



TIBCO BusinessEvents®
Event Stream Processing
Release Notes

Software Release 5.6.0
August 2019

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Preface

TIBCO BusinessEvents[®] Event Stream Processing software is an add-on to TIBCO BusinessEvents. It provides query and event pattern matching features that help you to identify and create valuable information in TIBCO BusinessEvents event streams and data caches.

TIBCO BusinessEvents
The Power to Predict[®]

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\5.4.</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> <p><code>MyCommand [optional_parameter] required_parameter</code></p>
	<p>A logical OR that separates multiple items of which only one may be chosen.</p> <p>For example, you can select only one of the following parameters:</p> <p><code>MyCommand param1 param2 param3</code></p>

Table 2 Syntax Typographical Conventions

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

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

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](#)
- [Changes in Functionality, page 4](#)
- [Deprecated and Removed Features, page 7](#)
- [Migration and Compatibility, page 11](#)
- [Closed Issues, page 13](#)
- [Known Issues, page 19](#)

New Features

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

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

There are no new features in this release.

Release 5.3.0

There are no new features in this release.

Release 5.2.2

There are no new features in this release.

Release 5.2.1

There are no new features in this release.

Release 5.2.0

There are no new features in this release.

Release 5.1.4

No new features are added in this release.

Release 5.1.3

No new features are added in this release.

Release 5.1.2

No new features are added in this release.

Release 5.1.1

No new features are added in this release.

Release 5.1

Dynamic Query Agent Session

You can dynamically start a collocated query agent session from an inference agent. You can also modify concepts retrieved from a query agent.

Release 5.0.1

No new features are included in this release.

Also see [Changes in Functionality on page 4](#) for changes in functionality introduced to address various product issues.

Release 5.0

No new features are included in this release.

Changes in Functionality

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

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 Event Stream Processing 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_businessevents-eventstreamprocessing_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

- Now the `Query.Util.startDynamicQuerySession()` function is not required to start the collocated query agent, and is removed in this release. First time call to the `executeInDynamicQuerySession` function automatically starts the agent.

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

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

Dynamic Query Agent Sessions

Querying the cache using a collocated query agent could be cumbersome. Now you can dynamically start a collocated query agent session from an inference agent and make queries. See *TIBCO BusinessEvents Event Stream Processing Query Developer's Guide* for details.

Modifying a Concept Retrieved from a Query Agent

When an inference agent is deployed in the same node as a query agent, the query agent and inference agent can work together in various ways using a local channel. However it was not possible for the inference agent to modify concepts retrieved from a query agent.

Now you can call a function and modify the concept. To do so, use the following function: `Coherence.C_LoadEntity(concept)`. As with all actions that modify concepts, ensure that correct locking is used before executing the query.

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 5.6.0

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 5.6.0

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 5.6.0

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
5.2.2	BE-22845	A certain important detail with performance implication, regarding query execution in the presence of a "limit" clause was missing in the <i>TIBCO BusinessEvents Event Stream Processing Query Developer's Guide</i> .
5.2.0	BE-21885	Optimized filters did not work in the Date and Date Time data types due to a type mismatch and failed indexes.
5.2.0	BE-21684	The <i>TIBCO BusinessEvents Event Stream Processing Query Developer's Guide</i> needs to be updated for clear understanding of usage of time window. The 'Event Stream Processing Queries Overview' section in the <i>TIBCO BusinessEvents Event Stream Processing Query Developer's Guide</i> is now updated.
5.2.0	BE-21330	With multiple pattern matching executor threads, pattern matching gave a different result.
5.2.0	BE-20538	Removed the startup rule function from the "Dynamic Query Agent Sessions" section in <i>TIBCO BusinessEvents Event Stream Processing Query Developer's Guide</i> .
5.2.0	BE-20205	The CDD file for collocated query included wrong property settings.
5.2.0	BE-20203	The BQL query did not work as expected when the sliding window included attributes (where clause).
5.2.0	BE-20174	The Snapshot Query did not return correct results.
5.2.0	BE-20164	There are new catalog functions related to queries introduced under category Query >Datagrid >Aggregate. The aggregate functions supported are min, max, avg, sum, count with the filter and group by feature.
5.2.0	BE-18710	Self join queries did not return correct results.
5.2.0	BE-18707	Performance issues were observed with queries using the joins.

