

# TIBCO BusinessEvents®

## Release Notes

*Software Release 5.0.1  
March 2012*

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# Preface

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

TIBCO BusinessEvents  
The Power to Predict®

## Topics

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- [TIBCO BusinessEvents Express, page vi](#)
- [Typographical Conventions, page vii](#)
- [Connecting with TIBCO Resources, page x](#)

## TIBCO BusinessEvents Express

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

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

- Only In Memory object management (OM) is supported. Therefore all functionality that requires Cache OM, such as use of a backing store, is not available. Berkeley DB OM is also not supported with the TIBCO BusinessEvents Express edition.
- The Monitoring and Management component and the related Site Topology editor are not supported with the TIBCO BusinessEvents Express edition. Instead you can use TIBCO Administrator and JMX for deployment, monitoring, and management.
- Only the TIBCO BusinessEvents Decision Manager add-on is supported with the TIBCO BusinessEvents Express edition in this release. Other add-on products are not supported.

## Typographical Conventions

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The following typographical conventions are used in this manual.

Table 1 General Typographical Conventions

Convention	Use
<i>ENV_NAME</i> <i>TIBCO_HOME</i> <i>BE_HOME</i>	<p>TIBCO products are installed into an installation environment. A product installed into an installation environment does not access components in other installation environments. Incompatible products and multiple instances of the same product must be installed into different installation environments.</p> <p>An installation environment consists of the following properties:</p> <ul style="list-style-type: none"> <li>• <b>Name</b> Identifies the installation environment. This name is referenced in documentation as <i>ENV_NAME</i>. On Microsoft Windows, the name is appended to the name of Windows services created by the installer and is a component of the path to the product shortcut in the Windows Start &gt; All Programs menu.</li> <li>• <b>Path</b> The folder into which the product is installed. This folder is referenced in documentation as <i>TIBCO_HOME</i>.</li> </ul> <p>TIBCO BusinessEvents installs into a directory within a <i>TIBCO_HOME</i>. This directory is referenced in documentation as <i>BE_HOME</i>. The default value of <i>BE_HOME</i> depends on the operating system. For example on Windows systems, the default value is C:\tibco\be\5.1.</p>
code font	<p>Code font identifies commands, code examples, filenames, pathnames, and output displayed in a command window. For example:</p> <p>Use <code>MyCommand</code> to start the foo process.</p>
<b>bold code font</b>	<p>Bold code font is used in the following ways:</p> <ul style="list-style-type: none"> <li>• In procedures, to indicate what a user types. For example: Type <b>admin</b>.</li> <li>• In large code samples, to indicate the parts of the sample that are of particular interest.</li> <li>• In command syntax, to indicate the default parameter for a command. For example, if no parameter is specified, <code>MyCommand</code> is enabled: <code>MyCommand [enable   disable]</code></li> </ul>

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

Table 2 Syntax Typographical Conventions

Convention	Use
[ ]	<p>An optional item in a command or code syntax.</p> <p>For example:</p> <pre>MyCommand [optional_parameter] required_parameter</pre>
	<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> <pre>MyCommand param1   param2   param3</pre>

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 <code>param1</code> and <code>param2</code>, or the pair <code>param3</code> and <code>param4</code>.</p> <pre>MyCommand {param1 param2}   {param3 param4}</pre> <p>In the next example, the command requires two parameters. The first parameter can be either <code>param1</code> or <code>param2</code> and the second can be either <code>param3</code> or <code>param4</code>:</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 <code>param1</code>. You can optionally include <code>param2</code> as the second parameter. And the last parameter is either <code>param3</code> or <code>param4</code>.</p> <pre>MyCommand param1 [param2] {param3   param4}</pre>

## Connecting with TIBCO Resources

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This section provides links to helpful TIBCO resources.

### How to Join TIBCOCommunity

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

### How to Access TIBCO Documentation

You can access TIBCO documentation here:

<http://docs.tibco.com>

### How to Contact TIBCO Support

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

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

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

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

<https://support.tibco.com>

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

# Release Notes

Check the TIBCO Product Support web site at <https://support.tibco.com> for product information that was not available at release time. Entry to this site requires a username and password. If you do not have a username, you can request one. You must have a valid maintenance or support contract to use this site.

As is standard in a major release, this edition of the release notes has been purged of all content pertaining to prior releases. To see information pertaining to a prior release, see the release notes provided with that release.

## Topics

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- [New Features, page 2](#)
- [Changes in Functionality, page 4](#)
- [Deprecated and Removed Features, page 10](#)
- [Migration and Compatibility, page 12](#)
- [Closed Issues, page 14](#)
- [Known Issues, page 23](#)

## New Features

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This section lists features added since the last major release of this product.



**TIBCO BusinessEvents Express** Content relating to Berkeley DB OM, Cache OM, and backing store is not relevant to TIBCO BusinessEvents Express edition.

### Release 5.0.1

#### Platform and Third-Party Software

Support for the following software is added in this release:

- JRE usage on different platforms is as follows:
  - JRE 1.6.0.30 on Windows, Linux and Solaris
  - JRE 1.6.0.09 on HP-UX
  - JRE 1.6.0 build pap6460sr9-20101125\_01(SR9) on AIX
- The following optional software is supported for use with TIBCO BusinessEvents:
  - TIBCO Runtime Agent 5.7.3
  - TIBCO ActiveMatrix Businessworks 5.9.3
  - TIBCO Administrator 5.7.1

### Release 5.0

#### Globalization

TIBCO BusinessEvents and all its add-on products are now G11N certified.

#### New Cache Provider

The default cache provider is now TIBCO BusinessEvents DataGrid. When configuring Cache OM, an option is provided to choose a cache provider: TIBCO or Oracle Coherence. The built-in cache provider, TIBCO BusinessEvents DataGrid, is the default choice.

### **Quick Fix Feature**

The Quick Fix feature enables you to create concepts, events, and rule functions without leaving the rule editor. It also enables you to add properties to existing concepts and events. The feature is available when an unknown reference appears in the rule or rule function code.

### **Adding External Library and Custom Function Paths**

TIBCO BusinessEvents Studio now provides an option to add external libraries or custom functions via the Debug Configurations > ClassPath tab, and the Run Configurations > ClassPath tab, for your convenience.

### **Support for Array Types for Rule Functions**

Support for array types is now available for rule functions. The form editor pop-up dialog for selecting scope variables now has a checkbox, isArray. You can specify a variable array in the source editor in the usual way, for example, `int [] myArr`.

### **TIBCO BusinessEvents Monitoring and Management Authentication**

TIBCO BusinessEvents Monitoring and Management now supports file based and LDAP based authentication.

It also supports authorization using two predefined roles: USER and ADMINISTRATOR.

### **LDAP Authentication has New Property**

For LDAP authentication, a new property, `be.auth.ldap.useRoleDN`, enables you to use non-fully-qualified names for LDAP

### **Write-Behind Strategy Now Supported for Backing Store**

TIBCO BusinessEvents now supports write-behind strategy in JDBC Backing Store. Applications can now be configured as Cache-Aside or Write-behind.

## Changes in Functionality

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This section lists changes in functionality since the last major release of this product.



**TIBCO BusinessEvents Express** Content relating to Berkeley DB OM, Cache OM, and backing store is not relevant to TIBCO BusinessEvents Express edition.

### Release 5.0.1

The following changed features are included in this release because they address issues in the earlier release.

#### Embedded Persister with Shared-All Functionality

This release provides persister functionality. This functionality uses the included TIBCO BusinessEvents DataGrid software as the cache provider. It uses Oracle Berkeley DB Java Edition version 4.1.17 (not bundled with this service pack) as the data store. See [Embedded Persister with Shared-all Functionality on page 36](#) for configuration and usage details.



You must obtain a separate license for the Oracle Berkeley DB Java Edition software that is appropriate for your usage if you wish to use the embedded persister functionality.

