

TIBCO BusinessEvents™

Release Notes

Software Release 4.0.0
May 2010

The Power to Predict™

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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.

Topics

- [New Features, page 2](#)
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New Features

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

Release 4.0

The following new features are included in this release.

TIBCO Software, Platforms, and Third Party Software

Support for the following products and product versions is added in this release:

- Red Hat Enterprise Linux 4.7 and 5.2
- AIX 6.1
- Oracle Real Application Clusters 11g Release 1
- SQL Server 2005 and 2008 (for backing store as well as database concepts)
- JRE 6 (minimum supported version)
- TRA 5.6.2 is the minimum supported version
- IBM DB2 9.5 for use with database concepts only.

Dependencies on other TIBCO Products are Removed

BusinessEvents is no longer dependent on any other TIBCO products. Previously TIBCO Runtime Agent and TIBCO ActiveMatrix BusinessWorks also had to be installed before BusinessEvents was installed.

New Installer

BusinessEvents has adopted use of the TIBCO universal installer. This installer does not use VPD files and provides an easy installation experience.

New Design-Time User Interface

TIBCO BusinessEvents now has a new Eclipse-Based UI, BusinessEvents Studio, for designing BusinessEvents projects. It is integrated into the standard Eclipse menus where appropriate, and works in harmony with established Eclipse UI methodologies. TIBCO Designer, which was used in earlier releases, is no longer supported for designing BusinessEvents projects.

The main artifacts which are included in the Eclipse-Based UI are as follows:

- UML Standard Class Diagrams and State Machine diagram: TIBCO BusinessEvents now provides several kinds of diagrams for use during the development life cycle. They are visualization tools that help you to understand and analyze even very large and complex projects.
- Rule Editor: It now supports text-based and form-based rule editing.
- Project Analyzer: Shows a complete runtime message flow through a graphical representation of the project artifacts, to help you find potential problems, and to understand dependencies. Users can now also share this graphical information with others who have no access to BusinessEvents using image files.
- Integrated Debugging (local or remote): Allows you to test the project. It provides stack trace, rule agenda, variables view, watch views, and so on.
- Integrated Testing: Allows you to assert test data to a local or remote engine and view engine results with a causal execution path.
- Cluster deployment descriptors: This new engine configuration paradigm separates certain aspects of project configuration from the deployment archive. Settings formerly located in the engine TRA files and also certain settings in the TIBCO Designer project are now in the CDD file. You can now change these configuration settings without having to rebuild the EAR file.

Transports

HTTP Channel

TIBCO BusinessEvents can now act as an HTTP server at runtime. The new HTTP channel can be used to serve requests from clients and can also act as a client to other servers.

TCP Functions

You can now create a local TCP server and TCP client using built-in functions instead of using a channel. This is useful for connecting with systems that are otherwise difficult to connect with.

Web Services

BusinessEvents can now act as a web service platform, sending and receiving SOAP requests. It can import a WSDL file and create required artifacts based on it. User can also create the project manually. It also allows the user to export rules and rule functions as WSDL.

Monitoring and Management

The BusinessEvents Monitoring and Management (MM) component enables you to monitor and manage the status of all nodes in a cluster and provides various performance metrics. You can stop, start, and pause an agent and you can deploy agents to hosts that were preconfigured in a topology file used by MM.

Deployment Configuration

User can now define the deployment configuration using the Site Topology editor. This graphical user interface enables you to configure agents and processing units (engines at runtime) into deployment units that are assigned to host machines.

BusinessEvents Monitoring and Management Console

BusinessEvents MM Console is a web based real time dashboard. It can be used to deploy, manage and monitor the engines which are defined during the design time using site topology. BusinessEvents Monitoring and Management allows you to do life-cycle management on agents such as stop, start, and pause. It supports use of LDAP and JAAS (file based security) for access control.

JDBC Backing Store

JDBC backing store is new in this release. The prior implementation supported only Oracle database and used Oracle Types. The JDBC backing store supports additional DBMS products and uses standard RDBMS tables for easier management.

Concurrent Rete Execution

BusinessEvents now supports multi-threaded Rete execution for high performance.

Cache-aside Database Write Strategy

In addition to the write-behind database write strategy used in the Oracle-only (legacy) backing store implementation, you can now use a cache-aside strategy. With cache-aside, the agents write to the backing store and to the cache simultaneously using multiple threads. Threading controls are also available, giving greater control, stability, and better performance.

Rules are Stored Individually, Not as Part of a Ruleset Resource

All BusinessEvents artifacts are now stored individually for better version control system support, including rules. In prior releases, individual rules were stored in rule set resources. Now rules are stored individually in project folders like other resources. Rulesets are no longer used (during migration rulesets are converted to folders). At deploytime configuration, you can select individual rules and folders of rules. This change also enables rules to be checked in and out of source control systems for more granular management.

Release 3.0.2

The following new features are included in this release to address issues in the earlier release.

- JDBC backing store. See *TIBCO BusinessEvents Administration* in version 4.0.0 for details.

Related Software

Support for the following platforms is added:

- TIBCO Runtime Agent 5.6.2
- TIBCO ActiveMatrix BusinessWorks 5.8 and higher
- Oracle Database 11g Enterprise Edition
- Oracle Real Application Clusters (RAC) 11g Release 1
- Database driver `ojdbc6.jar` for Sun Java JRE 6
- Database driver `ojdbc5.jar` for Sun Java JRE 5
- IBM Websphere MQ V6 and V7.0.1 and above
- Database concepts now supports Microsoft SQL Server 2008

See the product readme for full platform support details.

Release 3.0.1

The following new features are included in this release to address issues in the earlier release.

Platforms

Support for the following platforms is added:

- Solaris 10 on x86 (64-bit)

- Windows Server 2008 on (x86)
- Windows Server 2008 on (x86_64)
- Windows Vista Business Edition (x86) with latest patches
- HP-UX 11i (v1, v2, v3) (PA-RISC) (64-bit)

Related Software

- Java 6
- TIBCO Runtime Agent 5.6

BusinessEvents Decision Manager and RMS

Multiple Implementations per VRF

Multiple decision tables (implementations) can now be created for one virtual rule function (VRF) (see [Multiple Implementations per VRF](#)). A new category of Standard functions, VRF, is introduced to work with this feature. The following new set of functions have been added to enable users to define which table or tables to use in any given case:

```
getVRFImpByName()
getVRFImpNames()
getVRFImps()
invokeAllVRFImps()
invokeVRFImp()
invokeVRFImpByName()
invokeVRFImps()
```

Multiple Rules Management Servers and Multiple Projects per RMS

- Users can use multiple Rules Management Servers for various operations.
- Rules Management Server (RMS) now supports multiple projects, each with its own permissions. Users define a directory where RMS projects are stored, and RMS manages all projects in that location.

Project Workflow

A project workflow now enables better management of committed project changes. The workflow (implemented as an XML file) defines the actions that users in the specified roles can take on Worklist items. For example, the workflow may define the "Approve", "Deny", "Rework", and "Discard" actions. A rule administrator could be assigned the ability to take any of the listed actions, while a rule approver might only be granted access to "Approve" and "Deny".

Memory Management

A new preference option is available under Preferences > General, Show memory usage status. The information helps you to understand and manage memory.

BusinessEvents Engines

Event Preprocessor Worker Thread Options

New threading options are available in event preprocessors:

Shared Queue and Threads Uses the BusinessEvents system-wide shared queue and threads (it is the only feature in this release to use this shared queue).

When you use the Shared Queue and Threads option you can also set these system wide shared queue properties:

```
com.tibco.cep.runtime.scheduler.default.numThreads
com.tibco.cep.runtime.scheduler.queueSize
```

Caller's Thread Uses the thread (and queue size) provided by the channel resource client (the Rendezvous or Enterprise Message Service client, for example).

A Specified Number of Threads You can specify 1-8 threads. BusinessEvents creates this number of new worker threads for the input destination. When you choose this option, you must also specify the queue size.

See the Deploytime Configuration chapter in *TIBCO BusinessEvents User's Guide*.

Tutorials and Examples

New Caching and Backing Store Tutorial and Examples

The *TIBCO BusinessEvents Getting Started* guide has been expanded. In addition to the basic project design tutorial, it now includes a caching tutorial and a backing store tutorial, based on the same Fraud Detection scenario. Two new examples are added to the examples folder:

```
BE_HOME/examples/FraudDetectionCache
```

```
BE_HOME/examples/FraudDetectionBackingStore
```

New ActiveMatrix BusinessWorks Example

A new examples have been added to demonstrate in-process integration between BusinessEvents and ActiveMatrix BusinessWorks. It builds on the FraudDetection example. It can be used with a BusinessEvents or a ActiveMatrix BusinessWorks container, as documented. The example is added to the examples folder:

BE_HOME/examples/FraudDetectionBEBW

Examples Index

An `index.html` file has been added in the *BE_HOME/examples* folder. It lists the examples in logical groupings and enables you to click to open each example's documentation file.

Release 3.0

Note that these release notes were updated in release 3.0.1 to provide additional details.

Continuous Query Language

The query language is an SQL-like language. It enables you to query the current contents of concepts and simple events in the cache (snapshot query) or set up a query that reacts when the cache changes (continuous query). The query languages provides various windowing constraints such as sliding, tumbling, and temporal for continuous queries. It provides a simple deployment model to use an existing BusinessEvents engine as a pure query engine (see [Query Agents](#)).

Decision Manager

Decision Manager provides a friendly and rich user interface for business personnel and others with little or no technical background to author, test, and deploy rules to the BusinessEvents engine. Decision Manager simplifies complex rules by breaking them into multiple simple rules. Each simple rule is represented by a row in a decision table in the BusinessEvents Decision Manager user interface. Decision Manager also provides IT personnel an easy, secure, and scripted deployment life cycle by exposing an extensible Rules Management System.

Rules Management Server (RMS)

The lightweight Rules Management Server (RMS), a component in the TIBCO BusinessEvents family, serves as a rules management repository. RMS is built using TIBCO BusinessEvents itself. Decision Manager communicates with this server to retrieve rules and other artifacts, get updates, commit them, approve or reject those rules, and deploy them to a production system.

Database Concepts

The database concepts feature provide an elegant mechanism to map back-end database tables and views into BusinessEvents concepts, including relationships. The feature provides catalog functions for keeping the database synchronized with the current state of the concept. It also provides an ad-hoc querying mechanism.

Export Concepts and Events to XSD Schema

This simple tool enables you to export BusinessEvents ontology model elements (concepts and events) to their corresponding XML schema definition. This allows for the interoperability of the BusinessEvents model with SOA platforms, and other integration vendors.

Performance Profiler

The profiler utility enables you to collect statistics relating to the run to completion (RTC) rule evaluation cycles in an inference agent. The profiler records time spent during each RTC on various activities such as the number of times each condition or action is evaluated, and the total time spent on each condition and action.

Migration Utility for Migration from Persistence OM to Cache OM

A new migration utility provides an easy and fast way to migrate data from persistence-based object management to cache-based object management with backing store. Files are exported to comma-delimited value files and imported into the backing store configured for the cache.

