



TIBCO BusinessEvents®

Data Modeling

Release Notes

*Software Release 5.6.1
November 2019*



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Preface

TIBCO BusinessEvents[®] Data Modeling software is an add-on to TIBCO BusinessEvents[®]. It provides database concepts that help you to import database tables and views in TIBCO BusinessEvents as concepts, and state modeler features that enable you to model the lifecycle of concepts.

Topics

- [Typographical Conventions, page vi](#)
- [Connecting with TIBCO Resources, page ix](#)

Typographical Conventions

The following typographical conventions are used in this manual.

Table 1 General Typographical Conventions

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

Table 1 General Typographical Conventions (Cont'd)




Convention	Use
<i>italic font</i>	<p>Italic font is used in the following ways:</p> <ul style="list-style-type: none"> To indicate a document title. For example: See <i>TIBCO ActiveMatrixBusinessWorks Concepts</i>. To introduce new terms. For example: A portal page may contain several <i>portlets</i>. Portlets are mini-applications that run in a portal. To indicate a variable in a command or code syntax that you must replace. For example: <code>MyCommand PathName</code>
Key combinations	<p>Key name separated by a plus sign indicate keys pressed simultaneously. For example: Ctrl+C.</p> <p>Key names separated by a comma and space indicate keys pressed one after the other. For example: Esc, Ctrl+Q.</p>
	The note icon indicates information that is of special interest or importance, for example, an additional action required only in certain circumstances.
	The tip icon indicates an idea that could be useful, for example, a way to apply the information provided in the current section to achieve a specific result.
	The warning icon indicates the potential for a damaging situation, for example, data loss or corruption if certain steps are taken or not taken.

Table 2 Syntax Typographical Conventions

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

Table 2 Syntax Typographical Conventions

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

Connecting with TIBCO Resources

This section provides links to helpful TIBCO resources.

How to Access TIBCO Documentation

Documentation for TIBCO products is available on the TIBCO Product Documentation website mainly in the HTML and PDF formats.

The TIBCO Product Documentation website is updated frequently and is more current than any other documentation included with the product. To access the latest documentation, visit <https://docs.tibco.com>.

Documentation for TIBCO BusinessEvents is available on the [TIBCO BusinessEvents](#) Product Documentation page.

How to Contact TIBCO Support

You can contact TIBCO Support in the following ways:

- For an overview of TIBCO Support, visit <https://www.tibco.com/services/support>.
- For accessing the Support Knowledge Base and getting personalized content about products you are interested in, visit the TIBCO Support portal at <https://support.tibco.com>.
- For creating a Support case, you must have a valid maintenance or support contract with TIBCO. You also need a user name and password to log in to <https://support.tibco.com>. If you do not have a user name, you can request one by clicking **Register** on the website.

How to Join TIBCO Community

TIBCO Community is the official channel for TIBCO customers, partners, and employee subject matter experts to share and access their collective experience. TIBCO Community offers access to Q&A forums, product wikis, and best practices. It also offers access to extensions, adapters, solution accelerators, and tools that extend and enable customers to gain full value from TIBCO products. In addition, users can submit and vote on feature requests from within the [TIBCO Ideas Portal](#). For a free registration, go to <https://community.tibco.com>.

Release Notes

The release notes list the major updates in version 5.6.1 of the product. For information about an earlier version, see the release notes provided with the corresponding version.

Topics

- [New Features, page 2](#)
- [Changes in Functionality, page 5](#)
- [Deprecated and Removed Features, page 7](#)
- [Migration and Compatibility, page 11](#)
- [Closed Issues, page 14](#)
- [Known Issues, page 22](#)

New Features

This section lists features added since the last major (x.0.0) release of this product.

Release 5.6.1

There are no new features in this release.

Release 5.6.0

There are no new features in this release.

Release 5.5.0

There are no new features in this release.

Release 5.4.1

There are no new features in this release.

Release 5.4.0

Added `be.dbconcepts.templates.jdbc.resultset.maxRows` property to limit the maximum number of records (result set) that can be returned by an SQL query of database concepts.

Release 5.3.0

There are no new features in this release.

Release 5.2.2

Added a new property `be.dbconcepts.connections.checkall` to configure whether to check all connection in the database connection pool for validity. See *TIBCO BusinessEvents Data Modeling Developer's Guide*.

Release 5.2.1

There are no new features in this release.