#### Remotely Stopping a PU using MM Tools

You can now remotely stop a PU using mm-tools, using the following operation:

```
-op stop
```

For example:

```
mm-tools --propFile mm-tools.tra -op stop -puc CS -m
100.100.100.101
```

#### Using Public/Private Key Authentication with mm-tools

This functionality requires some configuration. See [Using Public/Private Key Authentication with mm-tools on page 34](#) for details.

#### Creating a single connection with one client ID

By default, TIBCO BusinessEvents creates two connections to a JMS server, with the following client IDs:

*user client id\_queue*

*user client id\_topic*

To create a single connection using the clientID specified in the Channel resource properties, or in the JMS Connection shared resource if used, add the following property in the CDD and set as shown for all agents:

```
be.channel.jms.unified=true
```



When the connection is configured using a JMS Connection shared resource you must also do the following. Ensure that the topic and queue connection factories on the JMS Connection shared resource Advanced tab match each other. Also, when using TIBCO Enterprise Message Service, use `GenericConnectionFactory` for both.

### Enabling Studio Tools buildEAR operation on Solaris SPARC Platforms

The `buildEar` operation in the `studio-tools` command line utility now works on Solaris SPARC platforms, with configuration. See [Enabling Studio Tools buildEar operation on Solaris SPARC on page 32](#) for details.

### Encoding Parameter Added to `File.readFileAsString`

The catalog function `File.readFileAsString()` can now read text in languages such as Spanish. It now takes an encoding as an optional input parameter.

### Change in Defaults for Enabling Parallel Operations

In the post-RTC phase, use of parallel operations is generally safe only when locking is used. The parallel operations feature is enabled using this property:

```
Agent .agent name .enableParallelOps=true
```

Before this release, parallel operations was enabled by default when cache aside database write strategy was used. However, many projects that use cache aside do not otherwise require locking.

Now parallel operations is enabled by default only when both cache aside AND concurrent RTC features are used. (Use of concurrent RTC also generally requires locking.)

Parallel operations can also be used with cache aside when concurrent RTC is not used. However, it must be explicitly enabled, and correct locking must also be used as needed.

## Exporting to and Importing Global Variables from Project Libraries

In version 3.0 (but not in 4.0) it was possible to export global variables to a project library and then import the project library for use in another project. It was also possible to override such a global variable with another global variable with the same name, by ordering the imported libraries. Also in version 4.0, when imported variables were used in a project, after EAR file generation, the imported variables were not merged and placed in `tibco.xml` within the EAR file.

Now global variables can be exported into project libraries. In the Build Path > Project Libraries tab, up and down arrows allow you to order the libraries. In the Global Variables view, the Project Source column shows the source project and the Override column shows overrides using arrow icons.

## Release 5.0

### Buildear Tool Replaced

The command-line `buildear` tool has been replaced by the Studio Tools utility `buildear` option.

### Change in Order of Precedence at Runtime

Now properties specified in the TRA file used at runtime override the same properties specified in the CDD file.

### Cache Provider Changes

The Oracle Coherence software is no longer bundled with TIBCO BusinessEvents. It is still supported for customers who own their own copy of the software.

### Cache-based Examples Use TIBCO BusinessEvents DataGrid

All cache-based examples now use the default cache provider, TIBCO BusinessEvents DataGrid.

### Validating a Project or Project Resource

TIBCO BusinessEvents Studio now supports validation for an entire project or for a selected project resource. The validation is enhanced to perform validation at the project, folder, or individual resource level.

Project Analyzer is also enhanced to include shared resources (HTTP Connection, Identity Resource, JDBC Connection, JMS Connection, JMS Application Properties, JNDI Configuration, Rendezvous Transport).

## **Externalized Store for Trusted Certificates**

TIBCO BusinessEvents now supports storing the trusted certificates for SSL in a folder external to the project. You can use a special global variable `BE_GLOBAL_TRUSTED_CA_STORE` to reference this folder.

## **Metadata Properties Now in CDD (Except TIBCO BusinessEvents Data Modeling)**

Metadata properties (also known as extended properties) are no longer supported for entities, except for use with TIBCO BusinessEvents Data Modeling. The other settings that were available using metadata properties are now available in the CDD file in the Cluster tab, in the Domain Objects settings.

## **HTTP Channel Properties Now in HTTP Channel Advanced Tab**

HTTP Channel now has an Advanced Tab to provide advanced configuration settings for the internal server used by the Channel. Those settings were formerly in the CDD file.

## **Entity Properties for Backing Store Now in CDD**

Entity-level backing store configuration was formerly done using entity metadata properties. Now it's configured in the Cluster Deployment Descriptor file.

## **Backing Store Configuration Uses CDD for Special Cases**

The Cluster Deployment Descriptor file is now also used for cases that require project configuration before running the backing store setup utility. You can specify the CDD to use as an argument to the utility.

## **Monitoring and Management JMX Port Configuration**

The JMX port configuration for monitored engines has changed such that only one JMX port is opened, to better handle firewalls.

## **Version of TIBCO Hawk Requirement for TIBCO BusinessEvents Monitoring and Management**

The version of TIBCO Hawk provided with TIBCO Runtime Agent is sufficient to provide machine-level metrics in the TIBCO BusinessEvents Monitoring and Management component. Before the fully licensed version was required.

## JMS Connectivity

By default, be-engine connects to all defined channels on startup, including those not mentioned in the Cluster Deployment Descriptor file. This is because such channels can be used as output channels. However this is not always desired.

TIBCO BusinessEvents now provides an option to disable queue or topic connections for specific JMS destinations. Add the following properties to prevent such connections to the queue or topic:

```
be.channel.tibjms.queue.disabled=DestinationProjectPath
```

```
be.channel.tibjms.topic.disabled=DestinationProjectPath
```

## Cache-Related Function Name Changes

The below cache related functions that were formerly preceded by C\_ are no longer preceded by C\_. Their functionality remains the same, and the functions can be used with both the Oracle and TIBCO cache providers. The following table shows the functions that have been renamed.

Coherence Category Name	TIBCO BusinessEvents DataGrid Category Name
C_CacheGetEntityById()	CacheGetEntityById()
C_CacheLoadConceptByExtId()	CacheLoadConceptByExtId()
C_CacheLoadConceptByExtIdByUri()	CacheLoadConceptByExtIdByUri()
C_CacheLoadConceptById()	CacheLoadConceptById()
C_CacheLoadConceptIndexedByExtId()	CacheLoadConceptIndexedByExtId()
C_CacheLoadConceptsByExtId()	CacheLoadConceptsByExtId()
C_CacheLoadEntity()	CacheLoadEntity()
C_CacheLoadEventByExtId()	CacheLoadEventByExtId()
C_CacheLoadEventByExtIdByUri()	CacheLoadEventByExtIdByUri()
C_CacheLoadEventById()	CacheLoadEventById()
C_CacheLoadParent()	CacheLoadParent()
C_CacheName()	CacheName()
C_CacheReevaluate()	CacheReevaluate()
C_ClassName()	ClassName()
C_EnableCacheUpdate()	EnableCacheUpdate()

Coherence Category Name	TIBCO BusinessEvents DataGrid Category Name
C_Flush()	Flush()
C_Index()	Index()
C_Lock()	Lock()
C_TransactionProperties()	TransactionProperties()
C_UnLock()	UnLock()

## Deprecated and Removed Features

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This section describes deprecated features (if any), and lists features, if relevant, that may be useful alternatives to the deprecated features. Any use of a deprecated feature should be discontinued as it may be removed in a future release. You should avoid becoming dependent on deprecated features and become familiar with the suggested alternative features.

This section also lists features that are removed (if any).



For a list of all unused and deprecated properties from this or prior releases, see the appendix *Deprecated and Unused Properties* in *TIBCO BusinessEvents Installation*

**TIBCO BusinessEvents Express** Content relating to Berkeley DB OM, Cache OM, and backing store is not relevant to TIBCO BusinessEvents Express edition.

### Deprecated Features

#### Release 5.0.1

No features are deprecated in this release.

#### Release 5.0

No features are deprecated in this release.

### Removed Features

#### Release 5.0.1

No features are removed in this release.

