Line

1. Navigate to *BE_HOME*/studio/bin/ and open a command prompt.

2. Execute a command with the following format (all on one line) at a command prompt:

```
studio-tools -op importExistingProject [-h] -p studioProjDir [-o targetProjDir] [-c
CDDprojectPath] [-u PUNameFromCDD]
```

For example:

```
studio-tools -op importExistingProject -p C:\FT\SomeProj -o c:\MyWorkspace\SomeProj
-c COM.cdd -u Invproc
```

If HTTP channel properties are migrated (from a specified CDD and processing unit to all HTTP channel resources' Advanced tab) you see a message like this:

```
Migrating HTTP properties of Processing Unit "PUName" from CDD "CDDprojectPath" to
HTTPChannel(s) present in the project
```

When the import has completed successfully, you see a message in the command window like the following:

```
The existing 4.0 TIBCO BusinessEvents project has been successfully imported to
c:\MyWorkspace\SomeProj.
```

Table 4, TIBCO BusinessEvents Studio Tools Options for Importing an Existing Project, provides detailed information about the options.

Table 4   TIBCO BusinessEvents Studio Tools Options for Importing an Existing Project

Option	Description
-op importExistingProject	Specifies the importExistingProject operation for importing a TIBCO BusinessEvents Studio project into the workspace.
-h	Optional. Displays help.
-p	Source project: absolute path to the project directory of the TIBCO BusinessEvents Studio project to be imported.

Table 4 TIBCO BusinessEvents Studio Tools Options for Importing an Existing Project (Cont'd)

Option	Description
-o	Optional. Absolute path to the target project directory, where the project is imported to.
	If you specify the source project directory name as the last element in the path, it is used as the target project directory. If you specify a different directory as the last element in the path, the directory is created if it does not exist, and the source project directory is imported within the specified target directory.
	If you do not specify a target project directory, the original project contents are updated. If the project to be imported is a TIBCO BusinessEvents version 4 project, it is no longer compatible with version 4 after the import.
	If the target location points to an existing project, the import does not proceed and this message displays:
	`The specified target location already exists and cannot be used.`
-c	Optional. The CDD to use for migration actions. Project path of the CDD (path relative to the root directory of the source project).
-u	Optional but if specified -c must also be specified. Specifies the name of the PU (within the specified CDD) that contains settings to be migrated.
	HTTP channel settings from this PU are migrated to all HTTP channel resources in the project.

To Open a Project Imported at the Command Line in TIBCO BusinessEvents Studio

To open a project imported at the command line, you must add it as a new project.

1. Start TIBCO BusinessEvents Studio. In Windows, click Start > All Programs > TIBCO > *YourEnvironment* > TIBCO BusinessEvents 5.1 > TIBCO BusinessEvents Studio.

2. From the File menu select **New > Project**. You see the New Project — Select a Wizard dialog.

3. Select **TIBCO BusinessEvents > Studio Project** and click **Next**.

4. In the Project Name field, enter the directory name where the imported project is located. (This is used as the project name.)

5. (If you imported the project to a directory in your default workspace, skip this step.) If the project directory is located outside the default workspace, uncheck the Use default location checkbox and browse to the *parent* directory of the project imported at the command line.

6. Click **Finish**. The project folders appear in the Studio Explorer view.

Migrating 3.x Projects

This section outlines how to migrate 3.x projects, after you install TIBCO BusinessEvents 5.1 (as explained in Chapter 1 through Chapter 3 of this guide).

- If you are migrating 3.0.0 projects that use the legacy Oracle Types backing store, you must first upgrade your 3.0.0 installation to the latest 3.x version and update the Oracle Types backing store schema. After the schema update you can then migrate the data to the JDBC backing store, which you configure in the 5.1 version project.

- Berkeley DB object management is removed from the product in version 5.1. If you are migrating from Berkeley DB, see For Berkeley DB Object Management Users Only on page 38 for preliminary steps to take in order to change to Cache OM.

Task A Import, Clean, and Validate the 3.x Project

1. Import the TIBCO Designer (3.x) project into TIBCO BusinessEvents Studio. See Importing a 3.x TIBCO Designer Project on page 58.

   If you will migrate from the Oracle Types backing store or from a Berkeley DB OM to the Cache OM with JDBC backing store, keep the 3.x project

2. In TIBCO BusinessEvents Studio select Project > Validate to validate the project and then review the issues in the Problems tab and in the Error Log tab and resolve any errors. See Clean and Validate 3.x Projects on page 61.

Task B Configure Runtime Properties in the CDD File

Most of the configuration that was done in TRA files is now done in the CDD file. Ensure that all valid 3.x runtime settings (except JVM and system level properties) are configured in the CDD. Some properties are not relevant in the current version, and additional properties not used in 3.x have been added to the product. You may have to add some properties manually to CDD property sheets. Here are some tips:

- Add runtime engine properties to the CDD file at the appropriate level for the scope of the property:

  — Cluster level for cluster-wide scope.

  — Processing Unit level for engine-wide scope in the specified type of engine (Processing Unit). You will have to think about your engines differently, as running different kinds of agent classes.

  — Agent level to limit the scope to the agent class.

- TIBCO BusinessEvents properties that were configured in the TIBCO Designer TRA file generally go in the TIBCO BusinessEvents Studio TRA file:

  BE_HOME/studio/eclipse/configuration/studio.tra

- Remove the runtime properties that are now configured elsewhere from the TRA file and ensure that only JVM or system level properties remain. Leaving these properties in the TRA can cause problems at runtime.

See Understanding the CDD File (For 3.x Users) on page 56 for background information that helps you work with the CDD file.

Task C   Check that be-engine.xml Settings are in the CDD File

You can change CDD file values at deploy-time without having to rebuild the EAR file. Therefore there is no need for the be-engine.xml file. (It was used to add properties to the TIBCO Administrator UI in order to make changes at deploy time.)

Check that all the properties from your 3.x be-engine.xml that are valid in 5.1 are present in the CDD file.

Task D   Add Project Libraries (If Used)

Version 3.x project libraries containing entities (concepts, events and so on) are not compatible with project libraries in release 4.0.0 and higher, because the format for entities changed in the 4.0.0 release. They are not migrated.

(3.x project libraries that contain only shared resources will work in version 4.0.0 and up, but that is not a common use for project libraries. The format of shared resources remains the same in 5.1).

If you want to continue to use the 3.x project libraries, recreate the libraries and add them to the 5.1 project build path after migration. Follow instructions in the section Working with Project Libraries, in Chapter 1, Project Tasks of *TIBCO BusinessEvents Developer's Guide*.