Features Available with Cache Object Management

Query Agents

A query agent is a non-reasoning agent that has read-only access to the underlying objects in the cache cluster. A query agent has no Rete network.

Query agents are available only in TIBCO BusinessEvents Enterprise Suite. They are used only with Cache object management. Query agents enable you to query the objects in the cache using an SQL-like syntax.

Inference Agents

A BAR that deploys in 2.2 as a rule session, now deploys as an inference agent. Deployed instances of an agent form an agent group.

All agents share same cluster caches. They do not maintain separate caches (except a small local cache for performance reasons).

Rule chaining across different agents running in concurrent engines enables performance improvements. Instances of the same agent provide additional functionality (see [Inference Agent Groups](#)).

Inference Agent Groups

Each instance of an inference agent can be deployed multiple times to form an agent group. Each agent is aware of other agents in the group. Concept instances are shared between agents in a group; events are clustered. Notifications ensure that rule actions are executed appropriately. Inference agent groups provide load balancing and fault tolerance features.

Each agent instance is deployed in a different node (engine). Startup rule functions execute on each agent in a group. If this is not desired, design rule functions accordingly.

Engine Concurrency (Multi-engine Features)

Now a configuration option (`multiEngineOn`) enables you to use BusinessEvents in multi-engine mode. This feature has two main applications:

This feature provides a flexible way to load balance rule sets across multiple engines. It simplifies scalability, enabling you to run multiple inference agents on multiple nodes within the same cluster configuration.

Each engine can run multiple agents. Each BAR in an EAR deploys as an agent.

Multi-engine mode is available only with cache object management.

Locking Functions for Event Preprocessors

Event preprocessors are multi-threaded. When multi-engine features are used, locking features ensure multiple preprocessors do not attempt to work on the same concept instance property (updates are at the property level):

```
Coherence.C_Lock(String key, long timeout, boolean LocalOnly)
```

```
Coherence.C_UnLock(String key, boolean LocalOnly)
```

Load Balancing Between Agents in an Inference Agent Group

With point-to-point messaging, the load is automatically distributed among multiple active agents in an agent group.

Fault Tolerance Between Agents in an Inference Agent Group

Fault tolerance is no longer at the engine level. Fault tolerance is provided between agents in an agent group (see [Inference Agent Groups](#)). A new set of configuration options is available for fault tolerance between agents. Two properties define fault tolerance behavior:

```
Agent.AgentGroupName.maxActive
```

```
Agent.AgentGroupName.priority
```

In single-engine mode, use only the `priority` property. Because only one agent is active at a time, the `maxActive` property is not required.

With multi-engine mode, agents in excess of the `maxActive` number are deployed in inactive mode. The `priority` setting determines which agents start up first.

The earlier style of fault tolerance is still available for engines using In Memory object management.

Only inference agents require fault tolerance. Cache servers manage cache data, for which backup copies are maintained by the cluster, and for which a backing store is available. Query agents run queries, which does not require fault tolerance).

Functions

Cluster Related Functions

The following new Coherence Cluster functions are now available.

```
getClusterName()
```

```
isEventRecovered()
```

They enable programmers to get the cluster name that was set in the TRA file, and also to check whether the current agent seeded the event or has a reference to the event. These functions are intended primarily for use with the "Cache + WM" cache mode (explained in *TIBCO BusinessEvents User's Guide*). Tooltips for the functions are available in TIBCO Designer and are reproduced in the online functions reference, available in the HTML documentation interface.

Instance-Related Functions

Two new functions are now available for creating instances and updating existing instances through an XML stream.

`createInstanceFromXML()`

`updateInstanceFromXML()`

Tooltips for the functions are available in TIBCO Designer and are reproduced in the online functions reference, available in the HTML documentation interface.

Engine Profiler Related Functions

New engine profiler functions are now available.

`startCollectingToFile()`

`stopCollecting()`

They enable programmers to collect profiling metrics on demand and stop them on demand. Tooltips for the functions are available in TIBCO Designer and are reproduced in the online functions reference, available in the HTML documentation interface.

Changes in Functionality

This section lists changes in functionality since the last major (x.0.0) release of this product.

Release 4.0

Changes in functionality are not itemized for this release, which provides a completely new user interface and major changes in deployment architecture. Runtime functionality, however, is unchanged.

See [New Features on page 2](#) to understand the major new features introduced in this release. See *TIBCO BusinessEvents Getting Started* to gain familiarity with the new user interface and other product improvements.

Release 3.0.2

No functionality was changed in this release.

Release 3.0.1

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

Caching Scheme Selection Performed Implicitly

In 3.0.0, cache type was selected using the property `be.engine.cluster.cacheType`.

That property is no longer used.

Now the selection is made implicitly based on two properties.

`be.engine.cluster.hasBackingStore`

If the above is set to false, then the distributed scheme with no backing store is used. If it is set to true, then a backing store scheme is used and additional properties are available to refine the choice:

`be.engine.cluster.isCacheLimited`

If the above property is set to true, then a limited cache scheme is used, with a default size of 10,000 entries. If that default is not acceptable, use the following property to define the desired size:

`java.property.be.engine.limited.cache.back.size.limit`

Preloading Options for Backing Store

When limited cache is used, some objects are added to cache from backing store only when needed (this is known as cache only mode). Preloading options now enable you to choose which cache-only objects to load to cache from backing store at startup. You can load all objects, no objects, or you can specify either an inclusion list or an exclusion list. The value of the preload property determines behavior

- To load no objects, use `be.engine.cluster.preload=none`
- To specify an include list, set `be.engine.cluster.preload=include` and add a list of entity classes to preload using properties of this format:
`be.engine.cluster.EntityClassName.preload=true.`
- To specify an exclude list, set `be.engine.cluster.preload=exclude` and add a list of entity classes to exclude using properties of this format:
`be.engine.cluster.EntityClassName.preload=false.`

Events are Mutable Until Asserted

You can modify and enrich events before they are asserted into working memory. Rule evaluation depends on event values at time of assertion, so they can be changed only before assertion.

BusinessWorks.startProcess() Parameter is Now of Type Object

In 3.0.0, when the ActiveMatrix BusinessWorks process completed, the `BusinessWorks.startProcess()` function passed an *event* to the rule function that was specified in another parameter of the function. Now it passes an object.

Backing Store—Oracle connection pool limit properties

The following Oracle connection pool limit properties for backing store database, are set in `be-engine.tra`:

```
be.oracle.dburi.pool.initial.0
be.oracle.dburi.pool.min.0
be.oracle.dburi.pool.max.0
```

To enforce a pool size, you must now also set the following property to true (it is false by default):

```
be.oracle.dburi.pool.enforce.0 true
```

If this property is absent or set to false, the other pool settings are ignored.

Decision Manager

Decision Table Improvements

- BusinessEvents Decision Manager has been improved to better handle the large decision tables used by highly complex Business Events solutions.
- Decision Manager now enables users to compare committed decision table changes to the current version of the table maintained by RMS or to other pending decision table commitments.
- Decision tables support merging with approved or other versions.
- Decision tables have a history view.
- Decision Manager tester shows which values of concepts and events have changed or were added.
- Decision Manager tester supports event payloads and array properties, and channels

Greater Flexibility in Decision Table Testing

A new property named `bui.testers.engine.feature.level` has been added. It has three values, minimal, local, and full, to control how fully the tester uses the features of the BusinessEvents project. See *TIBCO BusinessEvents Decision Manager User's Guide* for details.

Finer Grained Controls

- RMS shows all checkins along with details and actions for each checkin.
- New permissions have been added to the access configuration files for each project to give rule administrators more control over which user roles have access to these project components: Project, Folder, DecisionTable.
- The Worklist view now displays details for each commitment request and allows rule administrators or approvers to select which specific changes within a request to approve or deny.
- Decision tables support locking and access control.

Release 3.0

Migration Support

The `be-dbutils` utility is deprecated and replaced by an enhanced, efficient `be-migration` utility. The new utility writes to CSV files, and obsoletes the use of database as temporary transfer medium.

Cache and Backing Store Configuration

The configuration for cache and backing store object management has been simplified and preset default cache schemes are provided out-of-the-box. See [New Features on page 2](#) for additional information.

Cache Loaders No Longer Used

You no longer need to a cache server as a cache loader. Now any engine can act as a cache loader when the system starts up.

Fault Tolerance and Cache Object Management Changes

Fault tolerance implementation is affected by new cache object management features. See [New Features on page 2](#) for details.

Channel and Destination

For every configured active destination (that is, a destination that is enabled in the Input Destination Tab in the BusinessEvents Archive resource), the BusinessEvents engine (Inference Agent) creates a JMS session for handling the incoming messages. In the previous releases, one session per channel was available.

The most-commonly-used JMS destination properties are now included in the TIBCO Designer user interface for JMS destinations. These are delivery mode, acknowledgement mode, ttl, and priority.

For Rendezvous-based destinations, an internal property `_sendsubject_` is reserved to get the subject on which the message was sent. The programmer can create an event with a string property `_sendsubject_` to access this value.

Deprecated Features

This section describes deprecated features and lists equivalent features that accomplish the same result, if relevant. 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 equivalent feature.



For a list of all unused and deprecated properties from this or prior releases, see the appendix "Deprecated and Unused Properties in *TIBCO BusinessEvents User's Guide*.

Release 4.0

Coherence (Tangosol) Cache Manager

In a future release, TIBCO ActiveSpaces will replace the need for this third-party component.

Single-Engine Mode

Single-engine mode is a legacy function that is now superseded by multi-agent mode (called multi-engine mode in 3.x). This legacy feature will be removed in the next major release. See *TIBCO BusinessEvents Architect's Guide* to understand multi-agent mode functionality, and see *TIBCO BusinessEvents Administration* for implementation details.

Persistence Object Management

The current implementation of the Persistence OM is deprecated in this release. Customers using this OM option are advised to migrate to cache based object management. Migration utilities are documented in *TIBCO BusinessEvents Installation*.

Oracle-Only Backing Store

A new implementation of the backing store (used for cache OM) has replaced the need for the Oracle-only backing store provided in earlier releases. You should migrate from the Oracle-only backing store to the JDBC backing store feature. See migration details in *TIBCO BusinessEvents Installation*.

Oracle Catalog Functions Oracle catalog functions support the oracle-only backing store, and are also deprecated. Improved functions will be made available for the JDBC backing store feature.

Use of TIBCO Administrator

Use of TIBCO Administrator for deployment, management, and monitoring of BusinessEvents applications is deprecated in this release. In future releases, the BusinessEvents Monitoring and Management component will provide features for these tasks.

Cache Plus Memory Object Management, Except for Use with Constants

The Cache Plus Memory OM type is no longer recommended except for use with constants. It is recommended that you use Cache Only OM.

TIBCO Database Drivers

TIBCO database drivers are no longer supported for use with BusinessEvents. (TIBCO database drivers are also no longer supported in TIBCO Runtime Agent.) Instead use drivers provided by DBMS vendors.

Certain Functions in the Coherence Categories

Certain functions in the Coherence function categories are not appropriate for use with BusinessEvents and are deprecated. Replacement functionality will be provided in a future release, with a migration path.