#### Release 5.0

- The legacy Oracle Types backing store implementation is removed in this release. Use the current backing store implementation. See the migration instructions in *TIBCO BusinessEvents Installation* for details.
- Cache Loader Class property is removed from the CDD Cluster tab because the value is set internally based on settings.

- The `base_types.sql` file has been removed. It is no longer needed. It was used with the Oracle Types backing store.
- Use of Solaris 8 and Solaris 9 is no longer supported.

## Migration and Compatibility

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This section explains how to migrate from a previous release to this release.



For detailed migration advice and procedures, see the *TIBCO BusinessEvents Installation* guide.

**TIBCO BusinessEvents Express** Content relating to Berkeley DB OM, Cache OM, and backing store is not relevant to TIBCO BusinessEvents Express edition.

### Release 5.0.1

Ensure that all related software used meets required minimum versions. See [New Features on page 2](#) for details.

Back up projects and rebuild project EAR files after upgrading from 5.0.0

### Release 5.0

Additional migration steps are introduced in this release due to architectural changes. See the migration chapters in the *TIBCO BusinessEvents Installation* guide. Below are general details.

In all cases, you must regenerate all EAR files after you upgrade.

#### Upgrading from Version 4.0.1

You can import 4.0.1 TIBCO BusinessEvents Studio Studio-based projects in TIBCO BusinessEvents Studio 5.0.0 workspace. With a few exceptions, the projects are automatically migrated to 5.0.0 TIBCO BusinessEvents Studio-based projects. Read the migration chapters in *TIBCO BusinessEvents Installation* to understand what manual actions you may have to take.

#### Upgrading from Version 4.0.0

If you are upgrading from 4.0.0, first upgrade to 4.0.1 and then migrate to 5.0.0.

#### Upgrading from Version 3.x

You can import 3.x TIBCO Designer-based projects in TIBCO BusinessEvents Studio. With a few exceptions, the projects are automatically migrated to 5.0.0 Eclipse-based projects. Read the migration chapters in *TIBCO BusinessEvents Installation* to understand what manual actions you may have to take.

## Upgrading From an Earlier Version

If your existing installation is a version earlier than 3.0.0 upgrade to the latest 3.x release, and migrate your project. Then upgrade to 5.1.0 and migrate your projects. To upgrade to 3.0, read the migration chapters in *TIBCO BusinessEvents Installation* and follow all instructions carefully.

## Closed Issues

The table in this section lists issues that were closed in the named releases.



**TIBCO BusinessEvents Express** Content relating to Berkeley DB OM, Cache OM, and backing store is not relevant to TIBCO BusinessEvents Express edition.

Closed in Release	Key	Summary
5.0.1	BE-14360	In the JMS Connection shared resource, the User Name field did not support use of global variables and was not decorated with the globe icon that indicates support for global variables.
5.0.1	BE-14305	When a TIBCO BusinessEvents application was restarted, events that were set to cache plus memory mode and whose time to live (TTL) setting was greater than zero were not loaded from the backingstore into memory. Therefore they did not trigger rules that they should have triggered.
5.0.1	BE-10216	TIBCO BusinessEvents Monitoring and Management (MM) deployment time information was lost after restarting MM. Now the deployment time information is saved to a file located under BE_HOME/mm/deployed, and the last deployment time is correctly displayed in the UI.
5.0.1	BE-14272	The rule editor displayed an error if the @id attribute access was used on a simple event.
5.0.1	BE-14247	The TIBCO BusinessEvents Studio Ignored Files preference (Preferences > TIBCO BusinessEvents > Code Generation > Shared Resources > Ignored Files) was not working. The Ignored Files options enable you to exclude files that match user-configurable patterns from the Shared Resources.sar part of an EAR file.
5.0.1	BE-14173	The catalog function Instance.updateInstanceFromXML threw exceptions when adding a new contained concept to a PropertyAtom.
5.0.1	BE-14108	Building the EAR file was failing for certain projects.

Closed in Release	Key	Summary
5.0.1	BE-14071	<p>When an event payload referenced an element in a project library schema, the schema file failed to open when the user clicked the Go to referenced resource button (next to the Schema field in the Simple Event editor).</p> <p>Now when you click the button, the schema (XSD) file opens in a text editor (not the form-based editor used for schemas stored directly in the project).</p>
5.0.1	BE-13970	In certain cases, when a channel lost the connection to a TIBCO Enterprise Message Service server, the engine did not attempt to reconnect.
5.0.1	BE-13955	The JNDI User Name field in the JNDI Configuration, JMS Connection, and JDBC shared resources did not take a global variable. Now it does. Global variables are supported for all JNDI configuration fields in all three editors, that is, the JNDI Connection Factory, JNDI Context Url, JNDI User Name, and JNDI Password fields.
5.0.1	BE-13911	Using the unary minus operator with a concept property would cause an error when building the EAR.
5.0.1	BE-13859	If a project library had contained concepts, the project would throw an error at runtime.
5.0.1	BE-13649	The build EAR process was taking several hours for complex projects.
5.0.1	BE-13356	TIBCO BusinessEvents Studio did not start on SUSE Linux.
5.0.1	BE-13086	With JMS channels, event acknowledgement was not sent until after the event's time to live period expired, even when using the explicit client acknowledgement option.
5.0.1	BE-13575	An error was reported when loading a concept with a String property longer than 64KB.
5.0.1	BE-13528	The QName group of XPath functions was missing from the Function Argument Mapper in release 5.0.
5.0.1	BE-13346	With TIBCO BusinessEvents DataGrid as the cache provider, bulk deletes of hundreds of entities in a single RTC were slow.

Closed in Release	Key	Summary
5.0.1	BE-13221	With TIBCO BusinessEvents DataGrid clusters, process memory kept on growing.
5.0.1	BE-13121	When a backing store was disabled, PendingDBWrites JMX metrics were still updated.
5.0.1	BE-12989	In TIBCO BusinessEvents DataGrid clusters, cache only events with a TTL greater than zero were not expiring fast enough.
5.0.1	BE-12939	The memory consumption of some XSLT functions has been reduced.
5.0.1	BE-12882	TIBCO BusinessEvents DataGrid clusters sometimes did not discover nodes.
5.0.1	BE-12828	The Function Argument Mapper UI displayed the type of all time event properties as String.
5.0.1	BE-12872	It was not possible to add a custom serializer in TIBCO BusinessEvents Studio. Now the drop-down list allows text entry as well as selection from a list.
5.0.1	BE-12864	After a network disconnect and recovery, nodes in a TIBCO BusinessEvents DataGrid cluster stopped responding during the cluster discovery process.
5.0.1	BE-12738	Domain model entries were not case sensitive. Now m and M (for example) are recognized as different entries.
5.0.1	BE-12699	The MM server was not discovering the cluster topology when the host name was specified in the site topology editor using the fully qualified name. Now the host name is always resolved to its fully qualified domain name (even if the simple name is entered) and the host name is also validated against the IP address. If they don't resolve to the same host then an <code>UnknownHostException</code> is thrown.
5.0.1	BE-12657	Rule functions used for the rule ranking feature must have a Validity setting that includes Condition (Action Only is not sufficient). When an Action Only rule function was used, however, no validation error was thrown.
5.0.1	BE-12550	There was a memory leak in the cache server when TIBCO BusinessEvents DataGrid was the cache provider and a backing store was enabled.