Task E   Reconfigure TIBCO BusinessEvents-ActiveMatrix BusinessWorks

Integration Projects (If Used)

Configuration of TIBCO BusinessEvents-ActiveMatrix BusinessWorks integration projects has changed. If a 3.x project contains TIBCO ActiveMatrix BusinessWorks or TIBCO Adapter resources, plan to use two projects: a TIBCO Designer project for the TIBCO Designer resources, and a TIBCO BusinessEvents Studio project. See Chapter 38, ActiveMatrix BusinessWorks Integration in *TIBCO BusinessEvents Developer's Guide* for details.

The TIBCO ActiveMatrix BusinessWorks processes used in the integration project do not appear in TIBCO BusinessEvents Studio. In version 3.x, both product UIs were implemented in TIBCO Designer, but since version 4.0, the TIBCO BusinessEvents UI has been implemented in Eclipse.

Task F   Migrate 3.x Decision Manager Projects (If Used)

If you want to continue to use decision tables, you must purchase the TIBCO BusinessEvents Decision Manager add-on product.

In a Decision Manager 3.x project, decision tables were in a separate project called a *decision project*, with a .dp file extension (along with related files). Decision projects were maintained in a separate application that is no longer used. The decision projects provided the decision tables for the TIBCO Designer project that contained the virtual rule functions (implemented by the decision tables).

To import 3.x decision projects you must first import the 3.x TIBCO Designer project into TIBCO BusinessEvents Studio as a TIBCO BusinessEvents Studio project. Then you import the related decision project into that TIBCO BusinessEvents Studio project. The decision table format is migrated to the current format during import.

Domain models are not imported while importing a decision project.

1. Import the 3.x TIBCO Designer project into TIBCO BusinessEvents Studio as a TIBCO BusinessEvents Studio project. See Task A, Import, Clean, and Validate the 3.x Project, on page 50 for full details.

2. In TIBCO BusinessEvents Studio, select **Import** from the File menu. You see the Import wizard Select dialog.

3. Select TIBCO BusinessEvents > TIBCO BusinessEvents Decision Manager and click **Next**. You see the Import Decision Project dialog.

4. In the Project Location field, browse to and select the decision project (.dp) file for the decision project that relates to the TIBCO Designer project you imported in step 1.

5. In the Projects field, select the TIBCO BusinessEvents Studio project that you created by importing the related TIBCO Designer project in step 1.

   The decision tables are now added to the TIBCO BusinessEvents Studio project.

6. If you will use RMS, create the RMS project and copy project files to the appropriate folder so the project can be checked out by Decision Manager UI users.

Task G   Migrate 3.x Database Concepts and State Models (If Used)

If you want to continue to use database concepts or state models, you must purchase the TIBCO BusinessEvents Data Modeling add-on product.

After importing the project, you must configure the Cluster Definition Descriptor (CDD) file to add the JDBC connection project path or paths, and enable database concepts on all engines (processing units) where you want to use them. Steps are as follows:

1. Open the project's CDD and select the Cluster tab > Database Concepts.

2. In the Database URIs field, add all JDBC shared resources used for creating database concepts. Click the plus sign to add a new row as needed, and add the project path to the resource.

3. Select the Processing Units tab (at the bottom of the window). Select each processing unit in turn and do one of the following:

   — To enable database concepts, check the Enable Database Concepts checkbox.

   — To disable database concepts, uncheck the checkbox.

When cache OM is used, the default mode for a cache cluster is Cache Only. However the default mode of a database concept is Memory Only. You can specify a mode explicitly by adding domain object overrides. See *TIBCO BusinessEvents Data Modeling Developer's Guide* for complete details.

Task H   Choose a Cache Provider and Configure Settings (Cache OM only)

Beginning with TIBCO BusinessEvents 5.0.0, Oracle Coherence is no longer provided with TIBCO BusinessEvents. An internal component, TIBCO BusinessEvents DataGrid, is used by default. See Migrating from Coherence to TIBCO BusinessEvents DataGrid Cache Provider on page 37 for important information about migration of Coherence functions. If you use cache OM, action is required:

- If you want to switch from Oracle Coherence to TIBCO BusinessEvents DataGrid, you must manually reconfigure the CDD file settings. See Chapter 24, Cache OM and Cluster Configuration in *TIBCO BusinessEvents Developer's Guide* for details.

- If you want to continue using Oracle Coherence as the cache provider, you must acquire a licensed copy of Oracle Coherence software and do some configuration. See Enabling Use of Oracle Coherence as the Cache Provider on page 55 for details.

- The property `tangosol.coherence.distributed.localstorage` is migrated automatically to the cache-provider-neutral property `be.engine.cluster.isSeeder`. However, a change in design makes this property redundant. Cache storage is now set at the processing unit level, using a checkbox labeled Enable Cache Storage. It is not possible to set this checkbox at migration time. To complete migration, remove the `isSeeder` property and instead configure cache storage for non-cache agents as needed use the processing unit setting Enable Cache Storage in the project CDD file. Note that enabling cache storage on non-cache agents is not recommended for production. It can be useful for testing and demonstration purposes.

Task I   Migrate Legacy Oracle-only Backing Stores to JDBC Backing Store

The legacy Oracle-only (Oracle Types) backing store is no longer supported. If you were using the legacy Oracle-only (Oracle Types) backing store, you must migrate to the current implementation. See Oracle Types to JDBC Backing Store Migration, page 63.

Task J   (All Cases) Validate the Project in TIBCO BusinessEvents Studio

It is recommended that you validate the project in TIBCO BusinessEvents Studio after migration, to help ensure that the project is correctly configured.

Certain validation checks were added after 4.0. So validating the project may reveal issues that were not caught in the earlier release from which you migrated.

Task K   Rebuild EAR Files

As with any upgrade, you must rebuild all EAR files created with an earlier version.

Enabling Use of Oracle Coherence as the Cache Provider

If you want to use the Oracle Coherence cache provider, you must provide a fully licensed, supported version of the software. See the product readme file for supported version information. You must also enable Oracle Coherence as the cache provider, as explained below.

> You cannot use the `coherence.jar` file from an earlier TIBCO BusinessEvents release.

To Enable Oracle Coherence as the Cache Provider

1. Copy the `coherence.jar` file from your Oracle Coherence installation to *BE_HOME*`/lib/ext/tcpl`.

    (This location is preconfigured in the `studio/eclipse/configuration/studio.tra` classpath, as shipped. If you use a different location, update the classpath.)

2. Enable the Coherence category functions as follows:

    a. Open the *BE_HOME*`/studio/eclipse/configuration/studio.tra` file for editing.

    b. Change the setting of the following property to true (it is false as shipped):

    `TIBCO.BE.function.catalog.coherence=true`

    c. Save the file and restart TIBCO BusinessEvents Studio.

