

TIBCO BusinessEvents™

Installation

*Software Release 4.0
May 2010*

The Power to Predict™

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Contents

Preface	vii
Related Documentation	viii
TIBCO BusinessEvents Documentation	viii
TIBCO BusinessEvents Event Stream Processing	ix
TIBCO BusinessEvents Decision Manager	ix
TIBCO BusinessEvents Data Modeling	ix
TIBCO BusinessEvents Views	x
Other TIBCO Product Documentation	x
Typographical Conventions	xi
How to Contact TIBCO Support	xiv
 Chapter 1 Installation Overview	 1
Required and Optional Products	2
Required and Optional Third-Party Products	2
Optional TIBCO Products	4
TIBCO BusinessEvents and Add-on Products	5
TIBCO BusinessEvents	5
Add-on Products	5
Upgrading TIBCO BusinessEvents	6
Standard Upgrade Procedures	6
Supported Windows Platforms	7
Installation Guidelines	7
Supported UNIX Platforms	9
Installation Guidelines	10
Installation History Log Files	11
Using an Existing Eclipse Installation	12
 Chapter 2 BusinessEvents Installation	 15
Installer Overview	16
Typical or Custom Installation	16
TIBCO Environment and Default Installation Directory	16
Disk Space Requirement in User's Home Directory	17
Installing BusinessEvents	18
Install in GUI Mode	18
Install in Console Mode	20

Install in Silent Mode	21
Uninstalling TIBCO BusinessEvents	22
Chapter 3 Post Installation Tasks	23
Re-Initialize Studio Plug-ins Registry	24
Launching Studio in Linux	25
Check and Update Properties Files	26
Enable Remote Connection to RMS from BusinessEvents Decision Manager	26
Update JVM Settings	26
Check in BusinessEvents Decision Manager Example Project Decision Tables	28
Location of RMS Projects	28
Checking In Example Project Decision Tables Using JMX	28
All UNIX Installations—Directory Permissions	32
Permissions for BusinessEvents Directories	32
Permissions for BusinessEvents Decision Manager and RMS Directories	32
Configuration for 64-bit Mode	34
Configure for 64-bit Mode	34
HP-UX	35
Chapter 4 Installation FAQs and Troubleshooting	37
Frequently Asked Questions	37
Running Out of Disk Space	38
Installation Errors on HP-UX 11.00 64-bit Platform	39
Chapter 5 Migrating from Earlier Versions	41
Upgrading from Version 3.0.1 and Earlier	42
Importing a BusinessEvents 3.x Project into BusinessEvents Studio	42
Runtime Properties	42
JDBC Backing Store	43
Oracle Driver Version	43
Project Libraries	43
Additional Reserved Words	43
Change in Authentication Property Names	43
Rebuild Project EAR Files	43
Upgrading from Version 3.0.0 or Earlier—Legacy Backing Store	44
Backing Store Schema Change	44
Legacy Locations Used in Migration	45
Determining the TIBCO Repo URL for BusinessEvents	45
Location of TIBCO Administrator-Generated Property File	45

Chapter 6 Migrating Persistence Data to Backing Store	47
Migrating Data from Persistence Database to Oracle Backing Store	48
Prepare Property Files	49
Export Data from the Persistence Database	50
Import Data to the Oracle Only Backing Store	51
Persistence Migration Utility Usage and Parameters	52
Usage	52
Persistence Database Migration Utility Parameters	52
Persistence Migration Export Reference Tables	55
Migration Export Table and Column Information	55
Concept Property Type Code Definitions	59
Chapter 7 Property Migration Reference	61
Property Migration Reference	62
Index	67

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, BusinessEvents™ can help you to detect and understand unusual activities as well as recognize trends, problems, and opportunities. BusinessEvents publishes this business-critical information in real time to your critical enterprise systems or dashboards. With BusinessEvents you can predict the needs of your customers, make faster decisions, and take faster action.

BusinessEvents
The Power to Predict™

Topics

- [Related Documentation, page viii](#)
- [Typographical Conventions, page xi](#)
- [How to Contact TIBCO Support, page xiv](#)

Related Documentation

This section lists documentation resources you may find useful.

TIBCO BusinessEvents Documentation

- *TIBCO BusinessEvents Installation*: Read this manual for instructions on site preparation and installation.
- *TIBCO BusinessEvents Getting Started*: After the product is installed, use this manual to learn the basics of BusinessEvents. This guide provides step-by-step instructions to implement an example project and also 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*: After the architect has designed the system, use this manual to implement the design in BusinessEvents Studio.
- *TIBCO BusinessEvents Administration*: This book explains how to configure, deploy, monitor, and manage a BusinessEvents application and the data it generates.
- Online References:
 - *TIBCO BusinessEvents Cache Configuration Guide*: This online reference is available from the HTML documentation interface. It provides configuration details for cache-based object management. Cache-based object management is explained in *TIBCO BusinessEvents Administration*.
 - *TIBCO BusinessEvents Java API Reference*: This online reference is available from the HTML documentation interface. It provides the Javadoc-based documentation for the BusinessEvents API.
 - *TIBCO BusinessEvents Functions Reference*: This online reference is available from the HTML documentation interface. It provides a listing of all functions provided with BusinessEvents, showing the same details as the tooltips available in the BusinessEvents Studio rule editor interface.
- *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 BusinessEvents add-on is available separately, and includes the BusinessEvents Query Language features and the Pattern Matching Framework.

- *TIBCO BusinessEvents Event Stream Processing Installation*: Read this brief manual for installation instructions. A compatible version of TIBCO BusinessEvents must be installed first.
- *TIBCO BusinessEvents Query Developer's Guide*: This manual explains how to use the object query language to query various aspects of the running system.
- *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 BusinessEvents add-on is available separately. It incorporates a decision modeling business user interface, and associated runtime.

- *TIBCO BusinessEvents Decision Manager Installation*: Read this brief manual for installation instructions. A compatible version of TIBCO BusinessEvents must be installed first.
- *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 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 first.

- *TIBCO BusinessEvents Data Modeling Developer's Guide*: This manual explains data modeling add-in features for BusinessEvents. The database concepts feature enables you to model 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 Views

This 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.
- *TIBCO BusinessEvents Views Developer's Guide*: This book explains how to use BusinessEvents 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 BusinessEvents BusinessEvents Views and how to represent the business processes graphically.
- *TIBCO BusinessEvents 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.

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
<i>TIBCO_HOME</i> <i>ENV_HOME</i> <i>BE_HOME</i>	<p>Many TIBCO products must be installed within the same home directory. This directory is referenced in documentation as <i>TIBCO_HOME</i>. The value of <i>TIBCO_HOME</i> depends on the operating system. For example, on Windows systems, the default value is C:\tibco.</p> <p>Other TIBCO products are installed into an <i>installation environment</i>. Incompatible products and multiple instances of the same product are installed into different installation environments.</p> <p>An environment home directory is referenced in documentation as <i>ENV_HOME</i>. The value of <i>ENV_HOME</i> depends on the operating system. For example, on Windows systems the default value is C:\tibco.</p> <p>TIBCO BusinessEvents installs into a directory within an <i>ENV_HOME</i>. This directory is referenced in documentation as <i>BE_HOME</i>. The value of <i>BE_HOME</i> depends on the operating system. For example on Windows systems, the default value is C:\tibco\be\4.0.</p>
code font	<p>Code font identifies commands, code examples, filenames, pathnames, and output displayed in a command window. For example:</p> <p>Use MyCommand to start the foo process.</p>
bold code font	<p>Bold code font is used in the following ways:</p> <ul style="list-style-type: none"> • 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
<i>italic font</i>	<p>Italic font is used in the following ways:</p> <ul style="list-style-type: none">• To indicate a document title. For example: See <i>TIBCO BusinessWorks Concepts</i>.• To introduce new terms For example: A portal page may contain several <i>portlets</i>. 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: <code>MyCommand <i>pathname</i></code>
Key combinations	<p>Key name separated by a plus sign indicate keys pressed simultaneously. For example: Ctrl+C.</p> <p>Key names separated by a comma and space indicate keys pressed one after the other. For example: Esc, Ctrl+Q.</p>
	<p>The note icon indicates information that is of special interest or importance, for example, an additional action required only in certain circumstances.</p>
	<p>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.</p>
	<p>The warning icon indicates the potential for a damaging situation, for example, data loss or corruption if certain steps are taken or not taken.</p>

Table 2 Syntax Typographical Conventions

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

Table 2 Syntax Typographical Conventions

Convention	Use
{ }	<p>A logical group of items in a command. Other syntax notations may appear within each logical group.</p> <p>For example, the following command requires two parameters, which can be either the pair param1 and param2, or the pair param3 and param4.</p> <pre>MyCommand {param1 param2} {param3 param4}</pre> <p>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:</p> <pre>MyCommand {param1 param2} {param3 param4}</pre> <p>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.</p> <pre>MyCommand param1 [param2] {param3 param4}</pre>

How to Contact TIBCO Support

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

- For an overview of TIBCO Support, and information about getting started with TIBCO 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 Overview**

This document explains how to install TIBCO BusinessEvents on Microsoft Windows and UNIX systems.

Topics

- [Required and Optional Products, page 2](#)
- [TIBCO BusinessEvents and Add-on Products, page 5](#)
- [Upgrading TIBCO BusinessEvents, page 6](#)
- [Supported Windows Platforms, page 7](#)
- [Supported UNIX Platforms, page 9](#)
- [Installation History Log Files, page 11](#)
- [Using an Existing Eclipse Installation, page 12](#)

Required and Optional Products

Depending on the tasks you wish to perform, you must install one or more third-party products and additional TIBCO products.