Closed in Release	Key	Summary
5.0.1	BE-12541	The abs function was missing from the Function Argument Mapper in version 5.0.0.
5.0.1	BE-12537	TIBCO Administrator could not deploy a TIBCO BusinessEvents EAR file that contained Rational Clearcase files. (Such files would be present in a project that had been checked out of Rational Clearcase before the EAR file was built.)
5.0.1	BE-12525	The be-jdbc deploy utility did not create tables for objects located in a subfolder called "core."
5.0.1	BE-12520	The LDAP admin password is now encrypted.
5.0.1	BE-12519	A memory leak occurred during bulk deletes of concepts in a single RTC.
5.0.1	BE-12299	The Quick Fix feature was creating incomplete concept property entries. Errors occurred as a result, when using the concept properties in the rule editor and when building an EAR file.
5.0.1	BE-12146	TIBCO BusinessEvents engines acting as SOAP clients did not support the TOMCAT server type. When requests were sent using HTTP.sendRequest() or HTTP.sendAsynchronousRequest(), the SoapEventOut and the callback rule function were not created and an NPE was thrown.
5.0.1	BE-12549	With TIBCO BusinessEvents DataGrid as the cache provider, the engine threw the exception:  Found in ObjectTable but not in base table. Possible race condition
5.0.1	BE-12083	An exception in RTCTransactionManager.TxnTask_Actions.run() prevented the Post RTC from completing.
5.0.1	BE-11768	The runtime value of global variables of type Boolean was always false.

Closed in Release	Key	Summary
5.0.1	BE-8483	<p>When using a JMS channel configured for SSL, with Client Authentication enabled and a Certificate/Private Key combination used for the Identity Resource on the client side, the engine would throw a <code>javax.jms.JMSSecurityException</code> error.</p> <p>This is due to a limitation in the default security libraries. For this feature to work in TIBCO BusinessEvents, you can use Entrust security libraries, which are part of the TIBCO Runtime Agent installation. To use entrust, do the following:</p> <ul style="list-style-type: none"> <li>Add the entrust libraries to the classpath. For example:  <code>C:/tibco/tpcl/5.6/lib/entrust</code></li> <li>In the <code>be-engine.tra</code> file, add this line:  <code>TIBCO_SECURITY_VENDOR=entrust61</code></li> </ul>
5.0.1	1-ANUYMG	Refactoring did not work well in the Domain Objects section of the Cluster tab in the CDD Editor. Changes made to TIBCO BusinessEvents entities such as events, concepts and so on were not reflected in this section of the editor.
5.0.1	1-9CDYRL	Starting with the 3.0 release, the TIBCO BusinessEvents API worked only with In Memory object management. (It did not work with Persistence or Cache object management).
5.0.1	1-86QOZR	Using <code>sendEvent()</code> to send an event to an IBM MQ JMS server failed.
5.0.1	1-ASPLV7	If a TIBCO BusinessEvents 3.x project refers to a project library that has global variables, and the project is imported into TIBCO BusinessEvents Studio, the project did not have the global variables.
5.0.0	BE-9888	In TIBCO BusinessEvents Studio, the UI showed errors if Ontology functions were not called properly in the rule editor.
5.0.0	BE-2899	If the <code>be-jdbcdeploy</code> utility created lines longer than 2499 characters, SQL scripts failed to execute.
5.0.0	BE-2651	The <code>engine.primary.activated</code> advisory event was sent twice during startup.
5.0.0	BE-1621	The ontology function template for the timer event closure attribute indicated that it could accept objects, but it can accept only Strings (as documented).

Closed in Release	Key	Summary
5.0.0	BE-1264	Engines did not automatically try to reconnect to TIBCO Enterprise Message Service server when the connection was lost.
5.0.0	BE-11932	TIBCO BusinessEvents now validates whether a channel's queue destination subject is populated.
5.0.0	BE-11931	Fault tolerance did not work correctly with RVCM transport.
5.0.0	BE-11929	Use of <code>sendEvent()</code> to send an event to an MQ Series destination failed when called from a rule that had a <code>TimeEvent</code> in the declaration.
5.0.0	BE-10980	Building an EAR file for a project that contained a project library caused an exception.
5.0.0	BE-10498	When JDBC backing store was used, the TIBCO BusinessEvents engine threw an error when attempting to store and retrieve a concept that had a contained concept array, with history.
5.0.0	BE-10494	In the MM component, it was not possible to edit global variables when the global variables' total character length exceeded 8192.
5.0.0	BE-10394	Import WSDL was not working for abstract WSDLs.
5.0.0	BE-10332	Returning a concept array in a rule function was causing an error at engine start-up.
5.0.0	BE-10322	When a field name exceeded 30 characters, sometimes the <code>be-jdbcdeploy</code> utility did not generate SQL scripts correctly.
5.0.0	BE-10321	Global variables with an empty value and defined with type Password did display an encrypted value.
5.0.0	BE-10299	The <code>studio-tools</code> command-line utility for building EAR files was throwing an exception when a project includes any custom function that took a concept array as a parameter.
5.0.0	BE-10295	In the Function Argument Mapper, when the <code>@id</code> attribute of an input was mapped to a concept reference property in the Function panel, the value of the concept reference property was set to null. This problem did not occur in the context of a rule function used as a start up function.

Closed in Release	Key	Summary
5.0.0	BE-10237	<p>After setting the following property to true in <code>studio.ini</code>:</p> <pre>TIBCO.BE.function.catalog.Instance.serialize.instance</pre> <p>The <code>Instance.serializeInstance()</code> function showed only nulls at runtime.</p>
5.0.0	BE-10172	<p>It was not possible to externalize SSL certificates. They could only be stored in the project. Now you can store trusted certificates outside of the project and use the following global variable to point to the certificate storage location:</p> <pre>BE_GLOBAL_TRUSTED_CA_STORE</pre> <p>This variable is documented in <i>TIBCO BusinessEvents Developer's Guide</i>.</p>
5.0.0	BE-10056	<p>With JDBC backing store, database cursors were not properly closed when <code>Coherence.C_CacheLoadEventById()</code> method was called with a 'non-existent' id. Under some circumstances this could cause database cursors to expire.</p>
5.0.0	BE-10031	<p>There was no way to identify which post RTC transactions failed or which events were not sent out during the post RTC phase. Now you can register a callback function with TIBCO BusinessEvents. The transaction error handler rule function is invoked each time a database transaction exception occurs, and each time a send event exception occurs.</p> <p>See section on Transaction Error Handler Rule Function in <i>TIBCO BusinessEvents Developer's Guide</i> for details.</p>
5.0.0	BE-9908	<p>In TIBCO BusinessEvents Studio, the UI showed errors if Ontology functions were not called properly in the rule editor.</p>

Closed in Release	Key	Summary
5.0.0	BE-9898	<p>After importing a TIBCO BusinessEvents project from a different workspace and giving it a different name from the original name of the project, some project resources are not available, due to the project naming structure.</p> <p>Before, you had to open the affected files in a text editor and manually fix the naming.</p> <p>Now, a resource validation check detects when an entity's name, folder, namespace, or owner project name (<code>ownerProjectName</code> attribute) does not match the underlying file in the project.</p> <p>In addition, a "Quick Fix" feature has been added. To invoke the Quick Fix, right click on the validation problem in the Problems View and select "Quick Fix."</p> <p>This is documented in <i>TIBCO BusinessEvents Developer's Guide</i></p>
5.0.0	BE-9870	Upgrading to latest Coherence libraries was throwing "Storage Not Configured" errors.
5.0.0	BE-9645	When you right-clicked a project name in Studio Explorer, the Refactor > Rename option was not available.
5.0.0	BE-9644	With Cache object management, and when cache-aside was not used, "Storage Not Configured" errors were sometimes seen while starting up inference engines, even when the cluster was configured properly and the cache server or servers were up and running.
5.0.0	BE-9603	No TIBCO BusinessEvents agents started when the input destinations for any one agent in the CDD were configured such that the directly configured destinations and referenced collections of destinations were listed in mixed order.
5.0.0	BE-9429	In TIBCO BusinessEvents Studio, the CDD was correctly updated for refactoring changes, but if the CDD file was open for editing in TIBCO BusinessEvents Studio when the changes were made, the open file did not reflect the changes. Additionally, the Save button became enabled. If you then saved the CDD file, the old paths were retained and overwrote the correct ones.
5.0.0	BE-9425	TIBCO BusinessEvents did not create an EAR file when any event had a high value for the time-to-live (TTL) setting, for example, 35 days.