    For your information, log messages printed to the console at startup show the location of the files in use. See *BE_HOME*`/bin/logs/cep-engine.log`.

Understanding the CDD File (For 3.x Users)

Beginning with the 4.0.0 release, most runtime properties and other deploy-time settings are configured using a structured XML file called the Cluster Deployment Descriptor (CDD). A big advantage of this change is that you can change CDD file values at deploy-time without having to rebuild the EAR file (the CDD file used is stored outside the EAR file).

A multi-tab editor in TIBCO BusinessEvents Studio enables easy maintenance of this file. This section explains the role of the CDD file for the benefit of those migrating projects from 3.x.

The EAR file now includes all resources In the current architecture, you do not select what resources to include in the EAR file. The EAR includes all project resources and can be very large. During runtime however, the resources are enabled (filtered) through the CDD Agent Classes and Collections tabs.

Read this section before beginning your migration. Also read related topics in *TIBCO BusinessEvents Architect's Guide* and *TIBCO BusinessEvents Getting Started*.

See Property Migration Reference on page 68 for a list of 3.x runtime properties and their equivalent CDD settings or properties in the current version. Documentation about the CDD settings and properties is provided in the *TIBCO BusinessEvents Developer's Guide* guide.

Most Runtime Properties are Configured in the CDD File

3.x Configuration
In 3.x (and earlier), runtime properties were set using individual properties set in one or more TRA files. In some cases, runtime properties were set in TIBCO Designer, specifically in the BAR resource, and some were set in the TIBCO Designer TRA file.

5.1 Configuration
Now only JVM-level properties (those that need to be used before the engine starts up) are set in the be-engine.tra file. Properties that were set in the TIBCO Designer TRA file (designer.tra) are now generally set in the studio.tra file:

BE_HOME/studio/eclipse/configuration/studio.tra

Other runtime properties are configured in the CDD file. The CDD file provides fields for all commonly used settings, and it has property sheets where you can add other properties as needed. The property sheets are available at various levels, cluster, processing unit, and agent, so that you can scope the effect of the property appropriately and provide overrides at lower levels.

Processing Units (Engines) and Agent Classes are Configured in the CDD File

In the CDD, you configure *processing units* (equivalent to an engine at runtime). A processing unit references the agent or agents you want to include in the processing unit (engine) at runtime. At deploy time you specify which processing units to deploy.

In 3.x agents were configured using individual properties in the TRA files. Each TRA file provided the configuration for one engine.

Beginning with the 4.0.0 release, you configure all the processing units you need to deploy in a single CDD file. When you deploy an engine, you specify the processing unit to use. The processing unit configuration in the CDD determines which project resources and settings are used at runtime.

Some agents and processing units are created for you when you import a 3.x project into Studio based on 3.x information available. After you import the project into TIBCO BusinessEvents Studio, edit the CDD file to fully configure the agents and processing units as needed.

Metadata Properties (Extended Properties) are Configured in the CDD File

The entity metadata properties (also known as extended properties) for cache and backing store are now configured in the CDD. Preloading configuration has also been simplified. This is explained in the migration sections.

Importing a 3.x TIBCO Designer Project

You can directly import 3.x projects using the TIBCO BusinessEvents Studio user interface and save it as a current version project. You can also import a 3.x project at the command line. Import from versions earlier than 3.x is not supported.

After you import the project, see Clean and Validate 3.x Projects on page 61 for the next step.

Importing a 3.x Project into TIBCO BusinessEvents Studio

To import 3.x projects into TIBCO BusinessEvents Studio, follow the procedure below.

To Import a 3.x Project in TIBCO BusinessEvents Studio

1. Start TIBCO BusinessEvents Studio. In Windows, click Start > All Programs > TIBCO > *YourEnvironment* > TIBCO BusinessEvents 5.1 > TIBCO BusinessEvents Studio.

2. From the File menu, select **Import**. You see the Import wizard Select dialog.

3. Select TIBCO BusinessEvents > **TIBCO Designer** and click **Next**. You see the TIBCO Designer Project Import Wizard.
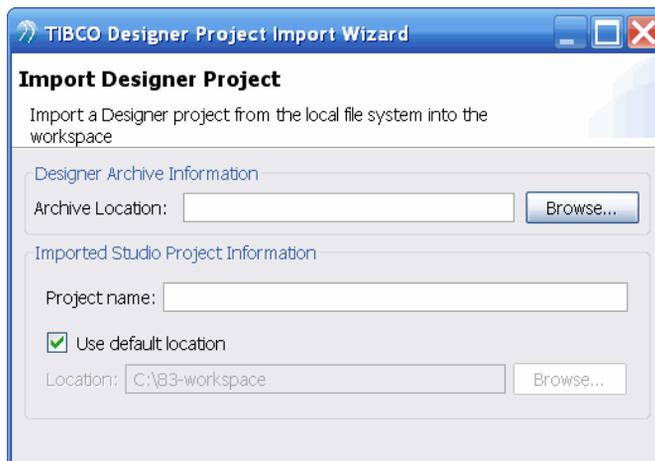
4. In the Archive Location field, browse to the location of the TIBCO Designer project and select its EAR file or its `vcrepo.dat` file.

5. In the Project Name field, enter a name for the TIBCO BusinessEvents Studio project. The default value is the original project name.

6. Specify a project location, or use the default workspace.

7. Click **Finish**.

The progress bar displays while the import is done. The status bar at the bottom of the window also displays progress. When the import is complete, you see the project folders in the Studio Explorer view.

Importing a TIBCO BusinessEvents 3.x Project at the Command Line

This utility imports a TIBCO BusinessEvents 3.x (TIBCO Designer) project at the command line. Projects imported using this command-line utility do not run in the context of Eclipse (TIBCO BusinessEvents Studio). An additional step is required if you want to open the project in TIBCO BusinessEvents Studio, as explained below.

To Import a 3.x Project at the Command Line

1. Navigate to *BE_HOME*/studio/bin/ and open a command prompt.

2. Execute a command with the following format (all on one line) at a command prompt:

```
studio-tools -core importDesigner -d designerProjDir [-n studioProjName] -p studioProjDir
```

For example:

```
studio-tools -core importDesigner -d C:\FT\FT_Project -n FTImport -p
c:\myWorkspace\FTImported
```

When the import has completed successfully, you see a message in the command window:

```
Imported the Designer Project successfully.
```

Table 5, TIBCO BusinessEvents Studio Tools Options for Importing 3.x TIBCO Designer Projects, provides detailed information about the options.

See for a procedure you must do if you want to open the project in TIBCO BusinessEvents Studio.