Closed in Release	Key	Summary
5.2.0	BE-18470	The snapshot query did not return correct results.
5.2.0	BE-18389	The Delete Queries in the query agent did not work with bind variables. However, the same query worked if the values were hard coded.
5.2.0	BE-18231	The query agent was unable to handle queries of the form "Select...where fieldName=null" if the property 'be.agent.query.enable.filter.optimizer' was set to true.
5.2.0	BE-9879	The variable bindings did not work correctly in join queries.
5.2.0	BE-3867	The assignment operator (=) was not working when you put an integer value on the right side. Although it was working, when the value was first assigned to a variable and then used in an assignment.
5.1.4	BE-21120	With multiple pattern matching Executor Threads, pattern matching was giving different result.
5.1.3	BE-20757	Implementation of the 'or' condition in the BQL Queries with joins was not working as expected. This was fixed.
5.1.2	BE-19901	The query agent was unable to handle queries of the form "Select...where fieldName=null" if the property 'be.agent.query.enable.filter.optimizer' was set to true.
5.1.2	BE-19900	The snapshot query returned incorrect results for the join operations when optimization was turned on.
5.1.2	BE-19160	Dynamic cache queries failed to complete when the reuse flag was set to false. The dynamic queries used stale processing objects resulting in threadpool overloading and messages being backed up on the TIBCO Enterprise Message Service queue.
5.1.2	BE-18988	BQL query did not work as expected when sliding window included attributes (such as, a Where clause). The same query worked fine when the Where clause was removed from the policy.
5.1.2	BE-18944	BQL queries did not retrieve contained concepts when using Shared Nothing persistence.
5.1.2	BE-18709	Snapshot queries returned incorrect results.

Closed in Release	Key	Summary
5.1.2	BE-18708	Performance degradation was observed when queries using joins were executed. When optimized queries with more than two filters specified on a concept were executed, the query engine considered only two of the filters. This caused the size of the dataset that was returned to be larger than expected, and additional time was spent performing joins.
5.1.2	BE-18624	<p>Snapshot queries returned incorrect results and threw a <code>NullPointerException</code> if a query contained inherited concepts and the optimizer flag was set to true.</p> <p>This issue was observed when using Coherence.</p>
5.1.2	BE-18614	<p>Catalog aggregate functions in Query were not working properly when the derived concepts were being queried and indexes were set on the base concepts.</p> <p>Aggregate queries catalog functions are now present in TIBCO BusinessEvents Studio by default.</p>
5.1.2	BE-18347	Snapshot queries returned incorrect results.
5.1.2	BE-18283	<p>Performance degradation was observed when queries using joins were executed.</p> <p>When optimized queries with more than two filters specified on a concept were executed, the query engine considered only two of the filters. This caused the size of the dataset that was returned to be larger than expected, and additional time was spent performing joins.</p>
5.1.2	BE-18130	Delete queries were unable to handle bind variables. This has been fixed.
5.1.1	BE-11129	Collocated query agent functions provide functionality equivalent to Coherence.Query functions.
5.1.2	BE-19172	A <code>NullPointerException</code> was thrown sometimes when the reuse flag in the <code>executeInDynamicQuerySession</code> call was set to false and a hashmap was used.
5.1.2	BE-19247	<p>Queries (stand-alone, collocated, and dynamic) were observed to be slow when using bind variables. This has been fixed.</p> <p>NOTE The 'like' operator does not work with bind variables in this release.</p>