Required and Optional Third-Party Products

JRE

This release of BusinessEvents requires JRE 1.6.0.

J2SE for JMX and JConsole

For use of JMX and JConsole, J2SE 5.0 and above. Version 6.0 is recommended. Optionally used for monitoring and for hot-deploying classes from Decision Manager to BusinessEvents.

The Java Management Extensions (JMX) API is a standard for managing and monitoring applications and services. It is used with TIBCO BusinessEvents Decision Manager add-on.

JConsole is a JMX-compliant monitoring tool available in J2SE 5.0 and above. The documentation uses JConsole because it is the standard JMX client, provided with the JDK installation.



It is recommended that you use Java 6 JConsole because of improvements over earlier versions. Its most important enhancement is the definition of descriptors, which can be customized to add relevant user and monitoring information.

DBMS for JDBC Backing Store and Database Concept Features

For backing store and database concept features, the following DBMS software is supported (with limitations as noted):

- Oracle Database 10g Release 2
- Oracle Real Application Clusters (RAC) 10g Release 2
- Oracle 11g Enterprise Edition Release 1
- Oracle Real Application Clusters (RAC) 11g Release 1
- Database driver `ojdbc6.jar` for use with Sun Java JRE 6 (Oracle Thin Driver only)

- Microsoft SQL Server 2005 and 2008
 - Supported for backing store and Database Concepts with Microsoft JDBC driver
 - Supported for Database Concepts only with `sqljdbc4.jar`.
- IBM DB2 9.5 supported for Database Concepts.

Optional TIBCO Products

TIBCO BusinessEvents does not require installation of other TIBCO products. Certain features require use of other TIBCO products. The next table lists products that are typically used with BusinessEvents.

Table 3 *Optional TIBCO Products*

Component	Purpose
TIBCO Hawk 4.8.1 and higher	Optional. Provides monitoring capability. Used (if available) by the BusinessEvents Monitoring and Management component to provide machine-level health metrics.
TIBCO ActiveMatrix BusinessWorks 5.8	Optional. TIBCO ActiveMatrix BusinessWorks is a scalable, extensible, and easy to use integration platform that allows you to develop integration projects. Optionally, you can use ActiveMatrix BusinessWorks in integration projects.
TIBCO Rendezvous 8.2.1 and higher	Optional. TIBCO Rendezvous can be used as a message transport.
TIBCO Enterprise Message Service 4.0 and higher	Optional. TIBCO Enterprise Message Service allows you to use the Java Messaging Services (JMS) as a message transport.
TIBCO Administrator 5.6	Optional. Can be used for deployment.

TIBCO BusinessEvents and Add-on Products

TIBCO BusinessEvents

TIBCO BusinessEvents provides the following components.

- **Studio**—Eclipse-based component for designing BusinessEvents projects.
- **Eclipse Platform**—A provided Eclipse platform. If you do not use the provided Eclipse installation, you must have a preexisting Eclipse 3.4.2 installation. See [Using an Existing Eclipse Installation on page 12](#) for more information.
- **Monitoring and Management**—A configurable web-based user interface for monitoring and managing BusinessEvents clusters.
- **Documentation**—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.



Component availability is dependent on edition and platform. Runtime components are available on all platforms.

The design time component, BusinessEvents Studio, is supported on Windows. It is also supported on Redhat Linux Enterprise Linux v5, and requires the Look-and-Feel (LaF) to be configured to NimbusLookAndFeel.

Add-on Products

When you install BusinessEvents you can also install any add-on products at the same time. Add-ons available in this release are:

- TIBCO BusinessEvents Data Modeling
- TIBCO BusinessEvents Event Stream Processing
- TIBCO BusinessEvents Decision Manager
- TIBCO BusinessEvents Views

Upgrading TIBCO BusinessEvents



Before you install Read [Chapter 5, Migrating from Earlier Versions](#), on page 41.

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 automatically upgrades TRA 5.3.0 to 5.3.1 by overwriting the contents of the 5.3 directory.

If you are upgrading BusinessEvents, 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.

Supported Windows Platforms

The following is a list of supported platforms for Microsoft Windows:

- Windows 2000 SP 4 (x86)
- Windows Server 2003 SP1 (x86)
- Windows Server 2003 SP1 (x86_64)
- Windows Server 2008 on (x86)
- Windows Server 2008 on (x86_64)
- Windows XP SP 1 (x86)
- Windows Vista Business Edition with latest service packs (x86)

Disk space required in each case is 470MB.

Installation Guidelines

Installer Account

You must have administrator privileges for the machine on which TIBCO BusinessEvents 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 TIBCO BusinessEvents for use by everyone, the Administrator should change to `Install` mode.

The best way to install TIBCO BusinessEvents 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.

Installing on 64bit and 32bit Operating Systems

Within a single cache cluster, you can use a mixture of 64bit and 32bit operating systems.

Supported UNIX Platforms

The following is a list of supported platforms for UNIX:

IBM (POWER):

- AIX 5.3 (64-bit)
- AIX 6.1 (64-bit)

Hewlett-Packard:

- HP-UX 11i (v1, v2, v3) (PA-RISC) (32-bit & 64-bit)
- HP-UX 11i (v2, v3) (IA-64/Itanium) (64-bit)

Red Hat (x86)

- Red Hat Enterprise Linux 4, 4.5, 4.7, 5, 5.1, 5.2

SUSE (x86)

- SUSE Linux Enterprise 10.x with Service Pack 1

Solaris

- Solaris 10 (SPARC and X86) (64-bit)
- Solaris 9 (SPARC) (32-bit)
- Solaris 8 (SPARC) (32-bit)

Disk space required in each case is 160MB.



For platforms that support 64-bit mode, post installation configuration is required. See [Configuration for 64-bit Mode on page 34](#).

For HP-UX platforms, also see [To run the server, execute BE_HOME/rms/bin/be-rms.exe \(or be-rms.sh, depending on your operating system\). on page 33](#)



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

Installation Guidelines

Installer Account

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



Installation of BusinessEvents add-on products must be performed by the same user who installed 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.

Installation History Log Files

Installation and uninstallation history is kept in log files in the .TIBCO directory within the installer's user 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.

Using an Existing Eclipse Installation

We recommend using the Eclipse software bundled with the TIBCO BusinessEvents software. However, if you prefer to use your existing Eclipse software installation or wish to install Eclipse separately before installing TIBCO BusinessEvents, you must update the Eclipse installation with the required plug-ins before installing BusinessEvents.

The Eclipse requirements are:

- Eclipse release 3.4.2
- Eclipse Modeling Framework (EMF) release 2.4.2
- Model Development Tools (MDT) UML release 2.2.2
- Apache Xerces 2.9.x

Download the above files and extract them to the top-level directory of your Eclipse installation.

Re-initialize Eclipse before you begin installation of BusinessEvents. To do this, use the command:

```
eclipse -clean -initialize
```

To Use an Existing Eclipse Installation

1. Install the following Eclipse components:
 - Eclipse Platform version 3.4.2
 - Eclipse MDT version 2.2.2
 - Eclipse EMF version 2.4.2
2. Copy the `TIBCOBusinessEvents-Studio-plugins.link` file from `BE_HOME/studio/eclipse/dropins_configuration` to `Your_Eclipse/dropins`.

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


```
eclipse.exe -clean -initialize
```
5. Run the command `eclipse.exe`.

This will load Eclipse with the BusinessEvents Studio plug-ins.

Chapter 2 **BusinessEvents Installation**

This chapter describes installation and uninstallation of BusinessEvents using TIBCO Universal Installer.

Topics

- [Installer Overview, page 16](#)
- [Installing BusinessEvents, page 18](#)
- [Uninstalling TIBCO BusinessEvents, page 22](#)

Installer Overview

Download TIBCO BusinessEvents from download.tibco.com. You will need your username and password. If you did not receive a username and password, contact TIBCO Technical Support. After you download the application, you can install it using the installer provided.

Typical or Custom Installation

You can choose to perform a typical install or custom install:

- **Typical installation**

Has minimal prompts and installs standard components in default locations. You can change default locations if required.

- **Custom installation**

Prompts you to choose the components of the product that you want to install and installs only those components.

TIBCO Environment and Default Installation Directory

The installer prompts you to specify or create an environment. An environment has a name, a description, and a directory on disk. Each TIBCO environment is isolated. 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.

- **Microsoft Windows**

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

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

Start > TIBCO > *environment* > TIBCO BusinessEvents 4.0

- **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.

Disk Space Requirement in User's Home Directory

The user's home directory must have at least 500 KB of free disk space.

Installing BusinessEvents

The TIBCO installer can be run in different modes, supported on all platforms.

- [Install in GUI Mode](#)
- [Install in Console Mode](#)
- [Install in Silent Mode](#)

Install in GUI Mode

The following procedure explains how to install BusinessEvents in GUI mode.

1. Log in to the system on which you want to install BusinessEvents.
2. Open the physical media or download the BusinessEvents product package.
3. Extract the BusinessEvents product archive file to a temporary directory then navigate to that directory.
4. Run **TIBCOUniversalInstaller**.
5. After a short delay while the installer initializes, the Welcome dialog is displayed.
6. Review the information in the Welcome dialog and click **Next**.
7. The License Agreement dialog is displayed. 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 do not agree to the terms of the license agreement, click **Cancel** to exit from the installation process.