Table 5 TIBCO BusinessEvents Studio Tools Options for Importing 3.x TIBCO Designer Projects

Option	Description
-core importDesigner	Within the core category of operations, specifies the importDesigner operation for importing a TIBCO BusinessEvents 3.x (TIBCO Designer) project.

Table 5   TIBCO BusinessEvents Studio Tools Options for Importing 3.x TIBCO Designer Projects (Cont'd)

Option	Description
-d	Absolute path to the TIBCO Designer project directory (the `.dat` file can be included but is not required). Import of release 3.x projects is supported.
-n	Optional. Specifies the name of the TIBCO BusinessEvents 4.x project (TIBCO BusinessEvents Studio project). If not specified, the TIBCO BusinessEvents Studio 3.x project name is used.
-p	Absolute path to the TIBCO BusinessEvents 4.x project directory (the TIBCO BusinessEvents Studio project). The directories in the path are created if they do not exist.

To Open a Project Imported at the Command Line in TIBCO BusinessEvents Studio

To open a project imported at the command line, you must add it as a new project.

1. Start TIBCO BusinessEvents Studio. In Windows, click Start > All Programs > TIBCO > *YourEnvironment* > TIBCO BusinessEvents 5.1 > TIBCO BusinessEvents Studio.

2. From the File menu select **New > Project**. You see the New Project — Select a Wizard dialog.

3. Select **TIBCO BusinessEvents > Studio Project** and click **Next**.

4. In the Project Name field, enter the directory name where the imported project is located. (This is used as the project name.)

5. (If you imported the project to a directory in your default workspace, skip this step.) If the project directory is located outside the default workspace, uncheck the Use default location checkbox and browse to the directory of the project imported at the command line.

6. Click **Finish**. The project folders appear in the Studio Explorer view.

Clean and Validate 3.x Projects

This section explains how to clean and validate a 3.x project, and how to fix errors. Also see Project Migration Overview on page 36 for none-release-specific information.

Clean and Validate the Project

Executing Project > Clean also performs validation, if you check Project > Build Automatically. In this case you do not have to do step 2.

After you import the 3.x project into TIBCO BusinessEvents Studio Explorer, do the following:

1. Highlight the project name in TIBCO BusinessEvents Studio and select Project > Clean. At the Clean dialog, click Clean projects selected below, and then select the imported project. Click **OK**.

   All build problems and build states are discarded. The project is rebuilt from scratch.

2. Highlight the project name in Studio Explorer and select Project > Validate to validate the project.

You may see some common validation errors that are addressed in the following sections. If you see additional errors that you cannot resolve, contact your TIBCO representative for assistance.

Fixing Ambiguous Reference Errors (Unqualified References)

During migration, duplicate name references can cause issues. If the project contains unqualified references to rules, rule functions, or ontology types, and any of the rules, rule functions, or ontology types have the same simple name, duplicate name validation errors will result.

In the TIBCO BusinessEvents Studio Problems tab, you may see listings for these issues, such as the following:

```
Ambiguous reference. Reference must be qualified, as multiple
elements exist with the same name [/sharedResources/Element,
Rules/Element, Concepts/Element]
```

One source of this issue is that beginning with the 4.0.0 release, rules are separate resources, whereas in the 3.x product, they exist within ruleset resources.

To Resolve the Issue Qualify all such ambiguous references.

Fixing XSLT Mapper Errors

If you have used the XPath (XSLT) mapper in TIBCO Designer, there could be errors that prevent a clean validation of the project after it is imported.

In 3.x, XSLT Mapper errors were not reported during project validation. This validation has been added, beginning with the 4.0.0 release. Therefore, any mapper errors must be fixed before project validation can be successful. These errors existed in the 3.x product, though they may not have caused any runtime problems.

To Resolve the Issue In TIBCO BusinessEvents Studio double-click those items in the Problems view. The rule editor displays the corresponding rule or rule function. In the editor. Check for red error indicators on lines containing function mapping. Where you see an error indicator on a line containing Mapper code, Ctrl-click the underlined argument text to open the Function Argument Mapper dialog. Click the Mapper Check and Repair (check-mark icon) button.

Some errors can be auto-fixed: Click the validate option (the check mark) in the mapper. You see the Mapper Check and Repair dialog. Select the items you want to fix and click OK. (Using auto-fix is harmless even if the errors cannot be auto-fixed.) Then manually fix any errors that cannot be autofixed. For example, errors such as undefined variable errors cannot be fixed automatically.

Oracle Types to JDBC Backing Store Migration

The Oracle-only (Oracle Types) backing store is not supported in 5.0.0 If you were using this backing store implementation in your prior version of TIBCO BusinessEvents, implement a JDBC backing store and migrate your data to it as explained in this section.

If you were using the JDBC backing store in any release, no migration is required.

Migration steps depend on whether you are migrating from 3.0.0, or from a later 3.x release, or from a 4.x release, as indicated in the tasks below.

During migration, you must keep the JDBC Connection resource for the existing Oracle-only backing store, and you must be able to connect to it.

The data migration process uses two backing stores, the legacy backing store and the new JDBC backing store. However after migration, you'll have one backing store. Use of two backing stores is limited to migration procedures.

If you plan to make any schema changes, make them after the backing store data is migrated successfully, following directions in *TIBCO BusinessEvents Developer's Guide*.

Task A   All Versions

Back up your backing store data.

Task B   3.0.0 Only: Upgrade to 3.x and Update the Legacy Backing Store Schema

New TIBCO BusinessEvents metadata tables were added to the backing store schema in version 3.0.1. If you are upgrading from version 3.0.0, you first must upgrade to the latest 3.x version before you migrate data to a JDBC backing store.

1. Upgrade from 3.0.0 to the latest 3.x version.

2. If the deployed application is running, gracefully shut down all agents and cache servers before you proceed.

3. Login to the Oracle server as `be_user`, password `be_user` (or whatever username and password you are using, as set in the `initialize_database.sql` script).

4. Navigate to the location of the scripts (by default in *BE_HOME*/bin) and open an SQLPlus prompt. Identify yourself as the user you logged in as.

5. At the SQL prompt, type the following to run the script:

```
@create_tables.sql
```

Running this script does not affect any existing tables (therefore there is no need to run be-oradeploy.exe). Your database tables are now configured.

Task C 3.x Only: Import Projects into TIBCO BusinessEvents Studio

Import the project into TIBCO BusinessEvents Studio and ensure that the migrated project is configured correctly. See Migrating 3.x Projects on page 50 for full details.

Task D Add a JDBC Backing Store

In this task, you set up a *new* backing store, including creation of a new JDBC Connection resource.

Do not remove the JDBC Connection resource for the Oracle-only backing store database from your project until you have completed all migration tasks.

1. Add the JDBC backing store, following instructions in Chapter 30, JDBC Backing Store Setup, which is in *TIBCO BusinessEvents Developer's Guide*.