The `Coherence.Extractors` category of functions

`C_CacheLoadConceptIndexedByExtId`

`C_CacheLoadParent`

`C_CacheOnlyModeDeleteEntities`

`C_CacheReevaluate`

`C_Classname`

Other Catalog Functions

`Query.Callback.getStatementName()` This function has been removed from the function catalog. It was an inadvertent duplication of a metadata function: `Query.Callback.Metadata.getStatementName()`.

AIX 5.1

Support for AIX 5.1 has been withdrawn by IBM. Therefore it is no longer supported in BusinessEvents.

Fault Tolerance Mechanism for In Memory OM

The fault tolerance mechanism for In Memory object management is no longer required and is deprecated. The following properties will not be supported:

```
Engine.FT.UseFT
Engine.FT.GroupName
be.ft.nodename
Engine.FT.Weight
```

Instead use Cache OM and set all entities to Memory Only. Then use the fault tolerance features available for Cache OM. (See *TIBCO BusinessEvents Administration* for details.)

Release 3.0.2

No features are deprecated in this release.

Release 3.0.1

The following platform is deprecated in this release:

- Windows 2000 on x86

Release 3.0

The 5.3 version of TIBCO ActiveMatrix BusinessWorks is deprecated in this release.

The `be-dbutils` data migration utility is deprecated and replaced by the `be-migration` utility.

Migration and Compatibility

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.

Release 4.0.0

Upgrading from Version 3.X

You can import 3.x TIBCO Designer-based projects in BusinessEvents Studio. With a few exceptions, the projects are automatically migrated to 4.0.0 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 3.0.0 and then to 4.0.0. To upgrade to 3.0, read the migration chapters in *TIBCO BusinessEvents Installation* and follow all instructions carefully. You may also find it helpful to read the section [Release 3.0.1](#) below.

Release 3.0.2

Upgrading From Version 3.0.1

If your existing installation is version 3.0.1, take the following actions:

- Installing this service pack requires regeneration of BusinessEvents archive (.ear) files for your projects.
- If you have modified the BusinessEvents 3.0.1 RMS project, you must rebuild its EAR file (as is required for any existing EAR file).
- Back up projects before using TIBCO BusinessEvents 3.0.2. After you open projects and save them using BusinessEvents 3.0.2 you may not be able use those projects in earlier versions of BusinessEvents

There are no additional migration actions or changes in compatibility in this release.

Upgrading From an Earlier Version

If your existing installation is a version earlier than 3.0.0 upgrade to 3.0.0 and then to 3.0.2. To upgrade to 3.0, read the migration chapters in *TIBCO BusinessEvents Installation* and follow all instructions carefully. You may also find it helpful to read the section [Release 3.0.1](#) below.

Release 3.0.1

Read the migration chapters in *TIBCO BusinessEvents Installation* and follow all instructions carefully. Below are a few summary points.

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

You can directly upgrade from BusinessEvents 1.4 and higher to the current version. If you are upgrading from an earlier release, first upgrade to 1.4.

If you use Persistence object management in your 1.x or 2.x version and want to continue to use Persistence object management, upgrade to 2.x and migrate the persistence database. Then upgrade to the current version.

If you plan to migrate from Persistence OM to Cache OM, you can upgrade directly from 1.4 or higher to version 3.0.1 and then migrate from Persistence to Cache OM backing store using a provided utility. Additional configuration is also required.

In Decision Manager, various actions are required, for example, you must clear all worklists before migration, and after migration, you must save decision tables created in the prior release before you export them.

Release 3.0

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

Closed Issues

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

Closed in Release	Defect #	Summary
3.0.2	1-AIWG8E	When serializing events to JMS messages and deserializing JMS messages to events, BusinessEvents filtered out all event or message properties whose names began with "JMS" (case insensitive), except for actual JMS message header properties, which are handled appropriately. Now BusinessEvents sets event or message properties whose name begins "JMS_" (case insensitive). This allows provider-specific properties to be used.
3.0.2	1-AIBSRH	With JDBC backing store, the engine did not recover correctly after a database disconnect. This sometimes caused acknowledgment of incoming messages that the engine had failed to process, due to the disconnection.

Closed in Release	Defect #	Summary
3.0.2	1-AH0AVN	<p>Snapshot queries with pre-filters that spanned multiple concept boundaries and with the following property enabled were causing Java runtime exceptions to be thrown:</p> <pre>com.tibco.cep.query.executionplan.factory=composite</pre> <p>The following is an example of such a query:</p> <pre>select * from /Model/Cpts/A as a where a.B.Cs[0]@extId = "C-0"</pre> <p>The problem arose because cache servers do not have rule sessions. Therefore they could not perform object dereferencing.</p> <p>The fix provides a dedicated thread pool (and other supporting code) to handle such calls. These calls are blocking. Therefore you must configure more than one distributed thread to avoid deadlocks.</p> <p>On all cache servers, set the following properties to avoid deadlock situations. You may need to use more threads, depending on your needs, and avoidance of deadlocks is not guaranteed under heavy loads.</p> <pre>java.property.tangosol.coherence.distributed.threads n1 be.agent.cache.specialom true be.agent.cache.specialom.maxthreads n2</pre> <p>where <i>n1</i> is a number greater than 1, and is usual set to between 8 and 16 and <i>n2</i> is a number greater than 1, and must be equal to or less than distributed threads. Defaults to 16.</p> <p>When enabled you see this in the Info log:</p> <pre>Special OM initialized with [N] threads</pre>
3.0.2	1-AG938T	<p>In a query, within the optional limit clauses, it was not possible to specify the value for first or for offset as a bind variable. Now you can use bind variables, for example (all one query):</p> <pre>select {limit: first \$f1 offset \$o1} * from /MyConcept order by prop1 {limit: first \$f2 offset \$o2}, prop2</pre>
3.0.2	1-AG8V0V	<p>Removed misleading (though harmless) messages, such as "batchFileResponse has entity type : 6." These were seen when BusinessEvents was configured with JDBC backing store.</p>

Closed in Release	Defect #	Summary
3.0.2	1-AFQ58C	<p>Note CR 1-AS354H supersedes this CR. Text below provided for historical purposes only.</p> <p>BusinessEvents configured with backing store was not able to continue running when the database was disconnected. To avoid this issue, a new property is added:</p> <pre>be.engine.cluster.isObjectCacheFullyLoaded</pre> <p>Setting this property to true ensures that the ObjectTableCache is fully-loaded at all times (at startup as well as when any new objects are added). This means that lookup for an object won't require going to database.</p> <p>To correct the problem, set the following properties:</p> <pre>be.engine.cluster.recover all be.engine.cluster.preload all be.engine.cluster.isCacheLimited false be.engine.cluster.isObjectCacheFullyLoaded true</pre>
3.0.2	1-AFETYM	<p>When BusinessEvents was configured with a JDBC backing store, the backing store tables used unique indexes to guarantee the integrity of ID columns. Now, primary keys are used for the same purpose, to improve performance.</p> <p>To use this change in an existing backing store, regenerate the backing store scripts and apply the differences as needed. This change is optional.</p>
3.0.2	1-AFE8PB	<p>When used with Websphere MQ server, BusinessEvents created new sessions for each new message sent, causing an increase in the number of sessions over time. Now BusinessEvents creates a session per sending thread for sending messages and reuses that session.</p>

Closed in Release	Defect #	Summary
3.0.2	1-AFA67N	<p>With a backing store, database updates related to a referring concept in a referenced concept can take a long time, causing decreased performance. This happens when there are very many reverse references in a shared instance (referenced by many other instances).</p> <p>To address this issue, a new extended property called Reverse Ref has been added. It enables you to disable the reverse references. Add the new extended property to relevant ConceptReference properties and set it to false. The default value is true. If you use this property, you must explicitly remove ConceptReference properties for deleted referenced concepts in the referring concept in your code.</p> <p>For example, if <code>employee</code> is a ConceptReference type property in a concept <code>acme</code>, and <code>smith</code> is an instance of concept type <code>employee</code>, then you would set the extended property to true for the <code>employee</code> ConceptReference property, and you would add something like this to rules:</p> <pre>acme.employee = null; Instance.deleteInstance(smith);</pre> <p>Or, for array properties:</p> <pre>Instance.PropertyArray.removeConceptReference(acme.employee, smith); Instance.deleteInstance(smith);</pre>
3.0.2	1-AF6QMD	In rare circumstances, default worker threads could be prematurely killed by uncaught exceptions.
3.0.2	1-AF2UGJ	When BusinessEvents was configured with JDBC backing store, it threw out of memory errors when attempting to schedule multiple jobs that had conflicting (or duplicate) IDs. Now it throws an appropriate exception.
3.0.2	1-AERHP3	When the <code>be.engine.isCacheAside</code> property was set to true, the BusinessEvents TEMP tablespace usage grew rapidly and was not released.
3.0.2	1-AEJTVE	This issue was introduced in BusinessEvents 3.0.1 hotfix 3. When a state machine transition rule was in the rule agenda, and another rule deleted the concept that owned the state machine, BusinessEvents threw a null pointer exception.

Closed in Release	Defect #	Summary
3.0.2	1-AE3BSC	<p>With BusinessEvents-ActiveMatrix BusinessWorks integration, When the callback rule function (specified in a <code>startProcess()</code> argument) threw an exception, default worker threads were killed and the following error was thrown:</p> <pre>Job Error on thread:\$default.be.mt\$.Worker.x</pre>
3.0.2	1-ACZVM7	<p>It was not possible to get the count of records in a result set when using Query Functions. A new function addresses this issue for certain types of queries:</p> <pre>ResultSet.getRowCountIfPossible()</pre> <p>This function can be used only with snapshot queries that use joins and aggregations (order by and group by clauses). Only in such cases is the result set known. In other cases the query begins filtering and feeding results to the result set without knowing when the query will end.</p>
3.0.2	1-ACAQWV	<p>The <code>suspendDestination()</code> function did not work in "Cache" OM type when called in a startup rule function or in any rule that executed before the destination (and its listeners) were fully started. It did work for "In Memory" OM type, however. Now it works in all OM types.</p>
3.0.2	1-ABRCAA	<p>In the query language, bind variables could not be used in a <code>BETWEEN</code> clause.</p>
3.0.2	1-ABESRO	<p>The tooltip for the <code>Instance.getByExtId()</code> function was incorrect. It said that the function would return null if the instance did not exist in the Rete network. However, the function also looks into the cache if the instance is not found in the Rete network.</p>
3.0.2	1-AAZBH1	<p>In the query language, bind variables could not be used in an <code>IN</code> clause.</p>
3.0.2	1-AAIKCW	<p>With JDBC backing store, it was not possible to update the schema for a JDBC backing store to account for changes in ontology (while preserving existing data). A utility is now provided. See <i>TIBCO BusinessEvents Administration</i>.</p>
3.0.2	1-A9LW55	<p>Scheduled rule-based time events would not fire if the agent on which they were scheduled left the cluster before firing the time event.</p>
3.0.2	1-A95XMP	<p>Queries on concepts that use inheritance were failing with a Java runtime exception.</p>