Closed in Release	Key	Summary
5.1.1	BE-17799	The "Rule Session is NULL" error is thrown when executing the select query, if the WHERE clause of the query contained a rule function. The issue occurs if you browse through any concept properties inside the called rulefunction.
5.1.1	BE-17782	A query took a long time to return when no data was found.
5.1.1	BE-17728	Collocated query did not work as expected when multiple queries were active, and concepts were loaded into memory and changed in a rule.
5.1.1	BE-17559	A <code>ClassNotFoundException</code> was thrown when executing a query if the WHERE clause of the query contained a rule function or an alias of the rule function.
5.1.1	BE-16858	Running a query to return all the concepts (<code>select * from /concept</code>) without a 'where' clause resulted in the query agent throwing an <code>OutOfMemory</code> exception.
5.1.1	BE-16699	When shutting down the engine, an error (<code>ASException: INVALID_ARG</code>) may sometimes be seen.
5.1.0	BE-17190	Joining two or more entities using a ESP continuous query resulted in an error.
5.1.0	BE-16102	Running a query to return all the concepts (<code>select * from /concept</code>) without a 'where' clause resulted in the query agent throwing an <code>OutOfMemory</code> exception.
5.1.0	BE-13304	The query agent hung when multiple instances of the same continuous query were run in parallel.
5.1.0	BE-13050	Queries that included catalog functions that accept <code>PropertyAtom</code> or <code>PropertyArray</code> as arguments were failing.

Closed in Release	Key	Summary
5.1.0	BE-12574	<p>Querying the cache using a collocated query agent could be cumbersome. Now you can dynamically start a collocated query agent session from an inference agent using two functions:</p> <pre>Query.Util.startDynamicQuerySession() Query.Util.executeInDynamicQuerySession(queryString, mapOfParameters, true);</pre> <p>This functionality is documented in the section called Dynamic Query Agent Sessions in <i>TIBCO BusinessEvents Event Stream Processing Query Developer's Guide</i>.</p>
5.1.0	BE-12068	Snapshot queries on concepts in which the WHERE clause tried to filter or access contained concepts did not work when using Coherence.
5.1.0	BE-12043	If the WHERE clause of a query referred to a field that was indexed in the Coherence cache, and if that WHERE clause filter condition had a bind variable, exceptions were thrown.
5.1.0	BE-12041	When using query indexing, the presence of bind variables in the queries caused exceptions.
5.1.0	BE-11511	Query statements were not releasing all resources after execution. If a large enough number of queries were run on the engine then the unreleased resources would use up a noticeable portion of the JVM heap. Now all query resources are released after a statement is closed.
5.0.1	BE-13025	<p>Snapshot queries on concepts in which a SELECT, WHERE, or ORDER clause tries to filter or access contained concepts resulted in null values. As an example, the following type of query would result in this issue:</p> <pre>select ec.depts.deptno, ec.depts.dname from /Concepts/ContainedC ec where ec.depts.deptno > 4 order by ec.depts.deptno</pre>
5.0.1	BE-13050	Queries that included catalog functions that accept PropertyAtom or PropertyArray as arguments were failing.
5.0.1	BE-12043	If the WHERE clause of a query referred to a field that was indexed in the Coherence cache, and if that WHERE clause filter condition had a bind variable, exceptions were thrown.

Closed in Release	Key	Summary
5.0.0	BE-11511	Query statements were not releasing all resources after execution. If a large enough number of queries were run on the engine then the unreleased resources would use up a noticeable portion of the JVM heap. Now all query resources are released after a statement is closed.
5.0.0	BE-6137	When reading arrays (that is, contained concept instances) from the results of a query, a <code>java.lang.ClassCastException</code> was thrown.
5.0.0	BE-3557	There was no SQL-like reserved word <code>like</code> in the query language. This has now been implemented.

Known Issues

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

Key	Summary/Workaround
BE-14078	<p>Summary Snapshot queries on concepts in which the WHERE clause tries to filter or access contained concepts do not work when using TIBCO BusinessEvents DataGrid.</p> <p>Workaround Modify the query to not use filters. Run the query and then perform manual filtering on the result set.</p>