2. It's a good idea to open your project again in TIBCO BusinessEvents Studioand test both the JDBC connections. If you need to make corrections to the connections, do so before you build the EAR.

3. When you have set up the new backing store, including the JDBC connection and CDD settings, Rebuild the EAR file.

Task E Set Up the TIBCO BusinessEvents TRA File

Open the *BE_HOME*/bin/be-migration.tra file and specify appropriate values for the properties shown below, with example values. For notes on the properties see Backing Store Data Migration Property Reference on page 65.

```
# Oracle/JDBC Migration Properties
be.migration.batchsize 1000
be.migration.workersize 16
be.migration.objecttable true
be.migration.target.type jdbc

# Database URLs
# Source database:
be.oracle.dburi.count 1
be.oracle.dburi.0 /Resources/myORCL.sharedjdbc
be.oracle.dburi.pool.initial.0 5
be.oracle.dburi.pool.min.0 5
be.oracle.dburi.pool.max.0 10
```

```
# Target database:
be.jdbc.dburi.count 1
be.jdbc.dburi.0 /Resources/myJDBC.sharedjdbc
be.jdbc.dburi.pool.initial.0 5
be.jdbc.dburi.pool.min.0 5
be.jdbc.dburi.pool.max.0 10
```

Task F   Run the Data Migration Process

1. Open a command prompt, navigate to *BE_HOME*/bin, and execute the following command:

   `be-migration -copy -ear` *EARFile*

   Wait until the process is complete

2. If you set the property `be.migration.objecttable=false` in Task E then you must manually migrate OBJECTTABLE table contents. (Use your DBMS product documentation for this task.)

3. You can now start the TIBCO BusinessEvents engine and use the JDBC backing store with the migrated data.

Task G   Remove Legacy Backing Store and JDBC Connection

When you have tested the migration and are sure that all is working well, you can remove the legacy backing store JDBC connection and archive, or otherwise remove, the legacy backing store files.

Backing Store Data Migration Property Reference

Table 6   Oracle-Only to JDBC Backing Store Data Migration

Property	Notes
`be.migration.batchsize`	
	Defines the database batch size to be used during the migration process. The best size depends on the database configuration.
	Default is: 200

Table 6   Oracle-Only to JDBC Backing Store Data Migration

Property	Notes
`be.migration.workersize`	
	Defines how many concurrent threads to use during the migration process. Set to the number of processors available.
	Default is: 10
`be.migration.objecttable`	
	If the existing Oracle backing store contains a large amount of data, the migration process can take many hours to complete. If this is the case, you can shorten the process using this property.
	When this property is set to false, the migration process ignores the data contained in OBJECTTABLE table. Skipping this table can shorten the migration time considerably.
	If you skip migration of the OBJECTTABLE table, you must then copy this table from the Oracle to the JDBC backing store database using other tools (or simple SQL scripts).
	Default is true.
`be.migration.target.type`	
	Defines which type of schema to use for the new backing store. Values are:
	jdbc: The JDBC backing store schema. Use this value for migrating from an Oracle backing store to a JDBC backing store (the procedure documented in this section).
	oracle: No longer valid as an option.
	Default is jdbc.

Chapter 5 **Property Migration Reference**

This chapter contains a reference table to assist you in locating the 4.x properties or UI settings that correspond to 3.x properties.

Note that many logging properties have been replaced and are not directly migrated.

Topics

-

Property Migration Reference

The main properties used in prior releases are listed on the left, with their current version equivalents on the right. Note that it may be possible for properties listed as going in Cluster tab > Properties to be added to a lower-level property sheet, generally the processing unit property sheet, as appropriate. See *TIBCO BusinessEvents Developer's Guide* for more details on configuring the Cluster Definition Descriptor (CDD) file.

Deprecated and Unused Properties Properties that are deprecated in this release or are not used in this release are noted below. A list of unused properties from older supported versions of TIBCO BusinessEvents is provided in Appendix A, Deprecated and Unused Properties, on page 81.

Table 7   Property Migration Reference (Sheet 1 of 13)

Earlier Version Property (mostly 3.x and 4.x)	5.1 CDD Editor
Agent Group Name (in BAR resource)	Agent Classes tab > *AgentClassName* > Agent Class Name
Agent.*AgentGroupName*.cacheOpsQueueSize	No longer used
Agent.*AgentGroupName*.checkDuplicates	Agent Classes Tab > *AgentClassName* > Check for Duplicates
Agent.*AgentGroupName*.concurrentwm	Agent Classes tab > *AgentClassName* > Concurrent RTC
Agent.*AgentGroupName*.dbOpsBatchSize	Agent Classes Tab > *AgentClassName* > Properties
Agent.*AgentGroupName*.dbOpsQueueSize	Agent Classes Tab > *AgentClassName* > Properties
Agent.*AgentGroupName*.dbthreadcount	Agent Classes Tab > *AgentClassName* > Properties
Agent.*AgentGroupName*.key	Processing Units tab > *PUName* > Agents > Key
Agent.*AgentGroupName*.maxActive	Agent Classes tab > *AgentClassName* > Max Active

Table 7   Property Migration Reference (Sheet 2 of 13)

Earlier Version Property (mostly 3.x and 4.x)	5.1 CDD Editor
Agent.*AgentGroupName*.priority	Processing Units tab > *PUName* > Agents table > Priority
Agent.*AgentGroupName*.recoveryPageSize	Agent Classes Tab > *AgentClassName* > Properties
Agent.*AgentGroupName*.threadcount	Agent Classes Tab > *AgentClassName* > Properties
Agent.*AgentGroupName*.l1CacheSize be.agent.query.localcache.maxelements	Agent Classes tab > *AgentClassName* > Max Size
be.oracle.dburi.0 (No longer used) be.jdbc.dburi.0	Cluster tab > [OM Type - Cache] > Backing Store > Connection > URI
be.agent.cache.specialom	Agent Classes tab > Cache Agent > Properties
be.agent.cache.specialom.maxthreads	Agent Classes tab > Cache Agent > Properties
be.agent.query.localcache.evictseconds	Agent Classes tab > *AgentClassName* > Eviction Time
be.agent.query.localcache.prefetchaggressive	Agent Classes Tab > *QueryAgentClassName* Properties
be.backingstore.dburi.pool.initial.0	Cluster tab > Backing Store > Connection > Initial Size
be.backingstore.dburi.pool.inactivityTimeout.0 (Applicable only if Oracle strategy is selected)	Cluster tab > Properties (Backing store properties)
be.backingstore.dburi.pool.waitTimeout.0 (Applicable only if Oracle strategy is selected)	Cluster tab > Properties (Backing store properties)
be.jdbc.readtimeout (No longer used) be.backingstore.readtimeout (Applicable only if Oracle strategy is selected)	Cluster tab > Properties