Closed in Release	Defect #	Summary
3.0.2	1-A94L1F	When using <code>be-jdbcdeploy</code> with SQL Server, an exception was thrown as the <code>be-jdbcdeploy</code> utility was looking for an Oracle class.
3.0.2	1-A6E5HQ	<p>With any backing store, database types and tables were created for concepts and events whose cache mode was set to In Memory Only. They were also created for events (with any cache mode) whose time to live field was set to zero (TTL=0). Now such entities are not persisted in the backing store, with the following limitations:</p> <ul style="list-style-type: none"> • All child entities of an entity with cache mode set to In Memory Only must also use In Memory Only cache mode. • All child entities of an event with TTL=0 must also use TTL setting TTL=0 (regardless of cache mode).
3.0.2	1-A5SI2Z	Subscription events were being sent when reverse references changed. These references do not affect conditions. Now subscription events are not sent when only reverse references change.
3.0.2	1-9RH8LB 1-A5N9HA	<p>When deploying decision table implementation files using RMS, there was no option to use JAR files. Now BusinessEvents recognizes the path to a JAR file (1-9RH8LB) and can generate a JAR file (1-A5N9HA). (In 3.0.1 only class files could be generated). You specify the path to the JAR file in this property (used in 3.0.1 only to specify the directory for deployable class files):</p> <pre>be.engine.cluster.externalClasses.path</pre> <p>To enable JAR file generation, you set the following property in <code>be-rms.tra</code>:</p> <pre>bui.codegen.generate_jar=true</pre> <p>Note See 1-AJ00L8 for related details.</p>

Closed in Release	Defect #	Summary
3.0.2	1-ABEKVJ	<p>Profiler output would not import correctly as a comma-delimited file when rule conditions contained commas. The profiler is now tab-delimited by default. The delimiter character can be changed using the following new TRA file property:</p> <pre>be.engine.profile.delimiter</pre> <p>Specify the delimiter using a String value. Enclose the value in double quotes (the quotes are not used as part of the delimiter). For example to use an open curly brace as the delimiter, you would specify "{" as the value. Do not choose a character used in rule conditions.</p> <p>Use a single character if the application into which you will import the output uses a one-character delimiter. When importing the file into Excel, do not check the "Treat consecutive delimiters as one" option. Consecutive delimiters indicate a column that is empty.</p> <p>Also, when importing the file into Excel, set the timestamp field to Text (and not General, which is the default).</p>
3.0.2	1-AAMKZ4	<p>BusinessEvents Profiler was not reporting accurate NumEvaluated and NumSuccess values for some join conditions. As part of this fix, some of the condition data headers in the Profiler output have changed. See <i>TIBCO BusinessEvents Developer's Guide</i> for this documentation.</p>
3.0.2	1-AAB80H	<p>Creating large number of connections (in the shared database pool) took a long time. The connection pool wrapper has now been optimized to improve performance.</p>
3.0.2	1-A9V156	<p>The <code>Oracle.getConnection()</code> function blocks indefinitely. You can now use the function <code>Oracle.getConnectionWithTimeout()</code> function instead. This function has a timeout parameter and returns null if the timeout expires.</p>
3.0.2	1-A9837Y	<p>The tooltip for the <code>System.ID.remove()</code> function signature was wrong.</p>
3.0.2	1-A8901H	<p>In Decision Manager, if the same concept is referenced using different aliases in the virtual rule function, a validation exception was thrown when importing the Excel spreadsheet for the decision table.</p>

Closed in Release	Defect #	Summary
3.0.2	1-A7VGYM	With snapshot queries, errors were thrown when a large number of items was downloaded to the query agent local cache causing it to rapidly reach its maximum size (as defined by the property <code>be.agent.query.localcache.maxelements</code>). Such items were getting evicted immediately by newer items.
3.0.2	1-A72PKA	The <code>Temporal.History.howMany()</code> function returned an incorrect value (the actual number + 1) when the start and end times were between the timestamps of property values.
3.0.2	1-A6J720	Object deletion behavior was incorrect with In Memory OM: deletion was not reflected in the same RTC. Now it is.
3.0.2	1-A629WH	The tooltip for the <code>System.ID.reset()</code> function signature was wrong.
3.0.2	1-9T6MH0	<code>BusinessEvents</code> threw an exception during validation when an event payload schema was defined internally (that is, not by reference to an XSD).
3.0.2	1-92LB29	Bad XML event payloads were not validated. Now validation is done when this property is set to true in the TRA file: <code>com.tibco.cep.runtime.channel.payload.validation</code>
3.0.2	1-A71E53	To better analyze issues while interacting with Oracle DBMS, the following new trace roles now can be configured for tracking SQL statements that are executed: <code>orclLv1Role</code> , <code>orclLv2Role</code> Use them along with the existing trace roles in the <code>be.trace.roles</code> parameter in the default TRA file.
3.0.2	1-A7OC3T	<code>BusinessEvents</code> threw a <code>NullPointerException</code> when a JMS connection was configured with JNDI Lookup but without providing the TIBCO Enterprise Message Service property: <code>com.tibco.tibjms.naming.security_protocol</code> .

Closed in Release	Defect #	Summary
3.0.2	1-A5T27S	Under certain conditions, the value of the "Main State Machine" checkbox in the State Machine resource Configuration tab was incorrectly changed to a "checked" state when loading a Designer project. A consequence of the fix is a UI change: The "Main State Machine" checkbox (in the Configuration tab of the State Machine Resource) is no longer checked automatically when a user adds the first state machine to a concept.
3.0.2	1-A5JIT3	Spurious "Database Inconsistent" exceptions were seen under certain conditions. Also, the warning message was misleading. It has been changed to "Possible race condition. Please ensure proper locking."
3.0.2	1-A5JJOZ	The file xxx_IOT.sql is no longer generated. it is not used by BusinessEvents.
3.0.2	1-A5JJRV	As a safety measure, BusinessEvents now rolls back any pending transactions on database connections before they are released to the connection pool.
3.0.2	1-A5JJQ0	Deadlocks were happening when two or more threads tried to acquire the same resources, but in a different order. Deadlocks were also happening when multiple transactions tried to update more than one row in the same table. Now the database writes and updates are ordered by entity id, which is the primary key for the rows.
3.0.2	1-A5EI6N	Entity string properties longer than 65K characters would cause a serialization exception when a cache server exited or joined the cluster.

Closed in Release	Defect #	Summary
3.0.2	1-A5CZVP	<p>When the Database Concepts feature was used with SQL Server, inference agents threw an exception when inserting a record to the database. As part of this fix, the format of the <code>.sequences.xml</code> file is changed. An additional attribute for the <code>unique_identifier</code> element enables you to specify the name of a stored procedure. The attribute is <code>stored_proc = "StoredProcName"</code>:</p> <pre><?xml version = "1.0" encoding = "UTF-8"?> <unique_identifiers> <unique_identifier entity = "ConceptURI" property = "PropertyName" unique_identifier = "SequenceName" stored_proc = "StoredProcName"/> </unique_identifiers></pre> <p>The value must be a callable JDBC statement. The called stored procedure must take only one OUT type parameter. See the TIBCO BusinessEvents User Guide Chapter 7 Working with Database Concepts > Performing Insert Operations for more details.</p>
3.0.2	1-A3XS57	It was not possible to edit event properties in Decision Manager, even though events are mutable in preprocessors.
3.0.2	1-A2X78L	<p>With JDBC backing store, when running the generated file <code>yournameremove.sql</code>, the following message sometimes appeared, though the table or tables mentioned did exist (sometimes caused by duplicate ontology names):</p> <pre>Cannot drop the table 'tablename', because it does not exist or you do not have permission.</pre>
3.0.2	1-A10RCO	Under certain conditions, with BusinessEvents-ActiveMatrix Businessworks in-process integration, when Invoke RuleFunction activities were used in a process, unlocking was not being done correctly after the initial request and BusinessEvents was not processing subsequent requests.
3.0.2	1-9XXSAA	Inference Agents freeze under certain conditions, after hot deployment, while running in multi-engine mode.

Closed in Release	Defect #	Summary
3.0.2	1-A39JW4	<p>On restarting the first cache server in a deployment, preloading was taking too long, because of a multi-site deployment check. For single-site deployments, you can now disable this check. To do so add the following property to all TRA files and set the value to false (the default value is true):</p> <pre>be.engine.cluster.multisite=false</pre>
3.0.2	1-A2N2U7	<p>With the database concepts feature, when a database query was made, a new concept was created even if an existing concept was in cache. To correct this behavior add the following new property:</p> <pre>be.dbconcepts.dburi.query.reuseRefs true</pre>
3.0.2	1-A2BHIK	<p>A cluster mismatch exception was thrown when different paths were given for <code>be.engine.cluster.externalClasses.path</code> property different TRA files, although the java classes in both locations were the same. In each TRA file, the path can point to different locations as needed. You must ensure, however, that the files themselves are identical in all locations.</p>
3.0.2	1-A1SVEH	<p>When an inference agent had suspended destinations using JMS connection the engine did not always gracefully shut down, either using TIBCO Administrator or using Ctrl+C from the command line.</p>
3.0.2	1-A1LY4W	<p>Engines running inference agents would hang when the JDBC connection to the backing store slowed down or was intermittent. To correct this issue, set the following new timeout property (using milliseconds):</p> <pre>be.oracle.jdbc.readtimeout</pre> <p>If no response is received from the database within this period, a call is aborted. A value of 0 (zero) means that no timeout is set.</p>
3.0.2	1-A0VXYN	<p>Design-time ontology loading failed to bind some standalone state machines to their owner concept. This could cause these standalone state machines to be ignored at runtime.</p>
3.0.2	1-A0JYEW	<p><code>Temporary.Statistic.avgOverTimeInt()</code> did not return the expected value. (This is the final fix for an incomplete fix in HF5 CR 1-9MX2LH)</p>

Closed in Release	Defect #	Summary
3.0.2	1-A02WRF	Backing Store didn't work with Microsoft SQL Server. A JDBC backing store is introduced to address this issue. See <i>TIBCO BusinessEvents Administration</i> for details on setting up the backing store.
3.0.2	1-9ZYKX5	In rare cases, a <code>NullPointerException</code> was thrown by <code>ClusterMemberListener</code> during startup.
3.0.2	1-9ZUQ33	Composite state to-boundary and from-boundary self-transitions did not re-enter the composite state when the self-transition rule fired.
3.0.2	1-9ZIOQS	With database concepts, the database connection failed to reconnect after a database disconnect.
3.0.2	1-9ZIOKW	With database concepts, maximum open cursors were exceeded for insert operations.
3.0.2	1-9Y5L3Q	With backing store, "database inconsistent" errors were thrown in some situations. To resolve this issue, add the following property to all engine TRA files: <code>be.engine.cluster.isCacheAside true</code>
3.0.2	1-9DLMD9	The utility <code>be-oradeploy</code> did not split SQL statements into multiple lines when a line exceeded the maximum number of characters per line (2499). This was causing the create view statement to fail. (Such long lines are possible with concepts that have a huge number of properties.)
3.0.2	1-9Y1WWZ	It was not possible to reply to a JMS message using a synchronous JMS reply using the <code>Event.replyTo(reqevent, replyevent)</code> function.
3.0.2	1-9Y5KN4	The keyword "time" can now be used in OQL queries, for example when it is the name of a property you want to use. To use a keyword, you must escape it with the pound sign (#), for example <code>#time</code> .
3.0.2	1-9XYARG	Under some conditions, a <code>NullPointerException</code> was thrown when starting an inference agent.
3.0.2	1-9XYAQT	Catalog functions from the Date category were causing errors when used in OQL queries.
3.0.2	1-9XQXWN	Catalog functions <code>Channel.getAllDestinations()</code> and <code>Channel.getSuspendedDestinations()</code> were added to handle certain migration issues.