Release 5.2.0

TIBCO Software, Platforms, and Third Party Software

- Oracle database 12c for SharedAll persistence and DB Concepts
- IBM DB2 10.5 for SharedAll persistence and DB Concepts

Catalog Functions

Added the following catalog functions in this release:

- Database.sp.*: supports the database-stored procedure. These functions are enabled by default now.

Release 5.1.4

There are no new features in this release.

Release 5.1.3

There are no new features in this release.

Release 5.1.2

Third Party Software

Support for following product is added in this release:

- MySQL database.

Release 5.1.1

There are no new features in this release.

Release 5.1

There are no new features in this release.

Release 5.0.1

No new features are included in this release.

Release 5.0

For database concepts, a new metadata property, `EXTID_PROPS` is now available. This property enables you to specify the `extId` attribute for cases where the value of `PRIMARY_KEY_PROPS` can't be used. If none of the columns imported for a database concept are primary keys (`PRIMARY_KEY_PROPS` has no value), or if you want to override the value of `PRIMARY_KEY_PROPS`, use the `EXTID_PROPS` metadata property to define an `extId` value. The value of these property names at runtime should uniquely identify a database concept instance.

Changes in Functionality

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

Release 5.6.1

There are no changes in functionality in this release.

Release 5.6.0

There are no changes in functionality in this release.

Release 5.5.0

There are no changes in functionality in this release.

Release 5.4.1

There are no changes in functionality in this release.

Release 5.4.0

There are no changes in functionality in this release.

Release 5.3.0

There are no changes in functionality in this release.

Release 5.2.2

There are no changes in functionality in this release.

Release 5.2.1

There are no changes in functionality in this release.

Release 5.2.0

Documentation

The documentation of TIBCO BusinessEvents Data Modeling is no longer bundled with the installer. The documentation is available on <https://docs.tibco.com>.

To access the product documentation directly from the docsite, double-click the `TIB_busessevents-datamodeling_5.2.0_docinfo.html` file.

Release 5.1.4

There are no changes in functionality in this release.

Release 5.1.3

There are no changes in functionality in this release.

Release 5.1.2

There are no changes in functionality in this release.

Release 5.1.1

There are no changes in functionality in this release.

Release 5.1

There are no changes in functionality in this release.

Release 5.0.1

There are no changes in functionality in this release.

Release 5.0

There are no changes in functionality in this release.

Deprecated and Removed Features

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

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

Deprecated Features

Release 5.6.1

No features are deprecated in this release.

Release 5.6.0

No features are deprecated in this release.

Release 5.5.0

No features are deprecated in this release.

Release 5.4.1

No features are deprecated in this release.

Release 5.4.0

No features are deprecated in this release.

Release 5.3.0

No features are deprecated in this release.

Release 5.2.2

No features are deprecated in this release.

Release 5.2.1

No features are deprecated in this release.

Release 5.2.0

No features are deprecated in this release.

Release 5.1.4

No features are deprecated in this release.

Release 5.1.3

No features are deprecated in this release.

Release 5.1.2

No features are deprecated in this release.

Release 5.1.1

No features are deprecated in this release.

Release 5.1

No features are deprecated in this release.

Release 5.0.1

No features are deprecated in this release.

Release 5.0

No features are deprecated in this release.

Removed Features

Release 5.6.1

No features are removed in this release.

Release 5.6.0

No features are removed in this release.

Release 5.5.0

No features are removed in this release.

Release 5.4.1

No features are removed in this release.

Release 5.4.0

No features are removed in this release.

Release 5.3.0

No features are removed in this release.

Release 5.2.2

No features are removed in this release.

Release 5.2.1

No features are removed in this release.

Release 5.2.0

No features are removed in this release.

Release 5.1.4

No features are removed in this release.

Release 5.1.3

No features are removed in this release.

Release 5.1.2

No features are removed in this release.

Release 5.1.1

No features are removed in this release.

Release 5.1

No features are removed in this release.

Release 5.0.1

No features are removed in this release.

Release 5.0

No features are removed in this release.

Migration and Compatibility

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

Release 5.6.1

See *TIBCO BusinessEvents Release Notes* for full details. No special action is required for this add-on.

Release 5.6.0

See *TIBCO BusinessEvents Release Notes* for full details. No special action is required for this add-on.

Release 5.5.0

See *TIBCO BusinessEvents Release Notes* for full details. No special action is required for this add-on.

Release 5.4.1

See *TIBCO BusinessEvents Release Notes* for full details. No special action is required for this add-on.

Release 5.4.0

See *TIBCO BusinessEvents Release Notes* for full details. No special action is required for this add-on.

Release 5.3.0

See *TIBCO BusinessEvents Release Notes* for full details. No special action is required for this add-on.