Table 7   Property Migration Reference (Sheet 3 of 13)

Earlier Version Property (mostly 3.x and 4.x)	5.1 CDD Editor
`be.oracle.dburi.pool.enforce.0` (No longer used) `be.jdbc.dburi.pool.enforce.0`	Cluster tab > [OM Type - Cache] > Backing Store > Enforce Pools
`be.oracle.dburi.pool.initial.0` (No longer used) `be.jdbc.dburi.pool.initial.0`	Cluster tab > [OM Type - Cache] > Backing Store > Connection > Initial Size
`be.oracle.dburi.pool.max.0` (No longer used) `be.jdbc.dburi.pool.max.0`	Cluster tab > [OM Type - Cache] > Backing Store > Connection > Max Size
`be.oracle.dburi.pool.min.0` (No longer used) `be.jdbc.dburi.pool.min.0`	Cluster tab > [OM Type - Cache] > Backing Store > Connection > Min Size
`be.channel.tibjms.queue.disabled`	Agent Classes tab > *AgentClassName* > Properties
`be.channel.tibjms.topic.disabled`	Agent Classes tab > *AgentClassName* > Properties
`be.dbconcepts.connection.check.interval`	Cluster tab > Database Concepts > Check Interval
`be.dbconcepts.connection.retry.count`	Cluster tab > Database Concepts > Retry Count
`be.dbconcepts.dburi`	Cluster tab > Database Concepts > Database URIs
`be.dbconcepts.pool.inactivityTimeout`	Cluster tab > Database Concepts > Inactivity Timeout
`be.dbconcepts.pool.initial`	Cluster tab > Database Concepts > Initial Size
`be.dbconcepts.pool.max`	Cluster tab > Database Concepts > Max Size
`be.dbconcepts.pool.min`	Cluster tab > Database Concepts > Min Size

Table 7   Property Migration Reference (Sheet 4 of 13)

Earlier Version Property (mostly 3.x and 4.x)	5.1 CDD Editor
`be.dbconcepts.pool.PropertyCheckInterval`	Cluster tab > Database Concepts > Property Check Interval
`be.dbconcepts.pool.waitTimeout`	Cluster tab > Database Concepts > Wait Timeout
`be.engine.cacheServer`	Deprecated Agent Classes Tab > Agent class type: Cache
`be.engine.cacheServer.channel.disable`	Processing Units tab > *PUname* > Properties Not used
`be.engine.cluster.cleanup`	Cluster tab > Properties (backing store related)
`be.engine.limited.cache.back.size.limit`	Cluster tab > Object Management (Cache) > Entity Cache Size
`be.engine.limited.objectTable.back.size.limit`	Cluster tab > Object Management (Cache) > Object Table Cache Size
`be.engine.cluster.isCacheLimited`	Cluster tab > Domain Objects > Default > Is Cache Limited Cluster tab > Domain Objects > Overrides > *Entity URI* > Is Cache Limited
`be.engine.cluster.`*EntityClassName*`.preload`	Cluster tab > Domain Objects > Overrides > *URI* > Preload Entities
`be.engine.cluster.`*EntityClassName*`.preload.fetchsize`	Cluster tab > Domain Objects > Overrides > *URI* > Preload Fetch Size
`be.engine.cluster.externalClasses.classLoader`	Agent Classes > Inference Agent > Properties For TIBCO BusinessEvents Decision Manager

Table 7   Property Migration Reference (Sheet 5 of 13)

Earlier Version Property (mostly 3.x and 4.x)	5.1 CDD Editor
be.engine.cluster.externalClasses.path	Agent Classes tab > Inference Agent > Properties
	For TIBCO BusinessEvents Decision Manager
be.engine.cluster.hasBackingStore	Cluster tab > [OM Type - Cache] > Backing Store > Persistence Option - Shared All [Oracle/SQL Server/Berkeley DB] or Shared Nothing
be.engine.cluster.isCacheAside	Cluster tab > [OM Type - Cache] > Backing Store > Cache Aside
be.engine.cluster.isCacheLimited	Cluster tab > Properties
	Limited cache is used by default if backing store is enabled.
	Related setting: Entity metadata > Is Cache Limited
be.engine.cluster.isObjectCacheFullyLoaded	Cluster tab > Properties
be.engine.cluster.minCacheServers	Cluster tab > [OM Type - Cache] > Cache Agent Quorum
be.engine.cluster.multiEngineOn	Deprecated
	Processing Unit > Properties
	True by default.
be.engine.cluster.multisite	Not used
be.engine.cluster.persistenceProvider	Used in version 5.0.1. Replaced by Cluster tab > Backing Store. Persistence Option Shared All, Databasy Type Berkeley DB
be.persistenceprovider.bdb.directory	Used in version 5.0.1. Replaced by Cluster tab > Backing Store > Shared All > Berkeley DB

Table 7   Property Migration Reference (Sheet 6 of 13)

Earlier Version Property (mostly 3.x and 4.x)	5.1 CDD Editor
`be.engine.cluster.preload`	Not used. UI supersedes need for this property. See other Preload properties.

`be.engine.cluster.`*EntityClassName*`.preload`
`be.engine.cluster.preload.handles`
`be.engine.cluster.preload.fetchSize`
	Due to redesign, the properties do not all map exactly to the current UI. Entity metadata properties were also used to define preloading behavior. They are no longer used.
	
	Cluster tab > [OM Type - Cache] > Domain Objects (Default and override settings): Preload Entities, Preload Handles, Preload Fetch Size.

`be.engine.cluster.smtimeout.pollInterval`	Cluster tab > Properties
`be.engine.cluster.smtimeout.refreshAhead`	Cluster tab > Properties
`be.engine.cluster.recovery.distributed`	No longer used. Recovery is always distributed.
`be.engine.externalClasses.packageExclusions`	No longer needed. TIBCO BusinessEvents Decision Manager property.
`be.engine.coherence.useAutomatedRecovery`	Cluster tab > Properties
`be.engine.hotDeploy.enabled`	Processing Unit > Hot Deploy
`be.engine.kernel.unifiedExtIdMap`	Agent Classes tab > Inference Agent > Properties
`be.engine.name`	(in `be-engine.tra` file)
`be.engine.om.berkeleydb.cacheweight.`*agent*	Not supported in 5.1
`be.engine.om.berkeleydb.dbenv`	Not supported in 5.1
`be.engine.om.berkeleydb.internalcachepercent`	Not supported in 5.1
`be.engine.om.eventcache.defaultmaxsize`	Not supported in 5.1