Closed in Release	Defect #	Summary
3.0.2	1-9XQXXT	After restarting an inference engine, the Rete network would sometimes build only partially for concepts that had a property of type <code>ConceptReference</code> .
3.0.2	1-9XQXTY	When using a backing store, there was sometimes an incomplete recovery of "Cache + Memory" concept instances from the backing store. This would happen for concepts with a property of type <code>ConceptReference</code> , where the type of the actual referenced concept instance was a subtype of the declared referenced concept type (due to inheritance).
3.0.2	1-9WP4CO	When using <code>Coherence.Query.C_QueryAndLoadConcepts()</code> function to load and modify an object inside a rule, the modified object was not reloaded from cache after the query.
3.0.2	1-9NTMQB	TIBCO Designer would hang when double byte characters were used in a mapper function, or in the same rule language block as a mapper function.
3.0.2	1-9MX2MV	<code>Temporal.History.alwaysIncreasingInt()</code> had incomplete and incorrect documentation. Tooltip and documentation was changed to properly explain sampling and how the function works.
3.0.2	1-9MX2LH	The function <code>Temporary.Statistic.avgOverTimeInt()</code> did not return the expected value.
3.0.2	1-9RZ4BX	It was taking a long time to load cache data into the backing store. Recovery times have been improved.
3.0.2	1-9TWAR6	The Cache <code>Coherence.C_CacheLoad*</code> functions were asserting objects and triggering rules. Now the behavior is as it was in the 2.2 release. Although the objects are loaded into working memory, the objects are not asserted and their presence does not trigger rules. The internal Rete join structures are updated, however.
3.0.2	1-9TLINB	When a decision table was approved, class files for the compiled table did not generate in the configured deployment directory. By default, the deployment directory is <code>RMS_Project/deployment</code> . (This issue was introduced in BusinessEvents 3.0.1 hotfix3.)

Closed in Release	Defect #	Summary
3.0.2	1-9TKTDG	OQL queries that contained joins (more than one source in the FROM clause) were not clearing the memory they had allocated, even after the <code>close()</code> operation on the <code>QueryStatement</code> .
3.0.2	1-9T9W XK	<p>When a new concept type was added to a TIBCO Designer project stored in XML Canon, the save operation failed with a null pointer exception.</p> <p>Note: This fix requires the TIBCO Runtime Agent 5.6.1 Hotfix1 release.</p>
3.0.2	1-9QE KPU	Fields in nested Rendezvous messages were not accessible using XPath functions.
3.0.2	1-9S2KJN	When a preprocessor for an event failed due to an exception, <code>BusinessEvents</code> attempted to reprocess the event. This was not desirable for some situations. A checkbox labelled "Retry on Exception" has been added to the Simple Event resource (in TIBCO Designer). When the checkbox is unchecked for an event type, <code>BusinessEvents</code> does not attempt to reprocess events of that type when the event's preprocessor fails due to an exception.
3.0.2	1-9RYREM	It was not possible to control the start of a state machine independently from the creation of the concept.
3.0.2	1-9RXULL	RMS server would not start and threw a <code>NullPointerException</code> .
3.0.2	1-9RULIW	For state machine states with a long timeout period, the state machine timeout action did not always update the concept property.
3.0.2	1-9RULI1	For state machine states with a short timeout period, the state machine timeout sometimes fired two times.
3.0.2	1-9RJ R9E	In state machines with a self transition rule, an infinite loop occurred: the rule continued to fire even if there were no changes to the concept.
3.0.2	1-9RH46E	Sometimes a scheduler was erroneously acquired by more than one engine, resulting in incorrect behavior of the scheduler, including state machine timeout issues.
3.0.2	1-9RDDQK	When a state machine state timed out and the current state was reached after using the option "Timeout State Choice: Specified state", the transition did not fire on receiving an event.

Closed in Release	Defect #	Summary
3.0.2	1-9RCQJF	With Cache object management, the catalog function <code>Instance.PropertyArray.appendConceptReference()</code> threw a <code>ClassCastException</code> .
3.0.2	1-9QZFDD	When the <code>Instance.Deleteinstance()</code> catalog function was used in an event preprocessor, it did not delete the concept.
3.0.2	1-9QLJSG	When generating an XML payload with substituted abstract elements, BusinessEvents did not include the namespace definition needed to resolve the <code>xsi:type</code> attribute of the abstract elements. This caused the XML payload to be invalid.
3.0.2	1-9QAEXL	When it lost connection with the Oracle backing store, BusinessEvents threw exceptions for read operations but did not retry. Now BusinessEvents retries the operations until the connection is restored.
3.0.2	1-9PDW2Q	To address difficulties with source control systems, you can now define standalone state machines and standalone rules at design time, which enables more granular checkin and checkout options.
3.0.2	1-9OBI1X	<p>To address minor difficulties in using the user interface, the following enhancements have been added:</p> <ul style="list-style-type: none"> Rule function navigation: It can be hard to locate a rule function in large projects. Now you can Ctrl + Right-click on the rule function hyperlink in the rule editor. The rule function opens in the editor and the project ontology tree also expands to show the rule function. In the BusinessEvents Archive Object Management and Input Destinations tabs, the default column width now displays the contents better.
3.0.2	1-9NK26X	With In Memory object management, <code>REGISTRATION.COLLISION RVC</code> M advisory messages were thrown when RVC transport was used for BusinessEvents channels.
3.0.2	1-9N8LSR	As explained in 1-9LQQJ1 below, if you did not use database concepts, you had to add the <code>be.dbconcepts.dburi</code> property to the <code>be-engine.tra</code> file, with no value. Doing so prevented BusinessEvents from making unnecessary JDBC connections. Now BusinessEvents makes connections for database concepts only when they are specified as the value of the <code>be.dbconcepts.dburi</code> property.

Closed in Release	Defect #	Summary
3.0.2	1-9LFW74	In BusinessEvents-ActiveMatrix BusinessWorks in-process integration projects that use Persistence OM, BusinessEvents did not correctly return concepts with contained concept arrays when called using Invoke RuleFunction activities.
3.0.2	1-9K7XVH	Query Engine hot deployment failed with a <code>NullPointerException</code> when the hot-deployed EAR contained a modified rule function.
3.0.2	1-992R4P	<p>BusinessEvents did not set the JMS <code>JMSReplyTo</code> header property in outgoing JMS messages. Now, if an event has a string type property named <code>JMSReplyTo</code> (case sensitive), BusinessEvents reads this event property value as a JMS queue or topic name (according to the event's default destination type). BusinessEvents looks up the <code>javax.jms.Destination</code> on the connected JMS server using this queue or topic name. If BusinessEvents cannot find one, it creates a new <code>javax.jms.Destination</code> using the given queue or topic name, it then sets the outgoing JMS message's <code>JMSReplyTo</code> header property.</p> <p>However, BusinessEvents does not create a listener for the destination specified in the event's <code>JMSReplyTo</code> property.</p>
3.0.2	1-98Z4YO	BusinessEvents did not set the client identity certificate defined in a JMS Shared Resource.
3.0.2	1-8TA5SI	<p>BusinessEvents did not extract the JMS <code>JMSReplyTo</code> header property from incoming JMS messages. Now, if an event has a string type property named <code>JMSReplyTo</code> (case sensitive), BusinessEvents gets the destination (queue or topic) name from an incoming JMS message's <code>JMSReplyTo</code> header property, and sets the event's <code>JMSReplyTo</code> property value.</p> <p>However, BusinessEvents does not create a destination for this queue or topic name, and does not automatically send a reply event through this <code>JMSReplyTo</code> destination.</p>
3.0.2	1-9LC1ZQ	Continuous queries did not process newly modified entities properly.

Closed in Release	Defect #	Summary
3.0.2	1-9LC21B	<p>State machine timeouts did not work correctly in certain cases. Now the default value of the following properties is 10000 ms:</p> <pre>be.engine.cluster.smttimeout.refreshAhead be.engine.cluster.smttimeout.pollInterval</pre> <p>If you do not use default values, provide the same value for both properties. If they are set to different values, BusinessEvents uses the higher value.</p>
3.0.2	1-9LC20T	<p>With Cache object management, entities were not retrieved correctly using any of the following BusinessEvents catalog functions, unless a lock was first acquired using <code>Coherence.C_Lock()</code>:</p> <pre>Coherence.C_CacheLoadConceptByExtId(); Coherence.C_CacheLoadConceptById(); Coherence.C_CacheLoadConceptIndexedByExtId(); Coherence.C_CacheLoadConceptsByExtId(); Coherence.C_CacheLoadEntity(); Coherence.C_CacheLoadEventByExtId(); Coherence.C_CacheLoadEventById(); Coherence.C_CacheLoadParent()</pre>
3.0.2	1-9LC1YT	<p>With Cache object management, the scheduler created by one engine was not visible in another engine.</p>
3.0.2	1-9KBBCB	<p>With Cache object management, channels using RVCN transports did not connect unless the channel contained an enabled input destination. Messages could not be sent from the BusinessEvents engine through channels that used RVCN transports and had no enabled input destination.</p>
3.0.2	1-9M28XD	<p>Cache servers always connected to channels, creating unnecessary connections. Now you can disable channel connections for cache servers by setting the following new property to true:</p> <pre>be.engine.cacheServer.channel.disable=true</pre> <p>The default value is false, so that all channels are enabled (for backward compatibility).</p>

Closed in Release	Defect #	Summary
3.0.2	1-9LQI27	<p>BusinessEvents checked that external IDs (@extId) of entities were unique within the agent, and did not check across the cluster. You can now check for uniqueness of external IDs across the cluster. To do so, set the following property to true:</p> <pre>Agent.AgentGroupName.checkDuplicates=true</pre> <p>Performing this check affects performance so use it with care. If you do not set this property, uniqueness of external IDs is checked within the agent, as before.</p>
3.0.2	1-9GHUIM	With Persistence object management, events sent from BusinessEvents did not contain expected properties.
3.0.2	1-9LYTYP	With Cache object management, when you used hot deployment, the BusinessEvents engine did not add new rule sets and did not drop deleted rule sets.
3.0.2	1-9M1IOH	With Cache object management, when the property <code>be.engine.cluster.multiEngineOn</code> was set to false, state machine states did not time out.
3.0.2	1-9M5FLJ	With Cache object management, when the property <code>be.engine.cluster.hasBackingStore</code> was set to true, state machine states did not time out.