Release 5.2.2

See *TIBCO BusinessEvents Release Notes* for full details. No special action is required for this add-on.

Release 5.2.1

See *TIBCO BusinessEvents Release Notes* for full details. No special action is required for this add-on.

Release 5.2.0

See *TIBCO BusinessEvents Release Notes* for full details. No special action is required for this add-on.

Release 5.1.4

See *TIBCO BusinessEvents Release Notes* for full details. No special action is required for this add-on.

Release 5.1.3

See *TIBCO BusinessEvents Release Notes* for full details. No special action is required for this add-on.

Release 5.1.2

See *TIBCO BusinessEvents Release Notes* for full details. No special action is required for this add-on.

Release 5.1.1

See *TIBCO BusinessEvents Release Notes* for full details. No special action is required for this add-on.

Release 5.1

See *TIBCO BusinessEvents Release Notes* for full details. No special action is required for this add-on.

Release 5.0.1

See *TIBCO BusinessEvents Release Notes* for full details. No special action is required for this add-on.

Release 5.0

See *TIBCO BusinessEvents Release Notes* for full details. No special action is required for this add-on.

Closed Issues

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

Closed in Release	Key	Summary
5.4.0	BE-24278	The database query was returning null for nvarchar values from the database table in Microsoft SQL server.
5.4.0	BE-24256	Database transactions were committed when Database.closeQuery() function was executed and the Database.rollback function was not working. This was fixed by adding a new CDD property <code>be.dbconcepts.cursor.closeQuery.closeConnection</code> . Set this property to "false" to prevent autocommit.
5.4.0	BE-18990	In TIBCO BusinessEvents Studio, if you copied a state model and renamed it by using a refactor tool, not all references to the old state model were updated.
5.3.0	BE-23716	Resource leaks were causing problems in BusinessEvents.
5.3.0	BE-23442	An error was thrown while copying code from one state to another state, or from one transition to another transition in the state machine editor.
5.3.0	BE-23437	The DB Import wizard stopped responding while importing from a large table space.
5.3.0	BE-23240	Transition could not be added between states in the state machine editor.
5.3.0	BE-19822	In BusinessEvents Studio, space between tables imported from the database import utility was very large.
5.2.2	BE-22266	In DBConcepts, BusinessEvents did not check all connections in the connection for validity.
5.2.1	BE-22604	In Mac OS X, BusinessEvents Studio became unresponsive after the restart while restoring the State Machine editor.
5.2.1	BE-22540	While executing queries on DB2, an exception was encountered. This was happening because DB2 was running out of resources due to unclosed prepared statements.

Closed in Release	Key	Summary
5.2.0	BE-21005	Importing the DBConcepts projects with events gave a few errors regarding the owner path.
5.2.0	BE-20614	TIBCO BusinessEvents throws NullPointerException in function Database.createQuery() when resultTypeURI is set to Null and the query has no result.
5.2.0	BE-20595	The Database.* catalog functions should not log any exceptions in the log file. Exceptions are handled by the calling Rule/RuleFunction.
5.2.0	BE-20558	Added missing information related to the statetimeout concepts in <i>TIBCO BusinessEvents Data Modeling Developers guide</i> > State Modeler > State Model Timeouts and State Timeouts > Locking (and Loading) in Timeouts.
5.2.0	BE-20206	Using database concepts with Cache Only mode, inconsistency between Entity Cache and Object Table was observed if the database concept instances were evicted from the entity cache. To avoid a performance problem, new options are provided to configure the retry count or turn-off and retry interval.
5.2.0	BE-19560	On the Solaris platform, the studio-tools utility failed to build an EAR file and threw an exception if the TIBCO BusinessEvents project contained database concepts.
5.2.0	BE-19539	<p>Transition rules were not fired in state machines when the property 'be.engine.cluster.as.tuple.explicit' was set to true in multiple inference agents scenario.</p> <p>Ensure that all the cache servers in the cluster are upgraded before upgrading the inference agents.</p>
5.2.0	BE-19438	An exception was thrown when the API Database.getNextPage() was used to query for a database sequence value that had a very large number.