Closed in Release	Key	Summary
5.0.0	BE-8487	On the AIX platform, when a backing store was used, a <code>NoClassDefFoundError</code> was thrown when trying to start engines.
5.0.0	BE-7354	Refactoring did not work well in the Domain Objects section of the Cluster tab in the CDD Editor. Changes made to TIBCO BusinessEvents entities such as events, concepts and so on were not reflected.
5.0.0	BE-5802	Shortcut keys "Shift+Home", "Shift+End", "Home", "End" did not work in the Form editor for Rules and Rule Functions. For the TIBCO BusinessEvents Decision Manager state modeler feature, the shortcut keys also did not work in the rule and expression editors.
5.0.0	BE-5264	If the payload of a <code>SOAPEvent</code> was invalid or had been deleted, and another event inherited from this event, project validation did not report that the payload of the inheriting event was invalid
5.0.0	BE-5173	Even after successful generation of the EAR file, TIBCO BusinessEvents Studio did not always show the message "EAR File was successfully generated."

## Known Issues

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The table in this section lists known issues in this release.



**TIBCO BusinessEvents Express** Content relating to Berkeley DB OM, Cache OM, and backing store is not relevant to TIBCO BusinessEvents Express edition.

Key	Summary/Workaround
BE-14828	<p><b>Summary</b> When uploading a TIBCO BusinessEvents 5.0.1 EAR file in TIBCO Administrator, the Target is shown as "5.0.0.1". The correct target is 5.0.1.0</p> <p><b>Workaround</b> None. This is a harmless error.</p>
BE-12097	<p><b>Summary</b> On certain projects, where TIBCO ActiveMatrix BusinessWorks is contained in TIBCO BusinessEvents, and where TIBCO ActiveMatrix BusinessWorks uses XML features, the following exception could appear during TIBCO ActiveMatrix BusinessWorks initialization:</p> <pre>java.lang.NoSuchMethodError: com.tibco.sdk.a.a.a</pre> <p><b>Workaround</b> Add the full path to <code>.../bw/.../lib/palettes/xdata.jar</code> to <code>CUSTOM_EXT_PREPEND_CP</code></p>
BE-11616	<p><b>Summary</b> Profiler does not generate any output when running the engines in cache mode.</p> <p><b>Workaround</b> None</p>
BE-10835	<p><b>Summary</b> Renaming or moving or deleting Identity Shared Resources is not reflected in the HTTP SSL Configuration for HTTPS Connection dialog box.</p> <p><b>Workaround</b> None</p>
BE-11957	<p><b>Summary</b> TIBCO BusinessEvents Studio throws an error if a WSDL file inside a project or inside a project library refers to an XSD in a project library.</p> <p><b>Workaround</b> Keep the XSD in the TIBCO BusinessEvents project.</p>
BE-12066	<p><b>Summary</b> In some situations, while running engines on a heterogeneous cluster (machines with different types of OS), some of the inference engine instances may encounter an exception as shown below, while some other instances crash.</p> <pre>java.lang.RuntimeException: Can't invokeFunction inside the session itself</pre> <p><b>Workaround</b> None</p>

Key	Summary/Workaround
BE-11958	<p><b>Summary</b> If a cache agent shuts down ungracefully, entries that were being updated at the point of shutdown can potentially be left in an inconsistent state.</p> <p>Symptoms can be: entries that remain locked even after a successful unlock, or entries that remain in the cache even after the inference agent thinks that it successfully removed the entries from the cache.</p> <p><b>Workaround</b> Specify a lock TTL greater than the longest expected lock period for the application. Do not use the default value, which is indefinite.</p>
BE-12101	<p><b>Summary</b> NPE is thrown while using <code>Communication.TCP.readIntoPayload()</code> function.</p> <p><b>Workaround</b> None</p>
BE-12056	<p><b>Summary</b> In some situations the TIBCO BusinessEvents Monitoring and Management server hangs while a console user switches from viewing one processing unit to viewing another.</p> <p><b>Workaround</b> Restart the TIBCO BusinessEvents Monitoring and Management server.</p>
BE-11687	<p><b>Summary</b> TIBCO BusinessEvents Monitoring and Management server does not support double byte characters in the project name.</p> <p><b>Workaround</b> Do not use double byte characters in the project name.</p>
BE-11587	<p><b>Summary</b> When the TIBCO BusinessEvents DataGrid cache provider is used, cache related statistics do not appear in the Monitoring and Management console.</p> <p><b>Workaround</b> None</p>
BE-11540	<p><b>Summary</b> TIBCO BusinessEvents Monitoring and Management server does not support double byte characters in the site topology file name.</p> <p><b>Workaround</b> Do not use double byte characters in the site topology file name.</p>
BE-11535	<p><b>Summary</b> TIBCO BusinessEvents Monitoring and Management server does not support double byte characters in site topology processing unit configuration names.</p> <p><b>Workaround</b> Do not use double byte characters in site topology processing unit configuration names.</p>
BE-12092	<p><b>Summary</b> Hostname or localhost cannot be used in discovery and listen URL.</p> <p><b>Workaround</b> Use IP address in discovery and listen URL.</p>

Key	Summary/Workaround
BE-12074	<p><b>Summary</b> Use of TIBCO Hawk with TIBCO BusinessEvents Monitoring and Management (MM) component enables machine-level metrics to display in MM. However this feature is not working on UNIX platforms.</p> <p><b>Workaround</b> None.</p>
BE-12047	<p><b>Summary</b> The value of the Message Encoding setting from the CDD file should be overridden by TIBCO Administrator at deploy time, but it is not.</p> <p><b>Workaround</b> Set the value of the Message Encoding setting in the CDD file to the TIBCO Administrator domain's encoding (that is, they must match).</p>
BE-11532	<p><b>Summary</b> The performance profiler file remains empty when the project uses Cache object management.</p> <p><b>Workaround</b> None.</p>
BE-11411	<p><b>Summary</b> When Cache object management is used, preprocessors are not executed when data is asserted using studio tester in TIBCO BusinessEvents Studio.</p> <p><b>Workaround</b> None.</p>
BW-10164	<p><b>Summary</b> Using TIBCO ActiveMatrix BusinessWorks 5.8 can result in a <code>StackOverflowError</code> exception when starting a TIBCO BusinessEvents application that initializes a BusinessWorks process.</p> <p><b>Workaround</b> Comment the below lines from the <code>log4j.xml</code> file shipped with ActiveMatrix BusinessWorks 5.8.</p> <pre data-bbox="342 1012 1333 1168">&lt;logger name="tibco.bw.infoRole"&gt;   &lt;level value ="INFO"/&gt;   &lt;appender-ref ref="tibco_bw_log"/&gt;   &lt;!-- Add the following appender for Common Logging --&gt;   &lt;!-- &lt;appender-ref ref="tibco_bw_BEf2CBEFileAppender"/&gt; --&gt; &lt;/logger&gt;</pre>
BE-9983	<p><b>Summary</b> In the Site Topology editor, deployment unit properties, when you change the Deployed CDD and Deployed EAR settings, the Save button does not become enabled.</p> <p><b>Workaround</b> To enable the Save button, make some change in the Deployment Unit Name, such as adding a letter at the end and then removing it.</p>