Closed in Release	Defect #	Summary
3.0.2	1-9LQQJ1	<p>Note: The behavior explained in this CR is modified in a later CR: 1-9N8LSR (see above).</p> <p>By default, database connections were created for all JDBC shared resources in a project's Shared Archive (SAR), including those used for a backing store. This could result in too many inactive connections.</p> <p>You can now limit the number of connections using the property <code>be.dbconcepts.dburi</code>. For backward compatibility, if the property is not specified, BusinessEvents will still create these connections for database concepts, even if you do not use database concepts.</p> <p>To specify the JDBC connections for which you want to create connections used by database concepts, add the <code>be.dbconcepts.dburi</code> property to the engine TRA file and provide a comma delimited list of the connections, using their project path. For example:</p> <pre>be.dbconcepts.dburi=/SharedResources/Con/JDBC/DataSource_1 .sharedjdbc,/SharedResources/Con/JDBC/DataSource_2.sharedj dbc</pre> <p>To prevent any connections being made for database concepts, add the property but do not specify a value:</p> <pre>be.dbconcepts.dburi=</pre>

Closed in Release	Defect #	Summary
3.0.2	1-9M28SW	<p>REGISTRATION.COLLISION RVCN advisory message es were thrown when RVCN transport was used for BusinessEvents channels in a multi-engine deployment (of cache servers or inference agents or both). These name collisions could result in thrashing.</p> <p>To prevent this issue, you must add global variables to the CM Name or CMQ Name, and to the ledger file name if a ledger file is used for RVCN, to ensure the uniqueness of these names.</p> <p>Add one or more of the following variables, depending on need (as explained below):</p> <p>%%EngineName%% %%ChannelName%% %%ChannelURI%%</p> <p>The %%EngineName%% variable is generally required for all names. Note that you must start engines using unique names so that the value of each engine's %%EngineName%% variable be different at runtime.</p> <p>In addition, if different channels use the same RVCN shared resource, you also need to add %%ChannelName% or %%ChannelURI%%. (Use %%ChannelURI%% in cases where channels using the same RVCN shared resource have the same name but are in different folders.)</p> <p>You must define any of the above String type global variables you use. They are not predefined in TIBCO Designer. However, BusinessEvents provides the value at runtime, so you can use any string value or use an empty string as the value when you define the variables.</p> <p>Do not add any of the above global variables for RVCN shared resources used by non-BusinessEvents activities such as the Publish Rendezvous Message activity.</p>

Closed in Release	Defect #	Summary
3.0.2	1-9K4542	<p>If you created a JMS queue or topic destination without specifying a value in the queue or topic Name field, BusinessEvents sent messages to such destinations. However this sometimes caused the TIBCO Enterprise Message Service server to fail, due to a defect in the Tibco Enterprise Message Service 4.4.2 64-bit version.</p> <p>Now when the BusinessEvents engine initializes and connects the JMS channels and their destinations, BusinessEvents ignores JMS destinations with null or empty-string queue or topic names. It logs an error message for the ignored destinations.</p> <p>If a JMS message is sent out through an ignored destination, BusinessEvents throws an exception and the message is not sent out. BusinessEvents also does not receive JMS messages (events) through these ignored destinations.</p>
3.0.2	1-9JMCSU	Because of a defect introduced in the 3.0.1 release, BusinessEvents was unable to start in API mode.
3.0.2	1-9JFGF2	<p>When a cache server was restarted, it performed automatic cleanup of the entries in the DeletedEntities table. This activity could sometimes affect performance.</p> <p>Cleanup of deleted entities at cache server startup is now optional. You can do the following instead, to help reduce startup time:</p> <ul style="list-style-type: none"> Set the following property to false: <code>be.engine.cluster.cleanup=false</code> (It is true by default.) When set to false, cleanup of deleted entities is skipped. The OracleDeployment utility now generates the following script: <code>xxx_delete.sql</code> Run this script to delete the entities in the DeletedEntities table from the backing store. You can run the script even when the system is running.
3.0.2	1-9IYQH7	The BusinessEvents engine threw an exception when using JMS connection with JNDI unless you specified both Queue Connection Factory and Topic Connection Factory.

Closed in Release	Defect #	Summary
3.0.2	1-9HX30J	<p>With Cache object management, <code>extIds</code> must be unique across all concept and event instances. You cannot retrieve an event instance if its <code>extId</code> is also used by a concept instance. Similarly, you cannot retrieve a concept instance if its <code>extId</code> is also used by an event. The BusinessEvents engine did not throw an exception in the above case.</p> <p>Now the engine throws a <code>ClassCastException</code> when creating a concept with an <code>extId</code> that is already in use by an event, and when creating an event whose <code>extId</code> is already in use by a concept.</p>
3.0.2	1-9GEI76	The BusinessEvents backing store feature did not release the Oracle temporary space that deals with CLOBs.
3.0.2	1-9G6VVA	The BusinessEvents backing store feature did not allow any username except the owner of backing store schema to access the database. Now if you want to allow another username to access the database, you can configure the database accordingly.
3.0.1	1-9D1IFZ	<p>Some of the JVM settings given in the engine properties file, <code>be-engine.tra</code>, did not work for all platforms, and some platforms use additional, platform-specific parameters.</p> <p>For the AIX platform the property <code>-d64</code> (passed as an argument to the <code>be-engine</code> command in the <code>be-engine.tra</code> file) has been removed.</p> <p>Note that no single file can provide all the appropriate settings. Consult the appropriate JVM reference manual and ensure the correct settings are used for your platform.</p>
3.0.1	1-9BYXIN	JNDI and JMS shared resources successfully connected to EMS via SSL without certificates in TIBCO Designer. However after validating, building and running project the connection failed. Internally TCP was substituted for SSL in the connection URL.

Closed in Release	Defect #	Summary
3.0.1	1-9ACGHV	<p>The following Oracle connection pool limit properties for backing store database, set in <code>be-engine.tra</code>, were ignored by the cache server and engine:</p> <pre>be.oracle.dburi.pool.initial.0 be.oracle.dburi.pool.min.0 be.oracle.dburi.pool.max.0</pre> <p>To enforce a pool size, you must also set the following property to true (it is false by default):</p> <pre>be.oracle.dburi.pool.enforce.0 true</pre>
3.0.1	1-98ZMWP	<p>In the 3.0.0 release, the <code>MultipleDataSources</code> example and <i>TIBCO BusinessEvents User's Guide</i> provided information about using two backing store databases for limited fault tolerance with manual switching. This functionality has not been tested and was included by mistake. The example and the documentation have been removed.</p>
3.0.1	1-97YTTY	<p>This issue arose in 2.x style fault tolerance (now used for in memory object management only). When running multiple BusinessEvents engines from the same TRA file, which specified <code>be.ft.nodename</code> (thus using same the value for different engine nodes), the second engine came up and then shut down correctly giving an exception that an engine with the specified node name already exists. However, when the second engine was restarted again it incorrectly started as primary when a primary engine was already running.</p>
3.0.1	1-97QJDJ	<p>When running in cache mode, it was possible for multiple objects using the same id to block on calls to acquire a lock.</p>
3.0.1	1-97G8N0	<p>In BusinessEvents-ActiveMatrix BusinessWorks in-process integration projects, setting a selector in a JMS reply destination caused an invalid selector syntax exception to be thrown when the ActiveMatrix BusinessWorks tester started.</p>
3.0.1	1-97AXET	<p>Engines were unable to reconnect to the backing store database when a lost connection was restored.</p>

Closed in Release	Defect #	Summary
3.0.1	1-975GHR	In 2.x style fault tolerance (now used for in memory object management only) BusinessEvents engine names generated during Administrator based deployment were greater than 30 characters in size and failover/failback was not successful. Now for deployment in a TIBCO Administrator domain, the last 30 characters of the generated engine name are used as the node name, when a new engine property <code>be.ft.nodename</code> is not used in the administrator generated TRA file. For deployment outside an administration domain (command line deployment), a new engine property has been added: <code>be.ft.nodename</code> . Provide a unique node name for each node that is 30 characters or less using this property.
3.0.1	1-96ZE1W	In query agent mode, the JMS listeners were being enabled before the engines were initialized, resulting in a <code>java.lang.IllegalArgumentException</code> .
3.0.1	1-96ZDXZ	When running in query agent mode with a destination whose <code>ackmode</code> property was set to <code>EXPLICIT_CLIENT_ACKNOWLEDGE</code> (TIBCO Proprietary), the system was not automatically acknowledging messages.
3.0.1	1-96NBNH	Autogenerated <code>ClientId</code> of JMS connection was not working as expected for BusinessEvents engine.
3.0.1	1-96M3M9	The ActiveMatrix BusinessWorks tester would hang when you loaded two ActiveMatrix BusinessWorks processes each with a BusinessEvents "Wait For Event" resource that used the same destination (an EMS durable subscriber topic).
3.0.1	1-96JU2S	Applications with multiple rule functions could not be compiled.
3.0.1	1-96GHE6	The BusinessEvents engine was freezing under moderate loads.
3.0.1	1-950FB2	When shutting down BusinessEvents inference engines, the inference engines threw a null pointer exception.
3.0.1	1-94ZYAT	BusinessEvents engines showed intermittent memory issues and loss of events.
3.0.1	1-94ZY9P	BusinessEvents inference engines were hanging after processing for some time.

Closed in Release	Defect #	Summary
3.0.0	1-9148Q5	This issue could occur when generating a schema for a backing store. When creating SQL scripts, BusinessEvents sometimes created duplicate CacheID columns in Views.
3.0.1	1-90ULBP	The Event-Payload column was being generated with a name longer than 30 characters, but no entry was made in the aliases file (used to set up the backing store database).
3.0.0	1-8ZDXWJ	<p>When an event payload did not have a <code>targetnamespace</code> attribute, BusinessEvents gave a namespace error, expected namespace: "null"</p> <p>Now BusinessEvents only validates the top-level namespace and does not do validation in the following cases:</p> <ul style="list-style-type: none"> Event payload top node content is Any Element (regardless of validation level configuration). Event payload schema does not have a <code>targetnamespace</code> attribute.
3.0.1	1-8Z5RW9	When using cache object management with a backing store, and a concept or event string property exceeded 4000, characters, an Oracle error, ORA-01461 would sometimes occur.
3.0.0	1-8XV096	<p>ActiveMatrix BusinessWorks processes with process starters, running inside a BusinessEvents container, could use up the number of threads defined by <code>Engine.ThreadCount</code> for the <code>InvokeRuleFunction</code> activity, when BusinessEvents <code>BusinessWorks.invokeProcess()</code> was again called in the invoked rule function. Also, a deadlock situation could occur when the timeout input argument specified for <code>BusinessWorks.invokeProcess()</code> was too long.</p> <p>Now BusinessEvents allocates its own thread and releases all ActiveMatrix BusinessWorks threads for the <code>InvokeRuleFunction</code> activity.</p> <p>Note that TIBCO recommends that you use the asynchronous <code>BusinessWorks.startProcess()</code> instead of <code>BusinessWorks.invokeProcess()</code> when the invoked ActiveMatrix BusinessWorks process may take an unknown time to finish.</p>
3.0.0	1-8UH6AF	Entity definitions used by <code>InvokeRuleFunction()</code> are now automatically added to Shared Resources in the EAR.