Closed in Release	Key	Summary
5.2.0	BE-19382	<p>TIBCO BusinessEvents did not provide data type support for the execution of prepared statements. As a result, the number of parsed versions and execution time increased when type insensitive null values were set in a prepared statement.</p> <p>This has been fixed by adding the following catalog functions that provide data type support for prepared statements:</p> <ul style="list-style-type: none"> Database.queryUsingPreparedStmtByParamList Database.executePreparedStmtByParamList <p>NOTE: Currently, the data types int, string, and double are supported by the functions. These catalog functions accept an object ArrayList, where ArrayList is a regular (array) list of the parameters for the prepared statement. The ArrayList can be populated using the following utility methods:</p> <ul style="list-style-type: none"> Database.Util.addIntParam Database.Util.addStringParam Database.Util.addDoubleParam Database.Util.addParam
5.2.0	BE-19344	<p>An exception was thrown when a stored procedure returned data of type CLOB that had huge content. This has been fixed to return a stream instead of a string, enabling the caller to read any amount of CLOB data from the stream.</p> <p>A new catalog function 'Database.sp.readClobContent(clob)' has been added to read data from a CLOB.</p>
5.2.0	BE-19171	State machine rule dependencies were incorrect and have been fixed.
5.2.0	BE-18391	Foreign key was empty for database concepts when the key was created by a sequence.
5.2.0	BE-18298	The statemachine timeout caused duplicateExtIdException.
5.2.0	BE-18296	If a state machine's parent concept was deleted while a state timeout was waiting to be processed for that state machine, the next time the same inference engine tried to create a concept with the same extId as the deleted concept an error "Attempt to assert duplicate extIds ..." was thrown.

Closed in Release	Key	Summary
5.2.0	BE-18225	Selecting a simple state in the state machine did not render the Properties window.
5.2.0	BE-16951	The database import did not work for the Oracle datatype <code>Number(n, n)</code> . If you specified precision as the second argument in the database field definition, the DBImport tool created an <code>int</code> datatype instead of a <code>double</code> .
5.2.0	BE-15178	The <code>Database.Templates.templateQuery</code> method did not provide any timeout parameter. You can now specify the system property <code>be.dbconcepts.templates.query.sqltimeout</code> in seconds to timeout the query.
5.2.0	BE-9789	BusinessEvents did not support calling PL/SQL functions.
5.2.0	BE-9708	The <i>TIBCO BusinessEvents Data Modeling Developer's Guide</i> did not have information about the usage of Oracle and RDBMS functions.
5.2.0	BE-9319	The documentation did not include information on a few new database cursor functions.
5.2.0	BE-7970 BE-3240	The self transition rule got into an infinite loop and kept firing even when there were no changes to the concept.
5.2.0	BE-7914	When using IBM DB2 database for database concepts, archive generation failed if the database concepts had BLOB or CLOB data types.
5.2.0	BE-7456	When events arrived at a very high rate, a StateMachine transition rule sometimes threw a <code>NullPointerException</code> .
5.1.4	BE-20319	The <i>TIBCO BusinessEvents Data Modeling Developer's Guide</i> had incorrect spacing in the entire guide.
5.1.3	BE-20696	It was difficult to access Content data and Indicator data properties of the state machines dashboard charts. This was fixed.
5.1.3	BE-20310	TIBCO BusinessEvents throws <code>NullPointerException</code> in function <code>Database.createQuery()</code> when <code>resultTypeURI</code> is set to Null and the query has no result. This has been fixed.

Closed in Release	Key	Summary
5.1.3	BE-20052	The Database.* catalog functions should not log any exceptions in the log file. Exceptions are handled by the calling Rule/RuleFunction. This was fixed.
5.1.2	BE-19904	If a state machine's parent concept was deleted while a state timeout was waiting to be processed for that state machine, the next time the same inference engine tried to create a concept with the same extId as the deleted concept an error "Attempt to assert duplicate extIds ..." was thrown.
5.1.2	BE-19805	Transition rules were not fired in state machines when the property 'be.engine.cluster.as.tuple.explicit' was set to true in multiple inference agents scenario. This has been fixed. Ensure that all the cache servers in the cluster are upgraded before upgrading the inference agents.
5.1.2	BE-19676	When doing repeated inserts into MySQL database, the following exception was thrown during transactions: <code>com.mysql.jdbc.exceptions.jdbc4.MySQLNonTransientConnectionException</code> during transaction.
5.1.2	BE-19587	An exception was thrown when the API Database.getNextPage() was used to query for a database sequence value that had a very large number.
5.1.2	BE-19575	An exception was thrown when a stored procedure returned data of type CLOB that had huge content. This has been fixed to return a stream instead of a string, enabling the caller to read any amount of CLOB data from the stream. A new catalog function Database.sp.readClobContent(clob) has been added to read data from a CLOB.
5.1.2	BE-19538	Transition rules were not fired in state machines in a multi-inference scenario.
5.1.2	BE-19474	The database import did not work for Oracle data type number (n,n). When precision was specified as second argument in database field definition, the database import tool created an integer data type instead of double.