Key	Summary/Workaround
BE-9838	<p><b>Summary</b> This issue occurs when using the XSLT mapper, if "Surround with Choice" is used on an attribute, and you click "OK" without populating the final [When] condition. When the mapper is later reopened, the final when statement no longer surrounds the attribute and the mapper shows an empty 'When' attribute.</p> <p><b>Workaround</b> Complete all [When] conditions when "Surround with Choice" is used.</p>
BE-9837	<p><b>Summary</b> This issue occurs when using the XSLT mapper, if "Surround with Choice" is used on an attribute and you click "OK" without populating the [When] conditions. When the mapper is later reopened, the when statement no longer surrounds the attribute and the mapper shows an empty 'Choose/When' attribute.</p> <p><b>Workaround</b> Complete the condition before clicking "OK."</p>
BE-9836	<p><b>Summary</b> This issue occurs when using the XSLT mapper, if "Surround with If" is used on an attribute and you click "OK" without populating the condition. When the mapper is later reopened, the if no longer surrounds the attribute and the mapper shows an empty 'If' attribute.</p> <p><b>Workaround</b> Complete the condition before clicking "OK."</p>
BE-9646	<p><b>Summary</b> The WSDL export utility generates a non-working WSDL when the input destination is defined using a collection in the CDD file.</p> <p><b>Workaround</b> Define the input destination directly in the Agent Classes tab.</p>
BE-8445	<p><b>Summary</b> If the TIBCO Designer™ Add-in for TIBCO Business Studio™ product required by TIBCO ActiveMatrix BusinessWorks is installed in the same Eclipse environment as TIBCO BusinessEvents Studio, enterprise archive generation fails for TIBCO BusinessEvents Studio projects.</p> <p><b>Workaround</b> None.</p>
1-AUKJNT	<p><b>Summary</b> The ActiveMatrix BusinessWorks InvokeRuleFunction activity sometimes throws a <code>java.lang.StackOverflowException</code>.</p> <p><b>Workaround</b> None.</p>
1-ATETI4	<p><b>Summary</b> When using the command-line <code>buildear</code> tool to generate an enterprise archive for TIBCO BusinessEvents Studio project that was imported from a 3.x TIBCO Designer project, sometimes this harmless exception may be thrown even when the EAR file generates successfully:</p> <p><code>org.eclipse.core.internal.resources.ResourceException</code></p>

Key	Summary/Workaround
1-APZLY5	<p><b>Summary</b> The TIBCO BusinessEvents Monitoring and Management server occasionally throws a <code>NullPointerException</code> when the server is shutting down</p> <p><b>Workaround</b> None.</p>
1-AP0B0E	<p><b>Summary</b> If a project refers to a project library, rule functions defined in the project library are not available for selection when defining event preprocessors in the CDD Editor.</p> <p><b>Workaround</b> None.</p>
1-AMQMGB	<p><b>Summary</b> Project Validation does not throw any errors if a non-existent global variable name is used in some TIBCO BusinessEvents entities such as Shared Resources and channels.</p> <p><b>Workaround</b> None.</p>
1-ALY1P5	<p><b>Summary</b> In the XPath formula builder, under the Logical functions category, if the <code>xor</code> function is used, a false warning "Always true" is shown.</p> <p><b>Workaround</b> None.</p>
1-AJ7M0T	<p><b>Summary</b> If you are using payloads in events that refer to an element inside an XSD and there are multiple XSDs present in the project with the same element, the TIBCO BusinessEvents engine throws a <code>NullPointerException</code> when deserializing an event with payload.</p> <p><b>Workaround</b> Keep only the XSD that you need in your TIBCO BusinessEvents Studio project and remove the ones that are not needed.</p>
1-AGWRLS	<p><b>Summary</b> In a JMS Connection Shared Resource, if the JNDI Configuration resource is renamed, the new name of the JNDI Configuration resource is not reflected in the JMS Connection Shared Resource.</p> <p><b>Workaround</b> Manually update to the new name.</p>
1-AGP9MQ	<p><b>Summary</b> In an HTTP channel, if the method of configuration is Properties instead of Shared Resource, then SSL related fields are not present on the channel configuration dialog.</p> <p><b>Workaround</b> Use Shared Resource as the method of configuration, if you need to use SSL.</p>
1-AF5OHI	<p><b>Summary</b> Unlike in TIBCO Designer, when a new project is created in Business Events Studio, some global variables such as Domain and Deployment are not created by default.</p> <p><b>Workaround</b> Create these global variables manually.</p>

Key	Summary/Workaround
1-AEQ6AE	<p><b>Summary</b> In the XSLT Mapper opened up by <code>Event.createEvent</code> or <code>Instance.createInstance</code> functions, no validation error is thrown if a non scalar value such as a node is dragged and dropped onto the input of a field that can only accept a scalar value.</p> <p><b>Workaround</b> None.</p>
1-AE3GXX	<p><b>Summary</b> In JMS channels, <code>CLIENT_ACKNOWLEDGE</code> acknowledgement mode does not roll back pre-fetched and unacknowledged JMS messages to the queue when the TIBCO BusinessEvents engine stops responding.</p> <p><b>Workaround</b> None.</p>
1-ABTGG7	<p><b>Summary</b> TIBCO BusinessEvents Studio cannot Reset to the original schema after having made changes to the schema in a mapper.</p> <p><b>Workaround</b> Undo the changes manually.</p>
1-ABDH3C	<p><b>Summary</b> Even after successful generation of the EAR file, TIBCO BusinessEvents Studio may not always show the message "Ear File was successfully generated."</p> <p><b>Workaround</b> Check whether the EAR file generated or not.</p>
1-A3EPZ9	<p><b>Summary</b> The silent uninstaller does not uninstall anything in TIBCO BusinessEvents 4.0.0</p> <p><b>Workaround</b> Use the GUI Uninstaller instead.</p>
1-919P9B	<p><b>Summary</b> You cannot assign a <code>DateTime</code> to a bind variable in queries.</p> <p><b>Workaround</b> In the query, use <code>/#Datetime/parseLong(\$milliseconds)</code> and pass a long integer in <code>\$milliseconds</code>.</p>
1-9146V5	<p><b>Summary</b> In queries, the type of a bind variable is enforced by its surrounding expression.</p> <p><b>Workaround</b> In the query, use the following expressions to assign the desired type to the bind variable <code>\$x</code>:</p> <ul style="list-style-type: none"> <li>• For int and long use: <code>(\$x + 0)</code></li> <li>• For double use: <code>(\$x + .0)</code></li> <li>• For String use: <code>(\$x    "")</code></li> <li>• For Boolean use: <code>(\$x or false)</code></li> <li>• For <code>DateTime</code>, pass a long instead of a <code>DateTime</code> and use: <code>/#Datetime/parseLong(\$x)</code></li> </ul>

Key	Summary/Workaround
1-8YHHBD	<p><b>Summary</b> When ActiveMatrix BusinessWorks is contained within TIBCO BusinessEvents, JAR files that are part of an alias library should be extracted from the EAR during the deployment process, but are not.</p> <p><b>Workaround</b> Manually place the JAR files in the classpath.</p>
1-8KLNE4	<p><b>Summary</b> If the location of the persistence database directory is specified using the Database Environment Directory field in the Object Management tab, persistence files are created in the root directory.</p> <p><b>Workaround</b> Specify the location using the property <code>be.engine.om.berkeleydb.dbenv</code>. The files are then placed in a directory whose name matches the BAR name.</p>
1-8A9FA9	<p><b>Summary</b> When you use the XPath mapper to assign a concept to a field of type any in the payload of an event, and that concept has a contained concept property with an <code>extId</code> that is not null, the following exception occurs:</p> <p><code>ExtIdAlreadyBoundException: Event is already bound to extId</code></p> <p>Where <code>extID</code> is the instance <code>extId</code> of the concept or its contained concept.</p> <p><b>Workaround</b> None.</p>
1-7UGVMG	<p><b>Summary</b> Async checkpoint is not working.</p> <p><b>Workaround</b> Use sync checkpoint. It is enabled by default.</p>
1-7M7QOT	<p><b>Summary</b> The hot deployment feature does not handle changes made to non-TIBCO BusinessEvents resources, specifically JMS or Rendezvous connection resources.</p> <p><b>Workaround</b> If you need to change these resources, you must restart the TIBCO BusinessEvents engine.</p>
1-6MMNZW	<p><b>Summary</b> When a primary statemachine's concept is moved to a folder, then secondary statemachine's path to the called primary statemachine does not get updated.</p> <p><b>Workaround</b> Update it manually.</p>
1-630PGL	<p><b>Summary</b> Assigning an empty string ("") to a field in a mapper function will result in a null string.</p> <p><b>Workaround</b> Set <code>TIBCO.BE.xsltVersion</code> to 2.0 in the <code>designer.tra</code> file and regenerate the mapper XSLT template by opening the mapper function and clicking OK. (This is a non-supported feature because it is part of the XSLT 2.0 specification, which the W3C has not yet released.)</p>

Key	Summary/Workaround
BE-9174	<p><b>Summary</b> In projects that involve integration with TIBCO ActiveMatrix BusinessWorks, changes made to the TIBCO BusinessEvents EAR file while TIBCO Designer is open are not reflected in the ActiveMatrix BusinessWorks plug-in activities, such as SendEvent. (The EAR file is referenced in the RuleServiceProvider Configuration Resource in TIBCO Designer.)</p> <p><b>Workaround</b> Restart TIBCO Designer to load the changes in the EAR file.</p> <hr/>

## Appendix A **Documentation for Changed Functionality**

This appendix provides additional details for some items listed in the section [Changes in Functionality on page 4](#).