8. Choose Typical or Custom installation. the panel on the right enables you to select components.
9. Specify an installation environment and click **Next**.

For more details on TIBCO installation environment, see [TIBCO Environment and Default Installation Directory](#) on page 16.

First Installation

If this is the first time that you are installing a TIBCO product using the Universal Installer, you must create an installation environment by specifying the Name, Description, and Path:

- **Directory** The root directory into which all TIBCO products are installed. Individual products will use sub-directories of this. Type a path or click **Browse** to specify the path or accept the default location.

The path cannot contain special characters such as "*", "#", "?", ">", "<", "%", "&", "\$", "\" or "|". The path cannot be the same as the path of an existing environment.

- **Name** Identifies the installation environment. The name cannot contain special characters such as "*", "?", ">", "<", ":", "|", "/", "\", or quotes ("). The name is appended to the name of Windows services created by the installer and is a component of the path to the product in the Windows **Start > All Programs** menu.

Subsequent Installation

If you have previously installed a TIBCO product using the Universal Installer, you can do either of the following:

- Install into a previously-created installation environment. Select Use an existing TIBCO_HOME and then select an environment from the list.



When installing multiple products into a single installation environment, ensure that all the products are compatible. For more information, see System Requirements on page 2 and the product-specific installation documentation.

- Create another installation environment to keep the product installations separate. In this case you must select **Create a new installation environment** from the list and then specify the Name, Description, and Path for the new installation environment.

10. The Installation Type screen appears. Install all features by clicking **Typical** or choose the features to install by clicking **Custom**. After making your choice, click **Next**.

11. If you selected Custom, in [step 10](#), a screen similar to the following appears. If you did not select Custom, proceed to [step 12](#).

Uncheck the check box next to the features you do not want to install, and click **Next**.

12. The Eclipse Location dialog is displayed. TIBCO recommends that you use the Eclipse platform provided with TIBCO BusinessEvents; to do this, just click **Next**. However you can install TIBCO BusinessEvents into your own Eclipse installation. If you want to do this, select the **Use my own Eclipse installation**

check box, specify the location of your Eclipse installation in the Eclipse Installation Location field, and click **Next**.

The installer performs some basic checks to try to ascertain whether a suitable copy of Eclipse is installed in the selected directory. If the installer finds any problems with the Eclipse configuration that you specified, it displays messages. If you are confident that the directory is correct or if you plan to manually configure Eclipse later, continue the installation.

13. After the installer configures your installation choices, the Pre Install Summary dialog is displayed. Review the information displayed 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.

14. When you are satisfied with your choices, click **Install**.
15. The installer now performs the necessary installation tasks. When installation has completed, the Post Install Summary dialog is displayed. Click **Finish** to exit from the installer. There is a slight delay while the installer deletes temporary files.
16. Complete the post-installation tasks described in [Chapter 3, Post Installation Tasks, on page 23](#).

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
4. Run the installer using this command line:
`TIBCOUniversalInstaller -console`
5. Complete the installation by responding to the console window prompts.

Install in Silent Mode

The following procedure explains how to install TIBCO BusinessEvents in silent mode. The `TIBCOUniversalInstaller.silent` file is packaged in the directory that contains the universal installer. You must edit the file with information for your environment before launching the silent installation. The file includes comments that describe the installation properties you can set.

While you can use the `TIBCOUniversalInstaller.silent` file, it's good practice to copy the file to a different name and edit that file for the silent mode.

If errors occur during installation, they will be listed in the installation log file (see the `User_Home/.TIBCO` directory).

1. Open the distribution DVD 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.
4. Copy the `TIBCOUniversalInstaller.silent` file and name the file.
5. Using a text editor, open the copied file and update the install location, and the list of features to install.
6. Run the installer:

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

If you are using the `TIBCOUniversalInstaller.silent` file, you need not supply the file name and can run: `TIBCOUniversalInstaller -silent`.

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

```
Install, com.tibco.installer.util.TIBCOInstaller, dbg.Debug,  
The installation has completed. Please check the log file for  
additional information.
```

7. Complete the post-installation tasks described in [Chapter 3, Post Installation Tasks, on page 23](#).

Uninstalling TIBCO BusinessEvents

Use the following procedure to uninstall TIBCO BusinessEvents:

1. Run the universal uninstaller in one of the following ways:
 - Navigate to the `_uninst` directory located in the `TIBCO_HOME` directory and run the `universal_uninstall` program.
 - (Windows) From the Start menu, go to **Start > All Programs > TIBCO > TIBCO_HOME > Universal Uninstaller**.
 - (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 TIBCO BusinessEvents (or a selection of products in this TIBCO home), click **Custom Uninstall**. Select the product or products you want to uninstall. Then click **Next**.
 - 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 11](#).

Chapter 3 Post Installation Tasks

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



If you are upgrading from an earlier release (including the last release) read [Chapter 5, Migrating from Earlier Versions, on page 41](#) for additional post-installation actions.

Topics

- [Re-Initialize Studio Plug-ins Registry, page 24](#)
- [Launching Studio in Linux, page 25](#)
- [Check and Update Properties Files, page 26](#)
- [Check in BusinessEvents Decision Manager Example Project Decision Tables, page 28](#)
- [All UNIX Installations—Directory Permissions, page 32](#)
- [Configuration for 64-bit Mode, page 34](#)

Re-Initialize Studio Plug-ins Registry

When you install the add-on products after installing 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 for the first time before you start using Studio.

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`

Launching Studio in Linux



The design time component, BusinessEvents Studio, is supported on Redhat Linux Enterprise Linux v5, and requires the Look-and-Feel (LaF) to be configured to NimbusLookAndFeel.

For the first time when you launch Studio in Linux, you need to perform the following additional steps:

1. Copy the following files to `${BE_HOME}/studio/lib`
 - `${BE_HOME}/studio/eclipse/plugins/com.tibco.cep.toolkit.adapter.linux_4.0.0.jar`
 - `${BE_HOME}/eclipse-platform/eclipse/plugins/org.eclipse.swt.gtk*.jar`
2. Add the following lines to `${BE_HOME}/studio/eclipse/studio.ini`:
 - `-Djava.ext.dirs=<full_path_to_BE_HOME>/studio/lib`
 - `-Dawt.toolkit=com.tibco.cep.swtawt.toolkit.SwtAwtToolkit`
 - `-Dswing.defaultlaf=com.sun.java.swing.plaf.nimbus.NimbusLookAndFeel`
3. Initialize Studio, using the command


```
$ studio -clean -initialize
```
4. Launch Studio, using the command


```
$ studio
```

Check and Update Properties Files

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

Enable Remote Connection to RMS from BusinessEvents Decision Manager

As shipped, the `tibco.clientVar.RMS/hostname` property is set to `localhost`. This setting enables the product to be used in non-production settings. For production settings take the following actions to ensure remote connectivity.

To Enable Remote Connection to RMS from BusinessEvents Decision Manager

1. Open the `BE_HOME/rms/bin/be-rms.tra` file.
2. In the following property specify the host name of the machine where RMS is hosted:

```
tibco.clientVar.RMS/hostname=localhost
```

3. Set the `rms.host` property in the `BE_HOME/DecisionManager/configuration/bui-config.tra` file to use the same hostname and port. (This sets the default value. Users can also specify different values to connect to another server.)

As well as the hostname properties, also set the respective port properties as needed.



BusinessEvents Decision Manager clients must have direct network connectivity to the RMS server for RMS.

Connections from clients may not work if the RMS server is behind a firewall.

Update JVM Settings

Set the Heap Size as Needed

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

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

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

Alternatively, you could increase the machine's memory.

As another example, if you use a machine with more memory, and you work with very large tables in BusinessEvents Decision Manager, you might increase the 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 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 you can determine the version installed and other information using the following simple Java program:

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

The system property `com.ibm.vm.bitmode` enables applications to determine the mode in which JVM is running. It returns the following values:

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

Check in BusinessEvents Decision Manager Example Project Decision Tables

This section is relevant only for the BusinessEvents Decision Manager add-on.

After installation, you can use JMX to quickly check in the example decision tables to the example RMS projects. This action initializes the examples for use. If you do not initialize the projects, then the configured decision tables are not available when a user checks out an example project.



Alternatively, you can check out the decision project and import the provided export files to create the decision tables. Then submit the project for approval and approve it.

The documentation describes use of JConsole, a utility provided with the JDK, to perform the procedure.

Location of RMS Projects

RMS projects are all located within one directory, which is specified in the server property file, `BE_HOME/rms/bin/be-rms.tra`. In the product as shipped, the directory is `BE_HOME/rms/examples`.

When you check in projects, you only need to specify the project directory name, not the fully qualified path.

Checking In Example Project Decision Tables Using JMX

This procedure is also documented in *TIBCO BusinessEvents Decision Manager User's Guide*.