Closed in Release	Defect #	Summary
3.0.0	1-8SKE1F	<p>When an event payload data namespace was not confined to the payload schema, BusinessEvents threw an exception but left the message on the JMS queue.</p> <p>BusinessEvents now asserts an AdvisoryEvent for such an event, creates the event without the payload (event@payload=null), and acknowledges the message.</p>
3.0.0	1-8EEPYL	The name of the compilation directory used when building the EAR is now different for each build to avoid collisions on UNIX systems.
3.0.0	1-89JBT1	BusinessEvents did not throw any exception (Advisory event) when receiving a message with a different namespace from that defined in the event. The received event payload elements were all null.
3.0.1	1-7Z7E7O	<p>The BusinessEvents engine failed with the following message while trying to confirm the first message it receives if there is no pre-registered listener.</p> <p>Error [Tibrv_Dispatcher] - TibrvException[error=27,message=Not permitted]</p>
3.0.1	1-73T8N1	BusinessEvents could not connect to EMS Using SSL.

Known Issues

The table in this section lists known issues in this release

Defect #	Summary/Workaround
1-AV1LWV	<p>Summary When starting the BusinessEvents engine, a <code>java.lang.NoClassDefFoundError: javax.jms.Message</code> exception is thrown even if the project does not have a JMS Channel.</p> <p>Workaround - Add EMS Client jars to the classpath of the BusinessEvents engine.</p>
1-AV0P1J	<p>Summary On the AIX platform, when a backing store is used, a <code>NoClassDefFoundError</code> is thrown when trying to start engines.</p> <p>Workaround Change the <code>TIBCO_SECURITY_VENDOR</code> from <code>j2se</code> to <code>ibm</code> in the <code>be-engine.tra</code> file.</p>
1-AUXGH5	<p>Summary The rule language does not support property arrays..</p> <p>Workaround None. The return type of <code>getAllProperties(Concept instance)</code> <code>Property[]</code> is not recognized by the Rule Language.</p>
1-AUP2JZ	<p>Summary If the user types <code>be-engine</code> at the command line, without any parameters, a <code>NullPointerException</code> is thrown instead of a meaningful error message.</p> <p>Workaround Provide the required proper parameters.</p>
1-AUOVKY	<p>Summary The command-line buildear tool does not work for new projects created in BusinessEvents Studio. It works only on projects that are imported from previous (TIBCO Designer-based) versions of BusinessEvents.</p>
1-AUOTY9	<p>Summary In a new BusinessEvents Studio project, while creating a state machine, an exception such as the following was sometimes seen in the error log</p> <pre>java.lang.IllegalArgumentException: Index out of bounds</pre>
1-AUOPSX	<p>Summary BusinessEvents Monitoring and Management always uses 9000 as the HTTP port. The global variable <code>tibco.clientVar.HTTPPort</code> doesn't work.</p>
1-AUKJNT	<p>Summary The ActiveMatrix BusinessWorks InvokeRuleFunction activity sometimes throws a <code>java.lang.StackOverflowException</code>.</p> <p>Workaround None.</p>

Defect #	Summary/Workaround
1-AUC5I9	<p>Summary On the Linux platform, when creating projects or importing 3.x TIBCO Designer projects, BusinessEvents Studio stops responding.</p> <p>Workaround Use Redhat Linux Enterprise Linux v5, and configure the Look-and-Feel (LaF) to NimbusLookAndFeel.</p>
1-AUC3NP	<p>Summary If you declare an event using SimpleEvent in a rule function body, the following error displays:</p> <p>Type mismatch - cannot be converted to NewEvent</p> <p>Workaround None.</p>
1-AU45GO	<p>Summary If you change row priority or modify a row in a decision table, and then rebuild an EAR file, the changes are not shown in the EAR file.</p> <p>Workaround Execute the Project > Clean command before building the EAR file.</p>
1-ATZ1SB	<p>Summary When using MQ Series Version 7 as the JMS channel provider, the channel function resumeDestination() does not work for topics. On resuming an infinite loop occurs and the following error displays: Exception while creating consumer.</p>
1-ATPIW7	<p>Summary In a BusinessEvents Studio project, if two project libraries have the same destination, then only one of those destinations appears when you browse for destinations in the CDD Editor.</p> <p>Workaround None.</p>
1-ATIOCK	<p>Summary Debugger throws an org.eclipse.debug.core.DebugException when debugging a project with backing store enabled in the CDD editor.</p>
1-ATHCWN	<p>Summary Migration of data from an Oracle Types based backing store to an Oracle JDBC based backing store is not working.</p> <p>Workaround None.</p>
1-ATETI4	<p>Summary When using the command-line buildear tool to generate an enterprise archive for 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>org.eclipse.core.internal.resources.ResourceException</p>
1-ATA54K	<p>Summary Project Validation is not able to detect a problem if an argument is not provided to a SOAP Fault Catalog function. However, EAR file building fails.</p> <p>Workaround Ensure that arguments are properly provided to the function.</p>

Defect #	Summary/Workaround
1-ASPLV7	<p>Summary If a BusinessEvents 3.x project refers to a project library that has global variables, and the project is imported into BusinessEvents Studio, the project does not have the global variables.</p> <p>Workaround Manually add the global variables.</p>
1-AQSSJF	<p>Summary 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>Workaround Comment the below lines from the <code>log4j.xml</code> file shipped with ActiveMatrix BusinessWorks 5.8.</p> <pre><logger name="tibco.bw.infoRole"> <level value="INFO"/> <appender-ref ref="tibco_bw_log"/> <!-- Add the following appender for Common Logging --> <!-- <appender-ref ref="tibco_bw_BEf2CBEFileAppender"/> --> </logger></pre>
1-AQ39BT	<p>Summary In BusinessEvents Monitoring and Management, if the user stops the engine using the <code>stopEngine()</code> method and then clicks on the Purge button, the connection is lost and the MM Server console shows an exception and stops responding. The MM console also shows "Invalid Cluster Component."</p>
1-APZR58	<p>Summary When using an HTTP or SOAP Channel with the following property:</p> <pre>java.property.com.tibco.cep.runtime.channel.payload.validation=true</pre> <p>Then validation of the output message is not done.</p>
1-APZLY5	<p>Summary The BusinessEvents Monitoring and Management server occasionally throws a <code>NullPointerException</code> when the server is shutting down</p> <p>Workaround None.</p>
1-APYI7V	<p>Summary In BusinessEvents Monitoring and Management, the inference agent method <code>getNumberOfEvents</code> always shows 0 in the result even though rules are getting fired for events.</p>
1-APY6Z5	<p>Summary When using the SOAP Channel with the following property:</p> <pre>com.tibco.cep.runtime.channel.payload.validation=true</pre> <p>Then if the header is not provided in the <code>SOAPEventIn</code> payload, and the incoming request has a header, an exception is thrown for the <code>mustUnderstand</code> attribute.</p>

Defect #	Summary/Workaround
1-AP0B0E	<p>Summary 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>
1-AOYCIZ	<p>Summary When a TIBCO Designer project that uses Cache Object Management and also has a reference to a project library is imported into BusinessEvents Studio, an exception is thrown when the user attempts to open the CDD file in the CDD Editor.</p> <p>Workaround None.</p>
1-AOWYMM	<p>Summary Running the be-migration tool causes a NullPointerException.</p> <p>Workaround None.</p>
1-AOU8HH	<p>Summary If the name of a start-up rule function is modified in a BusinessEvents Studio project that is created by importing from a TIBCO Designer project from a previous version of BusinessEvents, then at runtime a <code>java.lang.RuntimeException</code> is thrown: <i>RuleFunction new RuleFunction name does not exist.</i></p> <p>Workaround None.</p>
1-AOU8A8	<p>Summary In a JMS Connection Shared Resource, if a global variable is provided in the Provider URL field, an exception is thrown complaining that the URL is invalid, even when it is a valid URL.</p> <p>Workaround None.</p>
1-ANUYMG	<p>Summary Refactoring does not work well in the Domain Objects section of the Cluster tab in the CDD Editor. Changes made to BusinessEvents entities such as events, concepts and so on are not reflected in this section of the editor.</p> <p>Workaround None.</p>
1-AMQMGB	<p>Summary Project Validation does not throw any errors if a non-existent global variable name is used in some BusinessEvents entities such as Shared Resources and channels.</p> <p>Workaround None.</p>
1-AMFHMO	<p>Summary In the BusinessEvents Studio Debugger, an "Unhandled Event Loop Exception" and an Asynchronous Viewer Update Error are shown while stepping (that is, while pressing F5 and F7).</p> <p>Workaround None.</p>

Defect #	Summary/Workaround
1-ALY1P5	<p>Summary 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>Workaround None.</p>
1-ALFBZP	<p>Summary The tooltip for the <code>Coherence.Query.C_StoreQueryAction()</code> function is not correct.</p> <p>Workaround None.</p>
1-AL7I6J	<p>Summary The function <code>Event.createEvent()</code> is synchronized, causing performance issues.</p> <p>Workaround None</p>
1-AL48TT	<p>Summary The number of worker threads is limited to eight.</p> <p>Workaround None.</p>
1-AKGJMT	<p>Summary Using the XSLT mapper to create multiple concepts related by concept properties results in broken references if a <code>DuplicateExtId</code> exception is thrown because one of the new concepts has an <code>extId</code> that already exists.</p> <p>Workaround None.</p>
1-AKFLX2	<p>Summary Global variable initialization is not synchronized, allowing uninitialized data to be read for a short time after startup.</p> <p>Workaround None.</p>
1-AK8DMR	<p>Summary Rule functions from Project Libraries are not available for adding as startup rule functions in the CDD Editor.</p> <p>Workaround None.</p>
1-AK55ZF	<p>Summary If the Identity Resource inside an HTTP Shared Resource SSL Configuration is renamed, the new name is not reflected in the shared resource.</p> <p>Workaround None.</p>
1-AK3XNO	<p>Summary Tooltips for functions <code>Instance.isNew()</code> and <code>Instance.isModified</code> are incomplete.</p> <p>Workaround None.</p>

Defect #	Summary/Workaround
1-AJ7M0T	<p>Summary 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 BusinessEvents engine throws a NullPointerException when deserializing an event with payload.</p> <p>Workaround Keep only the XSD that you need in your BusinessEvents Studio project and remove the ones that are not needed.</p>
1-AJ0M8U	<p>Summary When used with Websphere MQ version 7, BusinessEvents does not work with the "Shared Queues and Threads" or "Workers Threads" options for the input destinations Workers field in the BAR resource.</p> <p>Workaround None.</p>
1-AJ00L8	<p>Summary You cannot generate a JAR file for decision tables for testing purposes.</p> <p>Workaround None.</p>
1-AJ00IJ	<p>Summary With Decision Manager, when you click "Generate Class" for several tables, the software delete any existing classes in the Deployment directory, and only the last class generated remains.</p> <p>Workaround None.</p>
1-AIIOMF	<p>Summary BusinessEvents Studio does not allow creation of two shared resources with names that are the same except for differences in case, for example, JMS and Jms. The editor exits when this happens.</p> <p>Workaround Ensure that names are unique independent of case.</p>
1-AGWRLS	<p>Summary 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>Workaround Manually update to the new name.</p>
1-AGP9MQ	<p>Summary 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>Workaround Use Shared Resource as the method of configuration, if you need to use SSL.</p>
1-AF5OHI	<p>Summary 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>Workaround Create these global variables manually.</p>