### Topics

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- [Enabling Studio Tools buildEar operation on Solaris SPARC, page 32](#)
- [Using Public/Private Key Authentication with mm-tools, page 34](#)
- [Embedded Persister with Shared-all Functionality, page 36](#)
- [Guidelines for Using Coherence Cache Provider, page 41](#)

## Enabling Studio Tools buildEar operation on Solaris SPARC

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The buildEar operation in the studio-tools command line utility now works on Solaris SPARC platforms, with configuration.

To enable Solaris installations to execute the studio-tools command line utility buildEar operation, follow the steps below.

1. Install TIBCO BusinessEvents 32 bit 5.0.1 on a Solaris SPARC 64 bit machine.
2. Install TIBCO BusinessEvents 32 bit 5.0.1 on a Linux machine.
3. Download and install Eclipse 3.4.2 for Solaris SPARC. You can download the software from this location:

<http://archive.eclipse.org/eclipse/downloads/drops/R-3.4.2-200902111700/index.php>

Select the following option: Solaris 10 (SPARC/GTK 2). The filename is eclipse-SDK-3.4.2-solaris-gtk.zip.

4. Copy the following files from a Linux installation to the corresponding file location in the Solaris installation:

---

*BE\_HOME*/studio/eclipse/plugins

*BE\_HOME*/studio/bin/studio-tools.tra

*BE\_HOME*/eclipse-platform/eclipse/links/TIBCOBusinessEvents-Studio-plugins.link

*BE\_HOME*/eclipse-platform/eclipse/plugins/\*emf\*

*BE\_HOME*/eclipse-platform/eclipse/plugins/\*uml\*

*BE\_HOME*/eclipse-platform/eclipse/plugins/javax.xml\_1.3.4.\*.jar

*BE\_HOME*/eclipse-platform/eclipse/plugins/org.apache.commons.codec\_1.3.0.\*.jar

*BE\_HOME*/eclipse-platform/eclipse/plugins/org.apache.commons.httpClient\_3.1.0.\*.jar

*BE\_HOME*/eclipse-platform/eclipse/plugins/org.apache.commons.lang\_2.3.0.\*.jar

*BE\_HOME*/eclipse-platform/eclipse/plugins/org.apache.xerces\_2.9.0.\*.jar

*BE\_HOME*/eclipse-platform/eclipse/plugins/org.apache.xml.resolver\_1.2.0.\*.jar

*BE\_HOME*/eclipse-platform/eclipse/plugins/org.apache.xml.serializer\_2.7.1.\*.jar

---

5. On the Solaris machine, edit the following file:

*BE\_HOME*/studio/bin/studio-tools.tra

Specify the appropriate environment paths for all path variables such as TIB\_HOME, BE\_HOME, TIB\_JAVA\_HOME, JVM\_LIB\_PATH and so on.

6. On the Solaris machine, edit the following file:

`BE_HOME/eclipse-platform/eclipse/links/TIBCOBusinessEvents-Studio-plugins.link`

Specify the path to the TIBCO BusinessEvents Studio plugins, as appropriate for the Solaris installation.

7. Copy the wrapper executable from `TIBCO_HOME/tools/wrapper/wrap` (or `wrap64`) to `BE_HOME/studio/bin/studio-tools`.
8. Change directory to `BE_HOME/eclipse-platform/eclipse` and run the command:

```
eclipse -clean -initialize
```

You can now execute the `studio-tools buildEar` operation. See *TIBCO BusinessEvents Developer's Guide* for details.

## Using Public/Private Key Authentication with mm-tools

---

With the TIBCO BusinessEvents Monitoring and Management mm-tools component, it was not possible to authenticate a user using certificates when performing `deploy` and `remote start` and `stop` operations. (See [Changes in Functionality on page 4](#) for details about the `stop` operation.)

Now you can use this functionality as follows.

1. On the computer hosting the MM server, use a utility to create a public/private key pair. The `ssh-keygen` utility is widely available. Two files are generated. They are referred to as follows:

*PK\_FILE\_NAME*: The file containing the private key

*PK\_FILE\_NAME*.pub: The file containing the public key

Optionally, you can specify a passphrase.

Place both generated files in the same directory on the computer hosting the MM server. For example, put them in `BE_HOME/mm/certificates`.

2. On computers hosting the to-be-monitored cluster PUs that you want to remotely `deploy`, `start`, or `stop`, copy the contents of the *PK\_FILE\_NAME*.pub file to the file containing the list of authorized keys for the user who will be logging in remotely.

For example, for SSH using certificates for authentication, the authorized keys file is called 'authorized\_keys' and it is stored in the `.ssh` directory of the user who will be logging in remotely, that is, in `~/.ssh/authorized_keys`.

3. When executing a command with mm-tools, use these new options:
  - pkf** The fully qualified path to the *PK\_FILE\_NAME* file, that is, the file with the private key.
  - pph** The passphrase, if you specified one when creating the public/private key pair. (One example below shows the -pph option.)

### Example Commands

Remote Deploy:

```
mm-tools --propFile mm-tools.tra -op deploy -m 100.100.100.101 -pkf
BE_HOME/mm/certificates/PK_FILE_NAME
```

Remote Deploy, with passphrase:

```
mm-tools --propFile mm-tools.tra -op deploy -m 100.100.100.101 -pkf
BE_HOME/mm/certificates/PK_FILE_NAME -pph passphrase
```

Remote Start:

```
mm-tools --propFile mm-tools.tra -op start -puc CS -m  
100.100.100.101 -pkf BE_HOME/mm/certificates/PK_FILE_NAME
```

Remote Stop:

```
mm-tools --propFile mm-tools.tra -op stop -puc CS -m  
100.100.100.101 -pkf BE_HOME/mm/certificates/PK_FILE_NAME
```

## Embedded Persister with Shared-all Functionality

---

This form of data persistence uses TIBCO BusinessEvents DataGrid as the cache provider and Oracle Berkeley DB Java Edition software as the data store (not bundled with the TIBCO BusinessEvents software).

You must obtain a separate license for the Oracle Berkeley DB Java Edition software that is appropriate for your usage if you wish to use the embedded persister functionality.

With this shared-all persistence implementation, cache servers act as persisters, and provide the service of interacting with the persistence layer.

All cache nodes must have access to a reliable shared file system. The Berkeley DB database is created within this shared file system.

This feature provides following operations:

### Reading from the Data Store

Persisters load data in bulk from the data store at startup.

The following functions are used to load individual concepts into cache:

```
CacheLoadConceptByExtIdByURI()
```

```
CacheLoadConceptById()
```

### Writing to the Data Store

Data is flushed to the operating system buffers for every write operation. TIBCO BusinessEvents uses `WRITE_NO_SYNC` durability by default, which means that the Berkeley DB will flush every write to the operating system's buffers immediately but not call `fsync`. In case of an application crash, there will be no data loss as long as the underlying operating system synchronizes its buffers to disk.



### Notes

- TIBCO BusinessEvents internally sets durability to `WRITE_NO_SYNC` durability. This behavior can be overridden by setting the `je.txn.durability` property in the `je.properties` file. See [Configuring the Embedded Persister on page 37](#).
- The `CacheLoadConceptByExtId()` function is not supported when used with this feature.
- Scorecards are not persisted (and so cannot be recovered).