Configure be-rms.tra With JMX Properties and Start the RMS Server

1. Ensure that the following properties are present in the `BE_HOME/rms/bin/be-rms.tra` file.

Coherence JMX properties

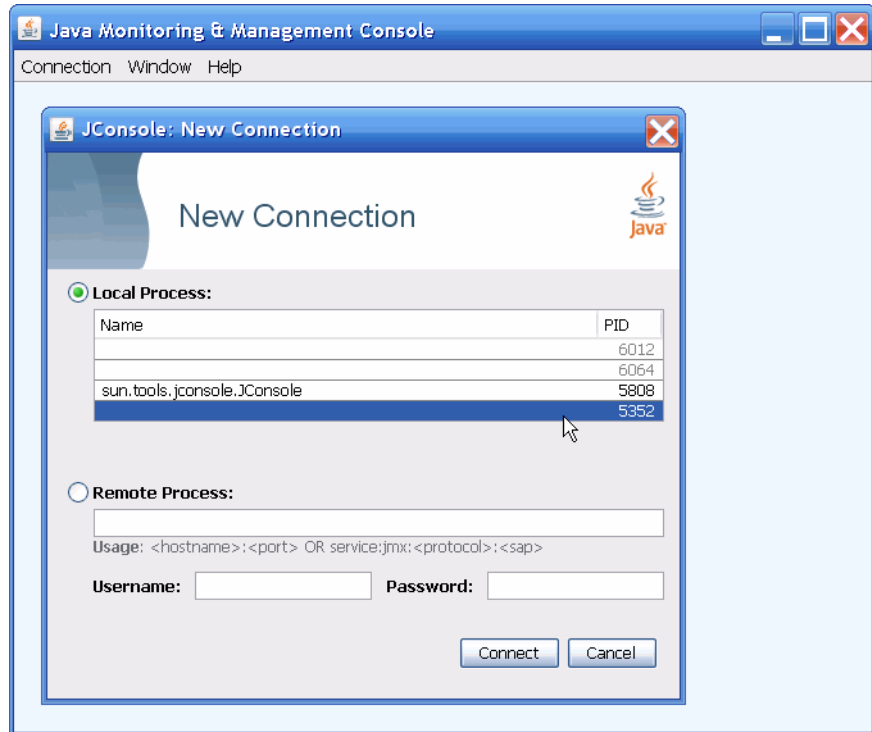
```
java.property.com.sun.management.jmxremote=true
java.property.com.sun.management.jmxremote.ssl=false
java.property.com.sun.management.jmxremote.port=5561
java.property.com.sun.management.jmxremote.authenticate=false
```

Use any available port. When multiple instrumented JVMs exist on one machine, each must have a unique port number. Other values can remain the same.

2. Start (or restart) the RMS server after adding the properties.

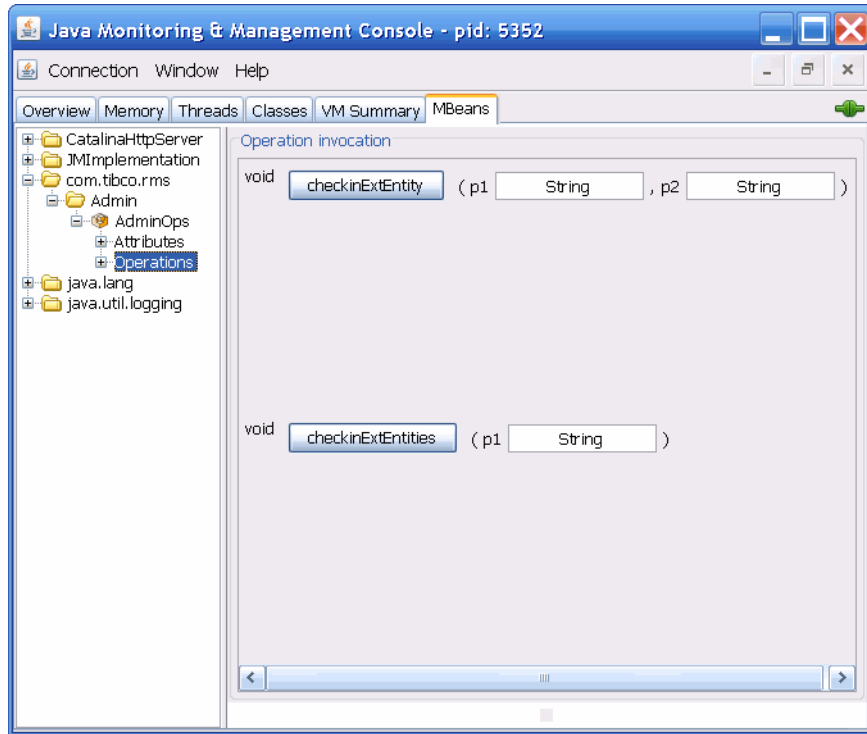
To Check in Decision Project Artifacts Using JConsole

1. In the bin directory of your JDK installation, run the `jconsole.exe` executable. You see the New Connection dialog, similar to the following:



2. Select the connection corresponding to the JVM in which RMS is running. Click **Connect**.

3. Select the MBeans tab and in the left panel, navigate to `com.tibco.rms > Admin > AdminOps > Operations`. You see the Operation invocation panel.



4. In the lower area, to the right of the `checkinExtEntities` button, specify the name of the example RMS project directory you want to check in.
For example, to check in the example credit card application project, you would enter `CreditCardApplication`.
5. Click **checkinExtEntities**. You see a message that the method was successfully invoked.
6. Repeat this procedure until you have checked in all the example projects.

To Check in a Specified Project Resource

If you need to check in selected project resources (instead of all resources) do the following.

1. Navigate to the Operations panel following steps in [To Check in Decision Project Artifacts Using JConsole on page 29](#)

2. To the right of the `checkinExtEntity` button, enter values as follows:
 - For **p1**, the first parameter, specify the name of the RMS project. It must be in the correctly configured location (see [Location of RMS Projects on page 28](#)). For example, if you were working with the example credit card application RMS project, you would enter `CreditCardApplication`.
 - a. For **p2**, the second parameter, specify the full path to the artifact. For example:
`C:\tibco\be\3.0\rms\examples\CreditCardApplication\decisiondata_Virtual_RF_BankUser_VirtualRuleFunction_bankUser.rulefunctionimpl`
 - b. Click **checkinExtEntity**.

All UNIX Installations—Directory Permissions

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



This step is required on all UNIX platforms.

Permissions for BusinessEvents Directories

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

bin Directory

```
$TIBCO_HOME/be/4.0/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/4.0/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`.

Permissions for BusinessEvents Decision Manager and RMS Directories

bin Directory

All BusinessEvents Decision Manager and RMS users must have read, write, and execute permissions for the `rms/bin` directory.

```
TIBCO_HOME/be/4.0/rms/bin
```

See [Permissions for BusinessEvents Directories on page 32](#) for some helpful tips.

RMS Project Directory

Users must have read, write, and execute permissions for the directory where RMS projects are located. By default, the product ships with multi-project configuration and the base location is set to:

```
$TIBCO_HOME/be/4.0/rms/examples.
```

You can configure RMS in single-project or multi-project mode using properties in the `BE_HOME/rms/bin/be-rms.tra` file. Set permissions on the directories specified in the properties:

- **For multi-project configuration** `rms.projects.baselocation` directory
- **For single-project configuration** `rms.project.location` directory

RMS directory

The owner of the `BE_HOME/rms/` directory must be the user who runs the RMS server.

To run the server, execute `BE_HOME/rms/bin/be-rms.exe` (or `be-rms.sh`, depending on your operating system).

Configuration for 64-bit Mode

The following platforms allow you to run TIBCO BusinessEvents in 64-bit mode:

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

See [Supported UNIX Platforms on page 9](#) for versions supported.



An additional step is required for the HP-UX platforms. See [HP-UX on page 35](#)).

Configure for 64-bit Mode

To configure BusinessEvents for 64-bit mode you rename the provided 64 bit wrapper and configure the `be-engine.tra` and `be-rms.tra` files.

1. Open the `be-engine.tra` file and the `be-rms.tra` file for editing. In each 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 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
```

2. In each file, you also may want to increase the heap size and memory usage of the Java VM by adding JVM arguments to the `tibco.env.APP_ARGS` property and by changing the `tibco.env.HEAP_SIZE` property. The following lines are example values for these properties:

```
tibco.env.APP_ARGS=-d64 -XX:MinHeapFreeRatio=52
-XX:MaxHeapFreeRatio=90 -XX:GCTimeRatio=19
tibco.env.HEAP_SIZE=2048M
```


3. Save the files. (Remember to update both the `be-rms.tra` and the `be-engine.tra` files.)

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_HOME/mm/bin
```

```
BE_HOME/rms/bin
```


Chapter 4 **Installation FAQs and Troubleshooting**

This section provides some FAQs and troubleshooting tips.

Frequently Asked Questions

What should I do if JVM crashes when I run the installer?

The installer first extracts the bundled JVM into a temporary area and then uses it to launch itself. If for some reason, the JVM crashes, you could still run the installer using another JVM, preferably JVM 1.5.0 or higher. The syntax is:

```
TIBCOUniversalInstaller.exe -is:javahome C:\j2sdk1.5.0
```

```
TIBCOUniversalInstaller-<UNIX platform>.bin
-is:javahome /opt/jre150
```

The javahome directory must contain bin/java.exe or bin/java.

The installer will use the externally supplied JRE to launch itself.

Why and how should I set the DISPLAY variable on UNIX Platforms for GUI mode?

The installer on UNIX must open an additional window, generally for graphics. It uses the DISPLAY environment variable to tell it on what computer to open the window. If the environment variable is not set, the installer will either wait or abort after displaying:

```
InstallShield Wizard
Initializing InstallShield Wizard...
Preparing Java(tm) Virtual Machine...
.....
.....
.....
```

The DISPLAY variable must be set to the IP address or name of the computer (on which the installer graphics window are to be displayed), followed by a screen address, which can be :0.0 as shown in the following example:

```
# Bourne shell
DISPLAY=ip_address:0.0; export DISPLAY

# Korn shell
export DISPLAY=ip_address:0.0

# C-shell
setenv DISPLAY ip_address:0.0
```

For example, consider a scenario where you need to install TIBCO BusinessEvents on a remote HP-UX machine (named *itaska*). Because you have a Solaris 5.6 machine (named *alaska*) that has a video card and monitor installed, you can run an X-window application on it. So you decide to telnet to *itaska* from *alaska*.

When you telnet to *itaska*, you will not get access to *itaska*'s monitor and will be unable to display an X-window application. That is why you must set the DISPLAY variable, which instructs the X-server to redirect all windows to the computer set in the variable. Before doing so, the computer (specified in the DISPLAY variable) must give permissions to share its monitor.