Table 7   Property Migration Reference (Sheet 7 of 13)

Earlier Version Property (mostly 3.x and 4.x)	5.1 CDD Editor
`be.engine.om.eventcache.maxsize.`*agent*	Agent Classes Tab > Inference Agent > Properties
`be.engine.profile.delimiter`	Cluster tab > Properties
`be.engine.tangosol.oracle.prefetch` (No longer used)	Cluster tab > Domain Objects > Default > Preload Fetch Size
`be.ft.cluster.name`	Deprecated
`be.ft.enabled`	Deprecated
`be.ft.failback.waitmilliseconds`	Deprecated
`be.ft.failover.waitmilliseconds`	Deprecated
`be.ft.nodename`	Deprecated
`be.ft.priority`	Deprecated
`be.hawk.microagent.name`	Agent Classes tab > *Agent Class* > Properties
`be.http.compression`	HTTP channel resource > Advanced tab > Compression
`be.http.dnsLookups`	HTTP channel resource > Advanced tab > Enable DNS Lookups
`be.http.docPage`	HTTP channel resource > Advanced tab > Document Page For TIBCO BusinessEvents Views: `be.agent.dashboard.http.docpage`

Table 7   Property Migration Reference (Sheet 8 of 13)

Earlier Version Property (mostly 3.x and 4.x)	5.1 CDD Editor
be.http.docRoot	HTTP channel resource > Advanced tab > Document Root For TIBCO BusinessEvents Views: be.agent.dashboard.http.docroot
be.http.maxKeepAliveRequests	HTTP channel resource > Advanced tab > Max KeepAlive Requests
be.http.maxProcessors	Processing Units tab > *AgentClassName* > Http Properties > Max Processors
be.http.maxHttpHeaderSize	HTTP channel resource > Advanced tab > Max HTTP Header Size
be.http.maxPostSize	HTTP channel resource > Advanced tab > Max HTTP Post Size
be.http.maxSavePostSize	HTTP channel resource > Advanced tab > Max HTTP Save Post Size
be.http.maxSpareThreads	HTTP channel resource > Advanced tab > Max Spare Threads
be.http.minSpareThreads	HTTP channel resource > Advanced tab > Min Spare Threads
be.http.compressableMimeType	HTTP channel resource > Advanced tab > Compressible Mime Types
be.http.restrictedUserAgents	HTTP channel resource > Advanced tab > Restricted User Agents

Table 7   Property Migration Reference (Sheet 9 of 13)

Earlier Version Property (mostly 3.x and 4.x)	5.1 CDD Editor
`be.http.useBodyEncodingForURI`	HTTP channel resource > Advanced tab > Use Body Encoding for URI

`be.jdbc.cacheLoaderClass`
`com.tibco.be.jdbcstore.BECoherenceJdbcStore`
`com.tibco.be.oracle.BECoherenceOracleStore`
 	
No longer used.
	Class loader is implicitly selected depending on other backing store configuration choices.

`be.jdbc.database.type`	Cluster tab > [OM Type - Cache] > Backing Store >
`be.jdbc.dburi.strategy.0`	Cluster tab > [OM Type - Cache] > Backing Store > Strategy
`be.jdbc.readtimeout (No longer used)`	Cluster tab > Properties (Backing store properties. Note: replaced by `be.backingstore.readtimeout` – see in this table.)
`be.jms.reconnect.msgCodes`	Agent Classes tab > Inference Agent > Properties
`be.jms.reconnect.timeout`	Agent Classes tab > *AgentClassName* > Properties
`be.locale.country`	Not used.
`be.locale.language`	Not used.
`be.locale.variant`	Not used.
`be.network.mode.standalone`	(For query agents) No longer used. See *TIBCO BusinessEvents Query Developer's Guide* for new configuration.
`be.oracle.commitSize`	Cluster tab > Properties See `be.backingstore.commitSize`

Table 7   Property Migration Reference (Sheet 10 of 13)

Earlier Version Property (mostly 3.x and 4.x)	5.1 CDD Editor
`be.oracle.dburi.active.0`	Not used
`be.oracle.dburi.pool.inactivityTimeout.0`	No longer used See be.backingstore. dburi.pool.inactivityTimeout.0
`be.oracle.dburi.pool.waitTimeout.0`	No longer used. See be.backingstore. dburi.pool.waitTimeout.0
`be.oracle.debug`	No longer used.
`be.trace.layout.class.arg`	Collections > Log Configuration > *configname* > Custom Line Layout > Arguments
`be.trace.layout.class.name`	Collections > Log Configuration > *configname* > Custom Line Layout > Class
`be.trace.log.append`	Collections tab > Log Configurations> Files section > Append
`be.trace.log.enable`	Collections tab > Log Configurations> Files section > Enable
`be.trace.log.fileName`	Collections tab > Log Configurations > Files section > Name
`be.trace.roles`	Collections tab > Log Configurations > Roles The format has also changed. See *TIBCO BusinessEvents Developer's Guide* for details.
`be.trace.term.enable`	Collections tab > Log Configurations > Send to Terminal section > Enable

Table 7 Property Migration Reference (Sheet 11 of 13)

Earlier Version Property (mostly 3.x and 4.x)	5.1 CDD Editor
`be.trace.log.maxnum` **Note**: TIBCO BusinessEvents 3.x used this property and not `engine.Log.MaxNum`.	Collections tab > Log Configurations > Files section > Max number
`be.trace.log.maxsize` **Note**: TIBCO BusinessEvents 3.x used this property and not `engine.Log.MaxSize`.	Collections tab > Log Configurations > Max size
`Agent.`*AgentGroupName*`.cacheTxn.updateCache`	Agent Classes tab > *AgentClassName* > Properties
Checkpoint Interval (in BAR resource)	Cluster Tab [OM Type - Berkeley DB] > Checkpoint Interval
`com.tibco.cep.runtime.channel.payload.validation`	Cluster tab > Properties (May be more likely at agent class level)
`com.tibco.cep.runtime.scheduler.default.numThreads`	Agent tab > Shared Queue > Thread Count
`com.tibco.cep.runtime.scheduler.queueSize`	Agent tab > Shared Queue > Queue Size
`com.tibco.tibjms.connect.attempts`	Agent Classes tab > *AgentClassName* > Properties
`com.tibco.tibjms.naming.security_protocol`	Agent Classes tab > Inference Agent > Properties
Database Environment Directory (in BAR resource)	Cluster Tab [OM Type - Berkeley DB] > Database Environment Directory
Delete Retracted Objects from Database (in BAR resource)	Cluster Tab [OM Type - Berkeley DB] > Delete Retracted Objects from Database
Do not Recover on Restart (in BAR resource)	Cluster Tab [OM Type - Berkeley DB] > Do Not Recover on Restart
`Engine.FT.ActivationDelay`	Deprecated