## Configuring the Embedded Persister

This section explains how to configure the embedded persister.

1. Download the supported version of the Oracle Berkeley DB Java Edition software from the Oracle web site. Place the `je-4.1.17` JAR file in the following directory, as shown:

```
BE_HOME/hotfix/lib/ext/tpcl/je-4.1.17.jar
```



**No Impact on TIBCO BusinessEvents Decision Manager** An earlier version of Berkeley DB software is used for the TIBCO BusinessEvents Decision Manager RMS feature (`lib/ext/tpcl/je.jar`). The Berkeley DB software you install for the embedded persister feature also works with RMS without any modifications. The location specified for the newer version is ahead of the existing software location in the classpath. Therefore conflicts are avoided.

2. Open the project CDD and in the Cluster tab, set the following:
  - Set object management type to Cache: right click Object Management in the navigation tree and select Cache.
  - Select Object Management in the navigation tree and in the Configuration panel, set the Provider to TIBCO.
  - Select Backing Store in the navigation tree and in the Configuration panel Enabled field, uncheck the checkbox, to ensure that backing store functionality is disabled.
3. To configure the cache agent, do the following (see [Table 3, CDD Configuration Properties, on page 38](#) for details).
  - a. Add and configure the following required properties in the CDD file:
 

```
be.engine.cluster.persistenceProvider
be.backingstore.useobjecttable
be.engine.cluster.as.lock.ttl
```
  - b. If you want to specify a non-default name and location for the datastore directory, add and configure the following property.
 

```
be.persistenceprovider.bdb.directory
```
4. Save the CDD file and build project EAR files for deployment.
5. You can optionally override the datastore default configuration. In the directory where the datastore will be created, add a properties file and name it `je.properties`. Add and configure properties as explained in [Table 4, Berkeley DB JE Properties, on page 40](#).

## Reference to CDD Properties

This section provide a reference to the CDD properties

Table 3 CDD Configuration Properties

Property	Notes
<b>Cache Agent Properties</b>	
<code>be.engine.cluster.persistenceProvider</code>	<p>Required. Specifies the implementation. Required value is as follows: "com.tibco.cep.persistenter.ASBDBPersistenceProviderImpl"</p> <p>Set at the cluster level.</p> <p>Do not change this value.</p>
<code>be.backingstore.useobjecttable</code>	<p>Required.</p> <p>Required value is <code>false</code>.</p>
<code>be.engine.cluster.as.lock.ttl</code>	<p>Required. Value is specified in milliseconds. Controls the time after which TIBCO BusinessEvents DataGrid will forcibly unlock a space key. Thirty seconds is a reasonable value when the system not operating under heavy load (More than 2000 transactions per second may required a longer timeout period).</p> <p>Default value is 30000.</p>
<code>be.persistenceprovider.bdb.directory</code>	<p>Optional. Specifies the name and file location of the database. If this property is not specified, a directory named <code>datastore</code> is created under the working directory.</p> <p>This property is required if you add a <code>je.properties</code> file and place it in a non-default location. (See <a href="#">Configuring the Embedded Persister on page 37</a> for details.)</p>

Table 3 CDD Configuration Properties (Cont'd)

Property	Notes
<b>Inference Agent Properties</b>	
<code>be.engine.cluster.persistenceProvider</code>	<p>Required. Specifies the implementation. Required value is:  <code>"com.tibco.cep.persister.ASBDBPersistenceProviderImpl"</code></p> <p>Do not change this value.</p>
<code>be.backingstore.useobjecttable</code>	<p>Required. Set to <code>false</code>.</p>
<code>be.engine.cluster.as.lock.ttl</code>	<p>Required. Value is specified in milliseconds.</p> <p>Controls the time after which TIBCO BusinessEvents DataGrid will forcibly unlock a space key. The default value of thirty seconds is a reasonable timeout for normal loads, such as less than 2000 transactions per second.</p> <p>Default value is 30000.</p>
<code>be.engine.cluster.as.node.retry.times</code>	<p>Required.</p> <p>Specifies the number of times TIBCO BusinessEvents retries a <code>put</code> or <code>putAll</code> call on the TIBCO BusinessEvents DataGrid cache.</p> <p>Each retry is done after five seconds. The number of retries depends on the <code>be.engine.cluster.as.lock.ttl</code> property. To calculate the value for <code>retry.times</code>, use the following formula:</p> $\text{retry.times} = \text{lock.ttl} / 5 + 1$ <p>For example, if you set <code>be.engine.cluster.as.lock.ttl</code> to 30000, then you would set the <code>be.engine.cluster.as.node.retry.times</code> value to 7.</p>

## Reference To Berkeley DB (JE) Properties

This section provides a reference to the Berkeley DB JE properties. See [Configuring the Embedded Persister on page 37](#) for details about adding the properties file. For more details on the Berkeley DB JE properties, refer to the Berkeley DB product documentation:

<http://www.oracle.com/technetwork/database/berkeleydb/je-faq-096044.html>

[http://docs.oracle.com/cd/E17277\\_02/html/GettingStartedGuide/administration.html#propertyfile](http://docs.oracle.com/cd/E17277_02/html/GettingStartedGuide/administration.html#propertyfile)

Table 4 Berkeley DB JE Properties

Property	Notes
<code>je.txn.durability</code>	<p>Indicates the durability of a transaction. Possible values are <code>WRITE_NO_SYNC</code>, <code>NO_SYNC</code>, and <code>SYNC</code>.</p> <p>TIBCO BusinessEvents internally sets durability to <code>WRITE_NO_SYNC</code>. You can override that setting using this JE property.</p>
<code>je.log.numBuffers</code>	<p>The number of write buffers that the Berkeley DB uses internally.</p> <p>Default value is 3.</p>
<code>je.log.bufferSize</code>	<p>The size of each write buffer.</p> <p>Default value is 1048576.</p>
<code>je.log.totalBufferBytes</code>	<p>The sum of sizes of all the write buffers.</p> <p>Default value is 3145728.</p>
<code>je.maxMemoryPercent</code>	<p>The percentage of the JVM maximum memory to which the cache is limited.</p> <p>Default value is 60%</p>

## Guidelines for Using Coherence Cache Provider

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Documentation did not point to guidelines customers needed for using Coherence as the cache provider. The following links provide these guidelines:

Checklist and guidelines before architecting a new project:

[http://download.oracle.com/docs/cd/E15357\\_01/coh.360/e15723/deploy\\_checklist.htm](http://download.oracle.com/docs/cd/E15357_01/coh.360/e15723/deploy_checklist.htm)

[http://download.oracle.com/docs/cd/E15357\\_01/coh.360/e15723/deploy\\_plat\\_consider.htm](http://download.oracle.com/docs/cd/E15357_01/coh.360/e15723/deploy_plat_consider.htm)

[http://download.oracle.com/docs/cd/E15357\\_01/coh.360/e15723/tune\\_perftune.htm](http://download.oracle.com/docs/cd/E15357_01/coh.360/e15723/tune_perftune.htm)

### Coherence Network Protocol

[http://download.oracle.com/docs/cd/E15357\\_01/coh.360/e15723/cluster\\_tcp.htm](http://download.oracle.com/docs/cd/E15357_01/coh.360/e15723/cluster_tcp.htm)

[http://download.oracle.com/docs/cd/E15357\\_01/coh.360/e15723/tune\\_datagramtest.htm](http://download.oracle.com/docs/cd/E15357_01/coh.360/e15723/tune_datagramtest.htm)

### Coherence Metrics

[http://download.oracle.com/docs/cd/E15357\\_01/coh.360/e15723/appendix\\_mbean.htm](http://download.oracle.com/docs/cd/E15357_01/coh.360/e15723/appendix_mbean.htm)

[http://download.oracle.com/docs/cd/E15357\\_01/coh.360/e15723/appendix\\_operational.htm](http://download.oracle.com/docs/cd/E15357_01/coh.360/e15723/appendix_operational.htm)