Defect #	Summary/Workaround
1-AEQ6AE	<p>Summary 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>Workaround None.</p>
1-AE3GXX	<p>Summary In JMS channels, <code>CLIENT_ACKNOWLEDGE</code> acknowledgement mode does not roll back prefetched and unacknowledged JMS messages to the queue when the BusinessEvents engine stops responding.</p> <p>Workaround None.</p>
1-ACEPVA	<p>Summary While using BusinessEvents Studio on Linux, BusinessEvents Studio may sometimes stop responding, and you can't complete the operation</p> <p>Workaround Restart BusinessEvents Studio and complete the operation.</p>
1-ABW7KZ	<p>Summary If the payload of a <code>SOAPEvent</code> is invalid or has been deleted, and another event inherits from this event, project validation does not show that the payload of the inheriting event is invalid or had been deleted.</p> <p>Workaround None.</p>
1-ABTGG7	<p>Summary BusinessEvents Studio cannot Reset to the original schema after having made changes to the schema in a mapper.</p> <p>Workaround Undo the changes manually.</p>
1-ABDH3C	<p>Summary Even after successful generation of the EAR file, BusinessEvents Studio may not always show the message "Ear File was successfully generated."</p> <p>Workaround Check whether the EAR file generated or not.</p>
1-AAPOAR	<p>Summary The function <code>Coherence.Constants.C_DateTimeConstant()</code> takes an input parameter with a datetime format. The format is not shown in the function tooltip.</p> <p>Workaround The format is <code>yyyy-MM-dd HH:mm:ss z</code>.</p>
1-AAIKDF	<p>Summary It is not possible to migrate data from an Oracle-only backing store to a JDBC backing store.</p> <p>Workaround None.</p>
1-A9NV7E	<p>Summary Bind variables are not supported in the <code>limit</code> clause of a query.</p> <p>Workaround None.</p>

Defect #	Summary/Workaround
1-A3OFBZ	<p>Summary Microsoft SQL Server 2005 <code>datetime</code> data type does not support years before 1753. Because of this, if your application generates dates prior to 1753, you'll receive errors while running BusinessEvents.</p> <p>Workaround Microsoft SQL Server 2008 has added a new data type, <code>datetime2</code>, which has a date range of 0001/01/01 through 9999/12/31. Therefore, if you are using Microsoft SQL Server 2008, then you can manually change the generated SQL script (DDL) for your backing store, and replace any affected columns' data type from <code>datetime</code> to <code>datetime2</code>.</p>
1-A3OFA9	<p>Summary With an SQL Server backing store, deadlock can occur if multiple rules attempt to update one scorecard at the same time, and at high frequency.</p> <p>Workaround Drop the index on the database table for the scorecard. A scorecard has one index. The index name format is <code>i_d_scorecard</code>. For example, if the scorecard name is <code>foo</code>, the index name is <code>i_d_foo</code>.</p>
1-A3EPZ9	<p>Summary The silent uninstaller does not uninstall anything in TIBCO BusinessEvents 4.0.0</p> <p>Workaround Use the GUI Uninstaller instead.</p>
1-A06G9K	<p>Summary Deleting an object and then calling <code>getByExtId()</code> with the deleted object's <code>extId</code> throws a duplicate <code>extId</code> exception.</p> <p>Workaround None.</p>
1-9VVKP5	<p>Summary With Oracle backing store, when a table becomes corrupted, the cache server will retry multiple times in quick succession till no more Oracle cursors were available, and a <code>max_cursor</code> exception is thrown.</p> <p>Workaround None.</p>
1-9CDYRL	<p>Summary Starting with the 3.0 release, the BusinessEvents API works only with In Memory object management. (It does not work with Persistence or Cache object management).</p> <p>Workaround None.</p>
1-996AVQ	<p>Summary BusinessEvents adds pretty print (formatting) characters to the XML data which is received from, sent from, or sent by an event.</p> <p>Workaround None. This is a harmless condition.</p>

Defect #	Summary/Workaround
1-97SSVS	<p>Summary With in-process BusinessEvents-ActiveMatrix BusinessWorks integration, when ActiveMatrix BusinessWorks is running inside a BusinessEvents container that is in fault tolerance mode, <code>Invoke RuleFunction</code> activity may cause an exception when the primary BusinessEvents engine restarts.</p> <p>Workaround Set the <code>Agent.AgentGroupName.priority</code> property to the same value in all nodes where members of the agent group are deployed.</p>
1-97NO7E	<p>Summary In step mode, Rule Debugger should pause after each rule executes but it does not. Rules execute without pause.</p> <p>Workaround None.</p>
1-945NL1	<p>Summary Rule Debugger does not show some rules that the console shows were executed.</p> <p>Workaround None.</p>
1-93CE6B	<p>Summary In TIBCO Designer, When you rename a folder that contains concepts the project fails validation.</p> <p>Workaround Create a new folder and move contents to that folder.</p>
1-93CDZ9	<p>Summary TIBCO Designer UI validation does not prevent you from naming a folder using a reserved word. For example, you can name the folder concept or event. However, when you validate the project an error is returned.</p> <p>Workaround None. Refer to the list of reserved words in <i>TIBCO BusinessEvents Language Reference</i> and avoid using them.</p>
1-934QK1	<p>Summary TIBCO BusinessEvents Rule Debugger does not update the contents of the console window automatically. Check and uncheck Show Console from the View menu to see the changes.</p> <p>Workaround To update the contents of the console window, in the View menu, check and uncheck the Show Console option.</p>
1-91OKM5	<p>Summary The profiler utility does not write data when stopped using <code>Engine.Profiler.stopCollecting()</code> or <code>stopFileBasedProfiler()</code> Hawk method or by stopping the engine. It writes data only at the end of the duration period.</p> <p>Workaround Specify a valid duration period in seconds when setting BusinessEvents properties, calling <code>Engine.Profiler.startCollectingToFile()</code> function, or invoking <code>startFileBasedProfiler()</code> Hawk method.</p>

Defect #	Summary/Workaround
1-919P9B	<p>Summary You cannot assign a DateTime to a bind variable in queries.</p> <p>Workaround In the query, use <code>/#Datetime/parseLong(\$milliseconds)</code> and pass a long integer in <code>\$milliseconds</code>.</p>
1-919P89	<p>Summary The <code>@length</code> attribute of arrays does not work in queries.</p> <p>Workaround Write and use a rule function to return the length of the array.</p>
1-9146V5	<p>Summary In queries, the type of a bind variable is enforced by its surrounding expression.</p> <p>Workaround 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"> • For int and long use: <code>(\$x + 0)</code> • For double use: <code>(\$x + .0)</code> • For String use: <code>(\$x "")</code> • For Boolean use: <code>(\$x or false)</code> • For DateTime, pass a long instead of a DateTime and use: <code>/#Datetime/parseLong(\$x)</code>
1-8ZU5H1	<p>Summary It is not possible to define service level custom BusinessEvents engine properties in the TIBCO Administrator user interface.</p> <p>Workaround None.</p>
1-8YQ76V	<p>Summary When multiple BusinessEvents projects are opened in TIBCO Designer and you switch between the open projects, you will notice the ontology functions are all from the same project.</p> <p>Workaround Run multiple instances of TIBCO Designer, instead of one instance.</p>
1-8YHHBD	<p>Summary When ActiveMatrix BusinessWorks is contained within 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>Workaround Manually place the JAR files in the classpath.</p>
1-8XV0AL	<p>Summary When using the BusinessEvents API, the reset method throws an NPE when scorecards are used in conditions or actions.</p> <p>Workaround This is harmless. Ignore the exception.</p>

Defect #	Summary/Workaround
1-8PV58A	<p>Summary Multiple BusinessEvents instances on one machine cannot use the same db store directory.</p> <p>Workaround Use different directories or use the migration feature provided in version 3.0 to eliminate this problem</p>
1-8KONZI	<p>Summary In BusinessEvents 2.0 and higher, the <code>getScoreCard()</code> TIBCO Hawk method returns only the first row of the table. The first row is the internal Id of the scorecard. (The same method in version 1.4 returns tabular data of all attributes and properties of the specified scorecard.)</p> <p>Workaround Use the <code>getInstance()</code> method instead.</p>
1-8KLNE4	<p>Summary 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>Workaround 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>
1-8K7EKA	<p>Summary When using an RVC channel, a TimeEvent may fire before the RVC channel starts. When the rule triggered by the TimeEvent then sends an event through the RVC channel, a <code>NullPointerException</code> results.</p> <p>Workaround None.</p>
1-8JHMZF	<p>Summary It is not possible to copy a folder containing events or channels or both.</p> <p>Workaround Before copying the folder, select one of the events or channels at least one time. Then you can copy successfully.</p>
1-8A9FA9	<p>Summary 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>Workaround None.</p>
1-86T1B5	<p>Summary When you copy a destination it loses the default event and queue name that was set in the original destination.</p> <p>Workaround Set the values manually.</p>

Defect #	Summary/Workaround
1-86QOZR	<p>Summary Using <code>sendEvent()</code> to send an event to an IBM MQ JMS server fails.</p> <p>Workaround Create two JMS Connection resources and create separate JMS channels for sending and receiving.</p>
1-86D6X7	<p>Summary An error occurs when configuring events as follows: Create an event, event1, with a payload. Then delete the payload. Create a new event, event2, that inherits from event1. Set a payload on event2. Then delete event2. After this, you cannot add a payload to event1.</p> <p>Workaround None.</p>
1-81AYU0	<p>Summary Fault tolerance does not work correctly with RVCN transport</p> <p>Workaround None.</p>
1-7UGVMG	<p>Summary Async checkpoint is not working.</p> <p>Workaround Use sync checkpoint. It is enabled by default.</p>
1-7M7QOT	<p>Summary The hot deployment feature does not handle changes made to non-BusinessEvents resources, specifically JMS or Rendezvous connection resources.</p> <p>Workaround If you need to change these resources, you must restart the BusinessEvents engine.</p>
1-6MMNZW	<p>Summary 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>Workaround Update it manually.</p>
1-6GC7KP	<p>Summary The pop-up auto-complete feature does not work in the following cases:</p> <ul style="list-style-type: none"> Use of <code>@length</code> with a local array variable Use of dot (<code>.</code>) or at sign (<code>@</code>) after a local variable array or property array index element (<code>[]</code>) when the return type is a concept or event Use of dot (<code>.</code>) or at sign (<code>@</code>) after a nested function when the return type is a concept or event <p>Workaround Type it manually or assign the returned concept instance or even instance to a local variable before using the dot(<code>.</code>) or at sign (<code>@</code>).</p>
1-630PGL	<p>Summary Assigning an empty string (<code>""</code>) to a field in a mapper function will result in a null string.</p> <p>Workaround 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>

Defect #	Summary/Workaround
1-4HUI9A	Summary Entity Path in Event .createEvent mapper is not updated when Event's named is changed, and validation/EAR building do not detect this error. Workaround Update the path in the mapper manually.
1-2XLKHJ	Summary When using a mapper function, for example, createInstance, if there is an error in the function argument mapping input, the function does not change to red to indicate an error. Workaround None.