```
alaska> xhost + # give permission for all to its share monitor
alaska> telnet itaska
Welcome to HP-UX itaska 11.00
User:
Password:
itaska> export DISPLAY=alaska:0.0 # set display on alaska
itaska> tar -xvf TIB_tra-suite_5.3.0_h7_11.tar
```

What is _uninstall2 directory?

If the original uninstall directory is in use at uninstall time, it cannot be removed by the installer program. The installer then creates a second uninstall directory for the second installation. To remove the second installation, you must run the uninstall program from the second uninstall directory. The original uninstall directory can also be manually removed, if empty.

Running Out of Disk Space

The installer calculates the disk space required in the product home location for the selected components. The calculation is done before the actual installation (copying of files to system) begins. The installer will proceed only if sufficient free disk space is available in product home location.

However, if disk space is consumed by another process while the installer is copying the files, and if the required disk space is thereby reduced, the installer may fail and will then give a failure message.

Solution

While performing installation, avoid running other processes that consume disk space in product home location.

Installation Errors on HP-UX 11.00 64-bit Platform

Error message

Installation on a HP-UX 11.00 64 bit system may crash with the following error message:

```
Pid nnn killed due to trashed stack.
Pid nnn was killed due to failure in writing the signal context.
```

This happens only on HP-UX 11.00 64 bit systems. It does not happen on HP-UX 11.00 32 bit system and HP-UX 11.11 (or 11.i) system.

To determine the OS version on your system, run:

```
uname -a
```

To determine the kernel bits on your system, run:

```
getconf KERNEL_BITS
```

Resolution

HP-UX kernel patch PHKL_27282, resolves the above crash.

To determine if your system has the kernel patch, run:

```
/usr/sbin/swlist -l product PHKL_27282
```

or

```
what /stand/vmunix | grep PHKL_27282
```

If your system is an HP-UX 11.00 64 bit system and it does not have the patch, first install HP-UX kernel patch PHKL_27282 and then proceed with the installation. Installation of patch PHKL_27282, will reboot your system.

Chapter 5

Migrating from Earlier Versions

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

If you are migrating from persistence object management to cache object management, also see [Chapter 6, Migrating Persistence Data to Backing Store](#), on [page 47](#).

Topics

- [Upgrading from Version 3.0.1 and Earlier](#), page 42
- [Upgrading from Version 3.0.0 or Earlier—Legacy Backing Store](#), page 44
- [Legacy Locations Used in Migration](#), page 45

Upgrading from Version 3.0.1 and Earlier

In addition to the changes made in earlier versions that required migration, note also the following changes that may require action. These changes occurred after the release of version 3.0.1. Some changes were issued in hotfixes.

Importing a BusinessEvents 3.x Project into BusinessEvents Studio

Import from versions earlier than 3.x is not supported.

You can import 3.x projects using the BusinessEvents Studio user interface. You can also import a 3.x project at the command line.

These procedures are provided in *TIBCO BusinessEvents Developer's Guide*, because they may be needed outside of a migration context. See the section Importing Projects from Earlier Versions for details.

Runtime Properties

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.

In 4.x, runtime configuration is largely accomplished using a structured XML file called the Cluster Definition Descriptor. An editor in BusinessEvents Studio enables easy maintenance of this file. This file provides organization and structure so that related properties are shown in a logical relationship to each other.

Most of the 3.x runtime properties are included as elements or attributes in the CDD file. Some properties are not relevant in the 4.x product, and additional properties not used in 3.x have been added.

Automatic Migration

The migration utility creates a CDD file using all known properties that can be automatically migrated.

Manual Migration

You must also check to ensure all properties are migrated. You may have to add some properties manually.

JDBC Backing Store

A new backing store implementation is included. Instructions for migrating from the Oracle-only backing store to the JDBC backing store are provided in *TIBCO BusinessEvents Administration*.

Oracle Driver Version

See the current product readme for current details.

Project Libraries

Any 3.x project libraries included in your project are not compatible with 4.x and the migration utility does not migrate them.

Manual Migration

If you want to continue to use the 3.x project libraries, add them to the 4.x project after migration. Follow instructions in the section *Creating and Using Project Libraries*, in Chapter 2, *Project Tasks* of *TIBCO BusinessEvents Developer's Guide*.

Additional Reserved Words

As BusinessEvents develops, the number of reserved words increases. Check the section *Keywords and Other Reserved Words* in Chapter 16, *Rule Language Grammar*, of *TIBCO BusinessEvents Developer's Guide*. If you use any of the listed words as identifiers, resource names, or folder names, change them before migrating the project.

Change in Authentication Property Names

Certain properties that were used only in the context of RMS are used more widely now. Their names have changed accordingly.

All RMS authentication properties that began with **rms.auth** now begin **be.auth**.

Update your configuration files as needed.

Rebuild Project EAR Files

As in all cases, rebuild all project EAR files after installing BusinessEvents.

Upgrading from Version 3.0.0 or Earlier—Legacy Backing Store

If you use a backing store in version 3.0.0 or earlier, perform the following procedure after installing the current version.

Backing Store Schema Change

New BusinessEvents metadata tables were added to the backing store schema in 3.0.1. If you use a backing store in version 3.0.0 or earlier, you must run the `create_tables.sql` script provided in the current release. It adds the new tables to the schema. Running this script does not affect any existing tables (therefore there is no need to run `be-oradeploy.exe`). However it's always a good idea to back up your data before performing any schema changes.

To Update an Existing Backing Store Database Schema

1. Before you begin do the following:
 - Gracefully shut down the deployed application (all agents and cache servers).
 - Back up your database.
2. 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).
3. 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.
4. At the SQL prompt, type the following to run the script:

```
@create_tables.sql
```

Your database tables are now configured for use.

Legacy Locations Used in Migration

Determining the TIBCO Repo URL for BusinessEvents

When applications are started outside of a TIBCO Administrator domain, the TIBCO repo URL is the file location of the project EAR file. You add a property to the engine property file, `be-engine.tra` to specify the location:

```
tibco.repourl location of EAR file
```

When TIBCO Administrator is used to deploy a BusinessEvents application, the `tibco.repourl` property is added to the generated TRA file (see [Location of TIBCO Administrator-Generated Property File on page 45](#)).

The value of this property is the URL of the project repository. The URL format depends on the deployment transport used. Supported formats for the URL are `tibcr`, `http`, `https`, and `file` (local).

You can use a `tibcr://` URI to identify the server-based repository location. For full details about its allowable parameters, refer to TIBCO Adapter SDK™ documentation.



One way to determine the repo URL is to temporarily deploy the BusinessEvents EAR. The repo URL is in the deployed BusinessEvents instance TRA file. However, you must remove the escape characters (back-slashes). You must then undeploy the BusinessEvents instance after obtaining the `tibco.repourl` value.

Location of TIBCO Administrator-Generated Property File

When it deploys a BusinessEvents project, TIBCO Administrator reads the properties from the engine property file located in `BE_HOME/bin/be-engine.tra` and then incorporates the deploytime configuration values set in the TIBCO Administrator user interface. (Property values set in TIBCO Administrator override those set in the `BE_HOME/bin/be-engine.tra` file).

TIBCO Administrator then generates a property file for runtime use in this location:

```
TIBCO_HOME/tra/domain/domain_name/application/application_name/application_name.tra
```

After deployment, the generated file is used, and not the file in `BE_HOME`.

Chapter 6

Migrating Persistence Data to Backing Store

Procedures in this chapter enable you to migrate data in a persistence data store to a backing store used for Cache object management (OM). These procedures are used when you are changing from the Persistence to a Cache OM option.

You can also use exported data for other purposes. Using the data is outside the scope of this document. However, a reference to the export file column names is provided.

Topics

- [Migrating Data from Persistence Database to Oracle Backing Store, page 48](#)
- [Persistence Migration Utility Usage and Parameters, page 52](#)
- [Persistence Migration Export Reference Tables, page 55](#)

Migrating Data from Persistence Database to Oracle Backing Store

You can change your object management (OM) method from Persistence to Cache with backing store. To do so, you configure the Cache OM options as explained in this guide, and you can optionally migrate the data in your persistence database to a backing store.

This migration utility migrates data from the persistence to the Oracle only backing store.

When you start up your newly configured system, the data from the backing store is loaded into the cache.

This section explains how to migrate your data from the persistence database, or databases if you have a multi-BAR project, to the backing store. Each rule session (BAR) uses a different partition number, which is stored in the CacheID column of the backing store.

For each BAR (inference agent) in the project, the steps are as follows:

- First you set up the backing store database schema, following standard procedures given in this guide.
- Then you export ontology object data from the persistence database to text files.
- Finally, you import the data from the text files into the backing store.

When all the data is migrated, and the Cache OM features are fully configured, start the system.

The migration utility supports export from persistence databases in BusinessEvents 1.4 and higher. The utility can then import the data to a 2.x and higher backing store (but not to a persistence database).

You can also use the migration utility to export ontology object data from a persistence database, and then import the files into spread sheets for validating, analyzing or reporting. See [Persistence Migration Export Reference Tables on page 55](#).

Before you Begin

- As with any procedure that modifies your data, ensure that you have made backups before you begin.
- Stop the BusinessEvents engine (or engines as the case may be).

Prepare Property Files

You must add information to the `be-migration.tra` file before executing the utility commands.

1. Open the utility property file for editing:

```
BE_HOME/bin/be-migration.tra
```

2. In the `tibco.env.CUSTOM_EXT_PREPEND_CP` property, add the path to your JDBC driver (if it is not already there). For example:

```
# JDBC Driver libraries
tibco.env.CUSTOM_EXT_PREPEND_CP C:/myHome/jdbc/lib/ojdbc14.jar
```

3. In the JDBC drivers property, `java.property.jdbc.drivers`, add the correct driver string. For example:

```
# JDBC drivers
java.property.jdbc.drivers oracle.jdbc.OracleDriver
```

4. As needed, add and configure the following properties:
 - `be.migration.import.multithreads`: Default value is `true`
 - `be.migration.import.threads`: Allocates JVM threads to be used by the migration utility. Default value is 20. If `be.migration.import.multithreads` is `false`, this property is not used.
5. As needed, configure the `be.migration.oracle.poolSize` property. This property allocates the connection pool size to be used for importing ontology objects into the backing store. Default value is 10.
6. As needed, configure the `be.migration.oracle.retryInterval` property. This property specifies the interval in seconds. The migration utility tries to reconnect to the backing store database at the specified interval, in case the connection is lost. Default value is 5.
7. As desired, configure any command-line options you want to set in the properties file. See [Table 5, Persistence Database Migration Utility Parameters, on page 52](#) for property names.

Note that options set on the command line take precedence over values set in the property file.

8. Save the property file.

Table 4 BusinessEvents Engine Properties for Persistence OM Data Migration

Property	Notes
be.migration.import.multithreads	<p>Specifies if the data migration utility uses multithreading.</p> <p>Default value is true.</p> <p>Used by the migration utility, for migrating from the Persistence to the Cache OM option. See Migrating Data from Persistence Database to Oracle Backing Store on page 48</p>
be.migration.oracle.poolSize	<p>Allocates the connection pool size to be used for importing ontology objects into the backing store.</p> <p>Default value is 10.</p> <p>Used by the migration utility, for migrating from the Persistence to the Cache OM option. See Migrating Data from Persistence Database to Oracle Backing Store on page 48.</p>
be.migration.import.threads	<p>Allocates JVM threads to be used by the migration utility. If be.migration.import.multithreads is false, this property is not used.</p> <p>Default value is 20.</p> <p>Used by the migration utility, for migrating from the Persistence to the Cache OM option. See Migrating Data from Persistence Database to Oracle Backing Store on page 48.</p>

Export Data from the Persistence Database

When you execute the commands below, the `be-migration` utility reads persistence files from `persistence_db_dir` and writes their data to comma-delimited text files in the location specified, using information in the specified EAR file.



Each rule session (inference agent) requires a separate database. Repeat the procedure for each database.

1. Create the directory where you want the text files to be created.

2. Export from persistence database to files using a command that follows this format:

```
BE_HOME/bin/be-migration -export -bdb -input persistence_db_path
-output text_files_path -ear EAR_path or repo_path
```

3. Review the export log file to ensure that the data export was successful. The summary at the end of the log file provides useful information.
4. If the project has multiple BARs, that is multiple rule sessions (inference agents), repeat the procedure once for each BAR.

Import Data to the Oracle Only Backing Store

Before you can import files to a backing store you must create the schema.



If the project has multiple BARs, that is, multiple rule sessions (inference agents), each BAR requires a separate backing store. Repeat the tasks below once for each BAR.

Task A Create Backing Store Schema

Complete all the procedures required to set up your Oracle-only backing store database schema. See *TIBCO BusinessEvents Administration* for details.

Task B Import Ontology Object Data from Files to Database

Run the `be-migration` utility with the import command:

```
-import -db -input text_files_path -conn "connection_string" -ear EAR_path or repo_path -partition
BAR_Name:partition_id
```

See [Persistence Migration Utility Usage and Parameters on page 52](#) for details on each of the parameters.

Review the import log file to ensure that the data import was successful.

Run your project in a test environment to test if data recovery is successful before deploying to the production environment.

Persistence Migration Utility Usage and Parameters

Usage

The general syntax for running the utility at the command line is as follows:

```
be-migration {-export -bdb|-import -db} [-input input_url] [-output output_url] -ear
EAR_path or repo_path [-conn connection_string] [-partition BAR_Name:partition_id] [-help]
```

Example command to export from persistence to text files:

```
-export -bdb -input C:\mydir\bdb\FraudDetection-jdb -output C:\mydir\extract\output
-ear C:\mydir\FraudDetection.ear
```

Example command to import from text files to a backing store.