Closed in Release	Key	Summary
5.1.2	BE-19432	The TIBCO BusinessEvents engine went into an infinite loop when the event was not consumed explicitly and the concept state was self transitioned.
5.1.2	BE-19208	<p>TIBCO BusinessEvents did not provide data type support for the execution of prepared statements. As a result, the number of parsed versions and execution time increased when type insensitive null values were set in a prepared statement.</p> <p>This has been fixed by adding the following two catalog functions that provide data type support for prepared statements:</p> <ul style="list-style-type: none"> Database.queryUsingPreparedStmtByParamList Database.executePreparedStmtByParamList <p>NOTE Currently, the data types int, string, and double are supported by the functions.</p> <p>These catalog functions accept an object ArrayList, where ArrayList is a regular (array) list of the parameters for the prepared statement. The ArrayList can be populated using the following utility methods:</p> <ul style="list-style-type: none"> Database.Util.addIntParam Database.Util.addStringParam Database.Util.addDoubleParam Database.Util.addParam
5.1.2	BE-19171	State machine rule dependencies were incorrect and have been fixed.
5.1.2	BE-18225	Selecting a simple state in the state machine did not render the Properties window.
5.1.2	BE-18157	Foreign key was empty for database concepts when the key was created by a sequence.
5.1.2	BE-18109	State timeouts and scheduled events would stop firing after a random amount of time, and more likely under load.
5.1.2	BE-17997	State timeouts and scheduled events would stop firing after a random amount of time, and more likely under load.

Closed in Release	Key	Summary
5.1.1	BE-17803	<p>When you override the cache mode of a concept to a different value from the default, the following were observed:</p> <ul style="list-style-type: none"> • The script generation of the state machine still used the default value. • At runtime, the backing store property of the state machine was still the default value.
5.1.1	BE-17444	When a project containing a state machine was copied and pasted in the same workspace with a different name, the relationship between the state machine and the concept was broken.
5.1.1	BE-15099	When Run Layout on Changes was enabled, deleting a state and then re-linking the remaining states caused a <code>NullPointerException</code> .
5.1.0	BE-16952	The debug log now shows when concepts are deleted and entries are removed from the workitems table.
5.1.0	BE-12911	Silent installation of the Decision Manager and Data Modeling add-ons failed with a dependency check error.
5.1.0	BE-12903	State machine timeout callback rule functions are registered using the <code>Cluster.registerStateMachineTimeoutCallback()</code> catalog function. The callback rule function was not called when the default domain object setting was Memory Only.
5.1.0	BE-12878	With cache mode, an error was thrown when starting a state machine in a preprocessor.
5.0.1	BE-14495	State machines did not work correctly in multi-engine environments.
5.0.1	BE-13654	If two or more database concept URIs were specified for a project, and the first one failed to initialize, then all failed to initialize and the application threw a Java runtime error.
5.0.1	BE-12903	State machine timeout callback rule functions are registered using the <code>Cluster.registerStateMachineTimeoutCallback()</code> catalog function. The callback rule function was not called when the default domain object setting (default or override) was Memory Only.
5.0.1	BE-12878	With cache mode, an error was thrown when starting a state machine in a preprocessor.

Closed in Release	Key	Summary
5.0.0	BE-8502	<p>For database concepts, it was not possible to update an Oracle Database table column of datatype XMLType with a string value greater than 4,000 characters.</p> <p>As part of this fix, you must add the following Oracle JAR files to <i>BE_HOME/lib/ext</i>:</p> <p><i>ORACLE_HOME/rdbms/jlib/xdm.jar</i> <i>ORACLE_HOME/lib/xmlparserv2.jar</i></p>
5.0.0	BE-9610	The start of a state model transition could not be moved to a state model Start state.
5.0.0	BE-8432	When building the enterprise archive for a TIBCO BusinessEvents Studio project that contains Database Concepts using the command-line tool (buildear), a RuntimeException is thrown and the archive does not get generated
5.0.0	BE-7089	When importing database concepts, the project folders for them had to exist already. Now you can create a new folder during the import.
5.0.0	BE-6983	When a sub-statemachine was retracted, it triggered multiple info level messages when the debugRole was turned on.
5.0.0	BE-1684	In a state model, it was not possible to specify a timeout state for a composite state.

Known Issues

There are no known issues to report in this release of TIBCO BusinessEvents Data Modeling.