Table 7   Property Migration Reference (Sheet 12 of 13)

Earlier Version Property (mostly 3.x and 4.x)	5.1 CDD Editor
Engine.FT.ActivationInterval	Deprecated
Engine.FT.GroupName	Deprecated
Engine.FT.HeartbeatInterval	Deprecated
Engine.FT.UseFT	Deprecated
Engine.FT.Weight	Deprecated
Engine.Log.Dir	Collections tab > Log Configurations
Hawk.AMI.DisplayName	Agent Classes tab > *Agent Class* > Properties
java.net.preferIPv4Stack	Cluster tab > Properties
objectTable.back.size.limit	Cluster tab > Properties
Property Cache Size (in BAR resource)	Cluster Tab [OM Type - Berkeley DB] > Property Cache Size
Schedule a checkpoint if outstanding DB ops greater than (in BAR resource)	Cluster Tab [OM Type - Berkeley DB] > Checkpoint Ops Limit
tangosol.coherence.cacheconfig	No longer used. Autoassigned.
tangosol.coherence.cluster	Cluster tab > General > Cluster Name (Also used for TIBCO BusinessEvents DataGrid cache provider cluster name)
tangosol.coherence.clusteraddress	Cluster tab > Properties
tangosol.coherence.clusterport	Cluster tab > Properties.
tangosol.coherence.distributed.backupcount	Cluster tab > Object Management (Cache) > Number of Backup Copies

Table 7   Property Migration Reference (Sheet 13 of 13)

Earlier Version Property (mostly 3.x and 4.x)	5.1 CDD Editor
`tangosol.coherence.distributed.localstorage` (In 5.0, also used for TIBCO BusinessEvents DataGrid property `be.engine.cluster.isSeeder`)	Process Units tab > Enable Cache Storage
`tangosol.coherence.distributed.threads`	Cluster tab > Properties.
`tangosol.coherence.localhost`	Cluster tab > Properties
`tangosol.coherence.localport`	Cluster tab > Properties
`tangosol.coherence.log`	Processing Units tab > *PUName* > Properties
`tangosol.coherence.log.level`	Processing Units tab > *PUName* > Properties
`tangosol.coherence.log.limit`	Processing Units tab > *PUName* > Properties
`tangosol.coherence.ttl`	Cluster tab > Properties
`tangosol.coherence.wkan`	Cluster tab > Properties
`tangosol.coherence.wkan.port`	Cluster tab > Properties
`tibco.be.property.datatype.null.value`	Cluster tab > Properties. Used for special handling of null properties and values.
`tibco.bwengine.name`	Processing Units tab > *PUName* > Properties
`tibco.clientVar.<GlobalVariable>`	Cluster/PU/Agent level properties

Appendix A **Deprecated and Unused Properties**

The following TIBCO BusinessEvents engine properties were deprecated or made obsolete (not used) in an earlier release of TIBCO BusinessEvents. Properties newly deprecated or not used in the current release are noted in Chapter 5, Property Migration Reference, on page 67.

Table 8   Deprecated and Unused Engine Properties (Sheet 1 of 3)

Property	Description
be.engine.cluster.externalClasses.packageexclusions	
	Obsolete property. Used to exclude non-decision table classes when working with generated class files. Now only decision table classes are generated. Removed in version 5.1.0.
be.engine.cluster.cacheType	
	Deprecated property. Ignored if present. In 3.0.0, this property specifies which of the following provided caching schemes to use: dist-unlimited-bs, dist-limited-bs, or dist-unlimited-nobs (default)
be.engine.cluster.cacheType	
	Deprecated property. Ignored if present. In 3.0.0, this property specifies which of the following provided caching schemes to use: dist-unlimited-bs, dist-limited-bs, or dist-unlimited-nobs (default)
be.engine.om.recovery.threads	
	Not used in this release. Ignored if present.
be.ft.cluster.name	
	Deprecated property.
be.ft.enabled	
	Deprecated property.

Table 8 Deprecated and Unused Engine Properties (Sheet 2 of 3)

Property	Description
`be.ft.failback.waitmilliseconds` `be.ft.failover.waitmilliseconds`	
	Deprecated Properties. These properties were introduced in a 2.x release to define a wait period, ensuring that cache was fully initialized before failing over to a secondary or failing back to the recovered primary.
`be.ft.node.name`	
	Deprecated property.
`be.ft.priority`	
	Deprecated property.
`be.locale.country`	
	Sets the country code to use for localization. Use upper case. Uses the ISO 3166 standard. **Note**: TIBCO BusinessEvents is not fully localized in this release.
`be.locale.language`	
	Sets the language code to use for localization. Uses the ISO 639 standard. **Note**: TIBCO BusinessEvents is not fully localized in this release.
`be.locale.variant`	
	Optional extension to the locale language, for example, if you set `be.locale.language` to en, you might set `be.locale.variant` to US, which is interpreted as en_US **Note**: TIBCO BusinessEvents is not fully localized in this release.
`com.tibco.be.jdbcstore.BECoherenceJdbcStore` `com.tibco.be.oracle.BECoherenceOracleStore`	
	The above properties specified the cache loader class for backing stores. Later there was a Cache Loader Class setting, removed in 5.0. Now the cache loader class value is set internally.

Table 8   Deprecated and Unused Engine Properties (Sheet 3 of 3)

Property	Description

`be.trace.publish.enable`
`be.trace.publish.subject`
`be.trace.publish.daemon`
`be.trace.publish.network`
`be.trace.publish.service`	

	Deprecated properties. The above properties are ignored by the engine. Instead use current settings in the CDD. See the CDD Collections Tab Log Configurations Settings Reference section in *TIBCO BusinessEvents Developer's Guide* for the current logging properties.
`be.trace.log.dir` `be.trace.enable`	
	Deprecated properties. The above properties are still used by the engine if found in the TRA or CDD file. However, do not use these properties. Instead use current settings in the CDD. See the CDD Collections Tab Log Configurations Settings Reference section in *TIBCO BusinessEvents Developer's Guide* for the current logging settings.
`Engine.Log.MaxNum` `Engine.Log.MaxSize`	
	These properties are set by TIBCO Administrator during deployment. Do not set them in your projects.

`Engine.FT.UseFT`
`Engine.FT.Groupname`
`Engine.FT.Weight`	

	Deprecated properties. Were used for In Memory OM fault tolerance in 3.x. Instead, configure for Cache OM, but use the Memory Only mode for all objects. See also `be.ft.nodename` which was used for the same purpose.
`tangosol.coherence.cacheconfig`	
	Not needed except as advised by TIBCO Support for customization purposes.

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