```
-import -db -input C:\mydir\extract\output -conn
"jdbc:oracle:thin:sa/sa@dbserver:1521:MIGRATION" -ear C:\mydir\FraudDetection.ear
-partition "BusinessEvents Archive:1"
```

Persistence Database Migration Utility Parameters

Table 5 Persistence Database Migration Utility Parameters (Sheet 1 of 3)

Parameter	Also Used	Property	Description
-bdb <i>persistence_db_dir</i>	/bdb	N/A	Indicates that the export is for a persistence database. -bdb is the default value.
-conn <i>connection_string</i>	/conn	be.migration.db.connection	<jdbc>:<vendor>:<drivertype>:<user>/<password>@<host>:<port>:<database> The connection string specifies the JDBC driver string, the user and password, and the JDBC URL. The user must have sufficient privileges to connect, create tables and write to and read from them.

Table 5 Persistence Database Migration Utility Parameters (Sheet 2 of 3)

Parameter	Also Used	Property	Description
-db	/db	N/A	Indicates that the import is for a backing store.
-ear <i>project_path</i>	/project -repourl /repourl	be.migration. project.path	<p>The value can be either of these:</p> <ul style="list-style-type: none"> The file-based location of the BusinessEvents EAR file. The repo URL for the deployed BusinessEvents application. The URL format depends on the deployment transport used. Supported formats for the URL are <code>tibco</code>, <code>http</code>, <code>https</code>, and <code>file</code>. <p>You cannot use the designer project as a value for this property.</p> <p>See Determining the TIBCO Repo URL for BusinessEvents on page 45.</p>
-export	-E /E /export	be.migration. mode=export	<p>Use <code>-export -bdb</code> to export data from a persistence database to comma-separated text files.</p> <p><code>-export</code> is the default option if the parameter is not specified</p>
-help	-h /h /help	N/A	Displays parameter usage.
-import	-I /I /import	be.migration. mode=import	Use <code>-import -db</code> to import data from the exported comma-separated text files into a backing store.
-input <i>input_url</i>	-i /i /input	be.migration. input.path	<p>If used in a command with <code>-export -bdb</code> (exporting persistence database files) then the value is the path to the persistence database files (<i>persistence_db_dir</i>) to be exported.</p> <p>If used in a command with <code>-import db</code> then the value is the path to the comma-separated text files for the import (the text files that were exported in a prior command).</p>

Table 5 Persistence Database Migration Utility Parameters (Sheet 3 of 3)

Parameter	Also Used	Property	Description
<code>-output</code> <code>output_url</code>	<code>-o</code> <code>/o</code> <code>/output</code>	<code>be.migration.output.path</code>	If used in a command with <code>-export -bdb</code> (exporting data from a persistence database) then the value is the path to the comma-separated text files to be created. You must create this directory before executing the command.
<code>-partition</code> <code>BAR_Name:partition_id</code>	<code>/partition</code>	<code>be.migration.bar.name</code> <code>be.migration.partition.id</code>	<p>The value is a BAR resource name, followed by a colon, followed by a partition ID.</p> <p>The partition ID is an arbitrary numeric value to identify a BusinessEvents partition. Each rule session (BAR) uses a different partition number.</p> <p>This partition ID is stored in the <code>CacheID</code> column of the backing store database.</p> <p>If you use engine properties in the TRA file, note that two properties are used to provide the two parts of the value:</p> <ul style="list-style-type: none">• The value of <code>be.migration.bar.name</code> is the name of the BAR resource.• The value of <code>be.migration.partition.id</code> is the numeric ID. <p>Note Ensure that you use the same partition ID for the BARs here and in the backing store configuration.</p>

Persistence Migration Export Reference Tables

Information in the following tables is useful for those who will use the exported tables for purposes other than migration. Definitions are not provided for files used only internally by the migration utility.

Migration Export Table and Column Information

Table 6 Migration Export Table and Column Information (Sheet 1 of 5)

Column Name	Definition	Data Type	Notes
Concept File, Statemachine File, Scorecard File			
File names are based on entity type names. Each file contains details of instances of one entity, excluding properties (see next section).			
id	Internal Id	long	
extId	External Id	long	State machine does not have extId.
status	RTC status	int	Used only in concept and state machines exported from BusinessEvents 1.4.
timestamp	timestamp	long	Used only in concept and state machines exported from BusinessEvents 1.4.
retractedFlag	Whether the instance has been retracted (deleted) from working memory	boolean	
Concept-properties File, Statemachine-properties File, Scorecard-properties File			
The <i>entityname-properties</i> files contain information about the entity properties. (Simple event properties, however, are defined in the <i>SimpleEvent</i> file.)			
conceptId	Internal Id	long	
propertyName	Property name	String	State machine property name is the state name of the state machine.

Table 6 Migration Export Table and Column Information (Sheet 2 of 5)

Column Name	Definition	Data Type	Notes
type	Property type	int	See Table 7, Migration Export—Concept Property Type Code Definitions , on page 59.
isSet	Whether this property value is set	boolean	
arrayIndex	Index of current value in a property array.	int	For properties that are not arrays, the index is -1.
value	Property value	(see Notes column)	Will be converted to the property type defined in the type column.
historysize	Size of property history defined at design-time	int	
currentIndex	Index of current value in a property-history array	int	
[{HistoryTS	history timestamp	long	Repeats <i>historysize</i> times in a pair of [<i>history timestamp</i> , <i>history property value</i>] when <i>historysize</i> >=1, starting for <i>history</i> 0, 1, ... State machine properties do not use history.
HistoryValue}...]	property value at <history timestamp>	(See Notes column)	Will be converted to the property type defined in the type column.
SimpleEvent file			
File names are based on entity type names. Each file contains details of instances of one simple event type, including properties.			
id	Internal Id		
extId	External Id		

Table 6 Migration Export Table and Column Information (Sheet 3 of 5)

Column Name	Definition	Data Type	Notes
status	RTC status	int	Used only in event data exported from BusinessEvents 1.4.
timestamp	timestamp	long	Used only in event data exported from BusinessEvents 1.4.
retractedFlag	Whether the event has been retracted from working memory (consumed)	boolean	
[event property1]	event property value	N/A	Type as defined at design-time
[event property2]	event property value	N/A	Type as defined at design-time
RepeatedTimeEvent File, RuleBasedTimeEvent File, StateTimeoutEvent File Except for StateTimeoutEvent, file names are based on entity type names. The StateTimeoutEvent file is only used by data exported from BusinessEvents 2.0 and above. The name is always StateTimeoutEvent.			
id	Internal Id	long	
extId	External Id	long	Not used
status	RTC status	boolean	Used only in event data exported from BusinessEvents 1.4.
timestamp	Timestamp	long	Used only in event data exported from BusinessEvents 1.4.
retractedFlag	Whether the event has been retracted from working memory (consumed)	boolean	

Table 6 Migration Export Table and Column Information (Sheet 4 of 5)

Column Name	Definition	Data Type	Notes
scheduledTime	Scheduled time the time event will be asserted	long	
closure	The closure string passed in when scheduling a rule-based timeEvent	String	Not used for Repeated timeEvent
TTL	Time to live		Not used for Repeated timeEvent
SMId	Internal Id of the state machine instance this stateTimeout event belongs to	long	Used only in StateTimeoutEvent data exported from BusinessEvents 2.0 and above.
PropertyName	State name of the state machine this stateTimeout event belongs to	String	Used only in StateTimeoutEvent data exported from BusinessEvents 2.0 and above.
Export-control File			
Used internally by the migration import. Other internal files are propertiesIndex and scorecardIds.			
project-name	Project name of the ear file	String	
project-config-version	BusinessEvents version of the ear file	String	
data-version	BusinessEvents version of the data in Berkeley database	String	
lastInternalId	the last internal Id used by be-engine	long	Used only for data exported from BusinessEvents 1.4
#instances	number of concept instance exported	long	

Table 6 Migration Export Table and Column Information (Sheet 5 of 5)

Column Name	Definition	Data Type	Notes
#events	number of events exported	long	
#error	Number of errors occurred in the export	long	
#warnings	Number of warnings occurred in the export	long	

Concept Property Type Code Definitions

This table shows the property types referenced by the code numbers in the type column (see [Table 6, Migration Export Table and Column Information, on page 55](#)).

Table 7 Migration Export—Concept Property Type Code Definitions

Code	Type
0	PropertyAtomBoolean
1	PropertyAtomChar
2	PropertyAtomConceptReference
3	PropertyAtomDateTime
4	PropertyAtomDouble
5	PropertyAtomInt
6	PropertyAtomLong
7	PropertyAtomString
8	PropertyArrayBoolean
9	PropertyArrayChar
10	PropertyArrayConceptReference
11	PropertyArrayDateTime

Table 7 Migration Export—Concept Property Type Code Definitions

Code	Type
12	PropertyArrayDouble
13	PropertyArrayInt
14	PropertyArrayLong
15	PropertyArrayString
16	PropertyAtomContainedConcept
17	PropertyArrayContainedConcept

Chapter 7

Property Migration Reference

This chapter contains a reference table to assist you in locating the 4.x names of 3.x properties.

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

Topics

- [Property Migration Reference, page 62](#)

Property Migration Reference

The main properties used in prior releases are listed on the left, with their 4.0 equivalents on the right.

Table 8 Property Migration Reference

3.x Property	4.0 CCD Editor
tangosol.coherence.cluster	Cluster tab > Cluster Name
(TIBCO Designer Setting)	Message Encoding
tangosol.coherence.distributed.backupcount	Cluster tab > Properties > 3.x name
tangosol.coherence.clusteraddress	Cluster tab > Properties > 3.x name
tangosol.coherence.localhost	Cluster tab > Properties > 3.x name
tangosol.coherence.localport	Cluster tab > Properties > 3.x name
tangosol.coherence.ttl	Cluster tab > Properties > 3.x name
tangosol.coherence.wkan	Cluster tab > Properties > 3.x name
tangosol.coherence.wkan.port	Cluster tab > Properties > 3.x name
be.engine.cluster.minCacheServers	Cluster tab > cache-agent-quorum
be.engine.cluster.hasBackingStore	Cluster tab > Backing Store > Enabled
be.engine.cluster.isCacheAside	Cluster tab > Backing Store > Cache Aside
be.engine.cluster.isCacheLimited	No longer needed. Limited cache is used if backing store is enabled. Related setting: Entity metadata > Is Cache Limited
be.engine.limited.cache.back.size.limit	Cluster tab > properties > 3.x name
be.engine.cluster.preload	Cluster tab > Domain Objects > Default > Preload Caches Also in the same section: Preload enabled.
be.engine.cluster.EntityClassName.preload	Cluster tab > Domain Objects > Overrides

Table 8 Property Migration Reference

3.x Property	4.0 CCD Editor
<code>be.engine.cluster.EntityClassName.preload.fetchsize</code>	Cluster tab > Domain Objects > Default > Preload Fetch Size (global) Cluster tab > Domain Objects > Overrides > <i>URI</i> > Preload Fetch Size
<code>be.jdbc.cacheLoaderClass</code>	Cluster tab > Backing Store > Cache Loader Class
<code>be.jdbc.database.type</code>	Cluster tab > Backing Store > Type
<code>be.backingstore.dburi.0</code>	Cluster tab > Backing Store > Connection > URI
<code>be.backingstore.dburi.pool.enforce.0</code>	Cluster tab > Backing Store > Enforce Pools
<code>be.backingstore.dburi.strategy.0</code>	Cluster tab > Backing Store > Strategy
<code>be.backingstore.dburi.pool.initial.0</code>	Cluster tab > Backing Store > Connection > Initial Size
<code>be.backingstore.dburi.pool.min.0</code>	Cluster tab > Backing Store > Connection > Min Size
<code>be.backingstore.dburi.pool.max.0</code>	Cluster tab > Backing Store > Connection > Max Size
<code>be.backingstore.dburi.pool.waitTimeout.0</code>	Cluster tab > Properties > 3.x name
<code>be.backingstore.dburi.pool.inactivityTimeout.0</code>	Cluster tab > Properties > 3.x name
<code>be.engine.cluster.multiEngineOn</code>	DEPRECATED. Can add as false to cluster tab > properties < 3.x name
<code>Engine.Log.Dir</code>	Collections tab > Log Configurations
<code>be.trace.enable</code>	Not used
<code>be.trace.log.enable</code>	Collections tab > Log Configurations > Files section > Enable
<code>be.trace.log.fileName</code>	Collections tab > Log Configurations > Files section > Name

Table 8 Property Migration Reference

3.x Property	4.0 CCD Editor
<code>be.trace.log.maxnum</code> Note: BusinessEvents 3.x used this property and not <code>engine.Log.MaxNum</code> .	Collections tab > Log Configurations > Files section > Max number
<code>be.trace.log.maxsize</code> Note: BusinessEvents 3.x used this property and not <code>engine.Log.MaxSize</code> .	Collections tab > Log Configurations > Max size
<code>be.trace.roles</code>	Collections tab > Log Configurations > Roles The format has also changed. See <i>TIBCO BusinessEvents Administration</i> for details.
<code>be.trace.term.enable</code>	Collections tab > Log Configurations > Send to Terminal section > Enable
<code>tangosol.coherence.log</code>	Same. Add as property in Cluster or Processing Units tab (Path relative to current working directory and filename.)
<code>tangosol.coherence.log.level</code>	Same. Add as property in Cluster or Processing Units tab
<code>tangosol.coherence.log.limit</code>	Same. Add as property in Cluster or Processing Units tab
Agent Group Name (in BAR resource)	Agent Classes Tab > Agent Class Name
N/A?	Agent Classes Tab > Agent Class Type
<code>Agent.AgentGroupName.llCacheSize</code> <code>be.agent.query.localcache.maxelements</code>	Agent Classes Tab > <i>AgentClassName</i> > Max Size (Local Cache)
Inference agent and query agent <code>be.agent.query.localcache.evictseconds</code>	Agent Classes Tab > <i>AgentClassName</i> > Eviction Time (Local Cache)
<code>Agent.AgentGroupName.concurrentwm</code>	Agent Classes Tab > <i>AgentClassName</i> > Concurrent RTC

Table 8 Property Migration Reference

3.x Property	4.0 CCD Editor
<code>Agent.AgentGroupName.threadcount</code>	Agent Classes Tab > <i>AgentClassName</i> > Properties > <code>Agent.AgentClassName.threadcount</code>
<code>Agent.AgentGroupName.recoveryPageSize</code>	Agent Classes Tab > <i>AgentClassName</i> > Properties > <code>Agent.AgentClassName.recoveryPageSize</code>
<code>Agent.AgentClassName.dbOpsQueueSize</code>	Agent Classes Tab > <i>AgentClassName</i> > Properties > <code>Agent.AgentClassName.dbOpsQueueSize</code>
<code>Agent.AgentClassName.dbthreadcount</code>	Agent Classes Tab > <i>AgentClassName</i> > Properties > <code>Agent.AgentClassName.dbthreadcount</code>
<code>Agent.AgentClassName.dbOpsBatchSize</code>	Agent Classes Tab > <i>AgentClassName</i> > Properties > <code>Agent.AgentClassName.dbOpsBatchSize</code>
<code>Agent.AgentGroupName.checkDuplicates</code>	Agent Classes Tab > <i>AgentClassName</i> > Properties > <code>Agent.AgentClassName.checkDuplicates</code>
<code>Agent.AgentGroupName.cacheOpsQueueSize</code>	Not used in 4.0
<code>Agent.AgentGroupName.key</code>	Processing Unit tab > <i>PUName</i> > Agents > Key
<code>Agent.AgentGroupName.maxActive</code>	Cluster tab, Processing Units tab or Agent Classes tab > <i>[ItemName]</i> > Properties > 3.x name
<code>Agent.AgentGroupName.priority</code>	Processing Unit tab > <i>PUName</i> > Agents > Priority
<code>tangosol.coherence.distributed.localstorage</code>	Processing Units Tab > <i>PUName</i> > Properties > 3.x name
<code>be.agent.query.localcache.prefetchaggressive</code>	Agent Classes Tab > <i>QueryAgentClassName</i> > Properties > 3.x name
<code>be.network.mode.standalone</code>	Cluster tab or Processing Units tab > <i>[PUname]</i> > Properties > 3.x name
<code>be.engine.cacheServer.channel.disable</code>	Cluster tab or Processing Units tab > <i>[PUname]</i> > Properties > 3.x name
<code>be.engine.cacheServer</code>	Agent Classes Tab > Agent class type: Cache
<code>java.net.preferIPv4Stack</code>	Cluster tab or Processing Units tab > <i>ItemName</i> > Properties > 3.x name

Table 8 Property Migration Reference

3.x Property	4.0 CCD Editor
Checkpoint Interval (in BAR resource)	Cluster Tab (Berkeley DB) > Checkpoint Interval
Schedule a checkpoint if outstanding DB ops greater than (in BAR resource)	Cluster Tab (Berkeley DB) > Checkpoint Ops Limit
Property Cache Size (in BAR resource)	Cluster Tab (Berkeley DB) > Property Cache Size
Delete Retracted Objects from Database (in BAR resource)	Cluster Tab (Berkeley DB) > Delete Retracted Objects from Database
Do not Recover on Restart (in BAR resource)	Cluster Tab (Berkeley DB) > Do Not Recover on Restart
Database Environment Directory (in BAR resource)	Cluster Tab (Berkeley DB) > Database Environment Directory
<code>be.engine.om.berkeleydb.internalcachepersistent</code>	Cluster Tab (Berkeley DB) > properties > 3.x name
<code>be.engine.om.berkeleydb.cacheweight.agent</code>	Cluster Tab (Berkeley DB) > properties > 3.x name
<code>be.engine.om.eventcache.defaultmaxsize</code>	Cluster Tab (Berkeley DB) > properties > 3.x name
<code>be.engine.om.eventcache.maxsize.agent</code>	Cluster Tab (Berkeley DB) > properties > 3.x name
<code>be.engine.om.berkeleydb.dbenv</code>	Cluster Tab (Berkeley DB) > properties > 3.x name
<code>tangosol.coherence.distributed.threads</code>	Cluster tab or Processing Units tab > [PUname] > Properties > 3.x name

Index

Numerics

64-bit mode, configuration [34](#)

A

`Agent.AgentGroupName.checkDuplicates` [65](#)
`Agent.AgentGroupName.key` [65](#)
`Agent.AgentGroupName.l1CacheSize` [64](#)
`Agent.AgentGroupName.maxActive` [65](#)
`Agent.AgentGroupName.priority` [65](#)
`Agent.AgentGroupName.recoveryPageSize` [65](#)
`Agent.AgentGroupName.threadcount` [65](#)
 AIX

configuring for 64-bit mode [34](#)

B

BE_HOME [xi](#)
`be.agent.query.localcache.evictseconds` [64](#)
`be.agent.query.localcache.maxelements` [64](#)
`be.agent.query.localcache.prefetchaggressive` [65](#)
`be.backingstore.dburi.0` [63](#)
`be.backingstore.dburi.pool.enforce.0` [63](#)
`be.backingstore.dburi.pool.inactivityTimeout.0` [63](#)
`be.backingstore.dburi.pool.max.0` [63](#)
`be.backingstore.dburi.pool.min.0` [63](#)
`be.backingstore.dburi.pool.strategy.0` [63](#)
`be.backingstore.dburi.pool.waitTimeout.0` [63](#)
`be.backingstore.pool.initial.0` [63](#)
`be.engine.cacheServer` [65](#)
`be.engine.cacheServer.channel.disable` [65](#)
`be.engine.cluster.EntityClassName.preload.fetchsize` [63](#)
`be.engine.cluster.hasBackingStore` [62](#)

`be.engine.cluster.minCacheServers` [62](#)
`be.engine.om.berkeleydb.cacheweight.agent` [66](#)
`be.engine.om.berkeleydb.dbenv` [66](#)
`be.engine.om.berkeleydb.internalcachepersent` [66](#)
`be.engine.om.eventcache.defaultmaxsize` [66](#)
`be.engine.om.eventcache.maxsize.rule_session` [66](#)
`be.jdbc.cacheLoaderClass` [63](#)
`be.jdbc.database.type` [63](#)
`be.network.mode.standalone` [65](#)

C

customer support [xiv](#)

D

DISPLAY variable [37](#)

E

engine property files
 generated, location [45](#)
 ENV_HOME [xi](#)

H

heap size settings [26](#)
 history
 installation on UNIX [11](#)
 hot deployment
 configuration for on HP-UX installations [33](#)

HP-UX

- configuration for hot deployment feature [33](#)
- configuring for 64-bit mode [34](#)
- HP-UX 64 bit installation error and solution [39](#)

I

initialize_database.sql [44](#)

Installation

- Directory [16](#)
- Overview [16](#)
- installation
 - frequently asked questions [37](#)
 - on Windows 2000 Terminal Server [7](#)
 - required and optional TIBCO products [2](#)
 - running out of disk space [38](#)
- installation on UNIX
 - 64-bit configuration [34](#)
 - after installing on HP-UX, hot deployment feature [33](#)
 - after installing, all UNIX Platforms [32](#)
 - DISPLAY variable [37](#)
 - guidelines [10](#)
 - history [11](#)
 - HP-UX 64 bit error and solution [39](#)
 - installer account [10](#)
- installation on Windows
 - guidelines [7](#)
 - installer account [7](#)
- installer
 - installer account (UNIX) [10](#)
 - installer account (Windows) [7](#)
- installer (UNIX)
 - disk space requirements in user's home directory [17](#)

J

- java.net.preferIPv4Stack [65](#)
- JMX properties [28](#)

JVM

- if crashes during installation [37](#)

L

Linux

- configuring for 64-bit mode [34](#)

M

Microsoft Windows

- supported platforms [7](#)

N

- network drive, installing from (Windows) [7](#)

R

- repository locator string [45](#)
- required TIBCO products for BusinessEvents installation [2](#)

S

Solaris 10

- configuring for 64-bit mode [34](#)
- support, contacting [xiv](#)
- supported UNIX platforms [9](#)
- supported Windows platforms [7](#)

T

- tangosol.coherence.distributed.backupcount [62](#)
- tangosol.coherence.localhost [62](#)
- tangosol.coherence.localport [62](#)
- tangosol.coherence.log [64](#)
- tangosol.coherence.log.level [64](#)
- tangosol.coherence.log.limit [64](#)
- tangosol.coherence.ttl [62](#)
- technical support [xiv](#)
- TIBCO Administrator
 - location of generated property files [45](#)
- TIBCO BusinessEvents
 - uninstalling [22](#)
 - upgrading [6](#)
- TIBCO_HOME [xi](#)
- tibcr [45](#)

U

- uninst2 directory [38](#)
- uninstalling BusinessEvents [22](#)
- UNIX
 - supported platforms [9](#)
 - windowing environment for installation [10](#)
- upgrading BusinessEvents [6](#)

W

- Windows 2000 Terminal Server, installing on [7](#)

