TIBCO ActiveMatrix® BPM Release Notes

Software Release 4.3
April 2019

TIBC♥®

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TIBCO Documentation and Support Services

How to Access TIBCO Documentation

Documentation for TIBCO products is available on the TIBCO Product Documentation website, mainly in 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.

Product-Specific Documentation

Documentation for TIBCO products is not bundled with the software. Instead, it is available on the TIBCO Documentation site. To directly access documentation for this product, double-click the following file:

TIBCO_HOME/release_notes/TIB_amx-bpm_*version*_docinfo.html

where *TIBCO_HOME* is the top-level directory in which TIBCO products are installed. On Windows, the default *TIBCO_HOME* is C:\tibco. On UNIX systems, the default *TIBCO_HOME* is /opt/tibco.

The following documents for this product can be found on the TIBCO Documentation site:

- TIBCO ActiveMatrix BPM SOA Concepts
- TIBCO ActiveMatrix BPM Concepts
- TIBCO ActiveMatrix BPM Developer's Guide
- TIBCO ActiveMatrix BPM Web Client Developer's Guide
- TIBCO ActiveMatrix BPM Tutorials
- TIBCO ActiveMatrix BPM Business Data Services Developer Guide
- TIBCO ActiveMatrix BPM Case Data User Guide
- TIBCO ActiveMatrix BPM Event Collector Schema Reference
- TIBCO ActiveMatrix BPM - Integration with Content Management Systems
- TIBCO ActiveMatrix BPM SOA Composite Development
- TIBCO ActiveMatrix BPM Java Component Development
- TIBCO ActiveMatrix BPM Mediation Component Development
- TIBCO ActiveMatrix BPM Mediation API Reference
- TIBCO ActiveMatrix BPM WebApp Component Development
- TIBCO ActiveMatrix BPM Administration
- TIBCO ActiveMatrix BPM Performance Tuning Guide
- TIBCO ActiveMatrix BPM SOA Administration
- TIBCO ActiveMatrix BPM SOA Administration Tutorials
- TIBCO ActiveMatrix BPM SOA Development Tutorials
- TIBCO ActiveMatrix BPM Client Application Management Guide
- TIBCO ActiveMatrix BPM Client Application Developer's Guide
- TIBCO Openspace User's Guide
- TIBCO Openspace Customization Guide

- TIBCO ActiveMatrix BPM Organization Browser User's Guide (Openspace)
- TIBCO ActiveMatrix BPM Organization Browser User's Guide (Workspace)
- TIBCO ActiveMatrix BPM Spotfire Visualizations
- TIBCO Workspace User's Guide
- TIBCO Workspace Configuration and Customization
- TIBCO Workspace Components Developer Guide
- TIBCO ActiveMatrix BPM Troubleshooting Guide
- TIBCO ActiveMatrix BPM Deployment
- TIBCO ActiveMatrix BPM Hawk Plug-in User's Guide
- TIBCO ActiveMatrix BPM Installation: Developer Server
- TIBCO ActiveMatrix BPM Installation and Configuration
- TIBCO ActiveMatrix BPM Log Viewer
- TIBCO ActiveMatrix BPM Single Sign-On
- Using TIBCO JasperReports for ActiveMatrix BPM

How to Contact TIBCO Support

You can contact TIBCO Support in the following ways:

- For an overview of TIBCO Support, visit http://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.

Important Notes

TIBCO Service Performance Monitor

TIBCO ActiveMatrix BPM does not support the use of TIBCO Service Performance Monitor. Managing and monitoring performance of TIBCO ActiveMatrix BPM services by using the ActiveMatrix SPM Runtime Server is not supported.

New Features

Supported Software

Database Support

ActiveMatrix BPM 4.3 introduces support for the following database versions. These database versions can be used to host the ActiveMatrix BPM, ActiveMatrix Administrator, and (if required) BDS case data store databases.

Database (64 bit)	Supported Versions	Supported Editions
Microsoft SQL Server 2017	2017 (with any subsequent service packs for this version)	Standard or higher
Microsoft SQL Server 2016	2016 Service Pack 1 (with any subsequent service packs for this version)	Standard or higher
Oracle 12c R2	12.2.0.1 (with any subsequent 12.2.0.*x* patch sets)	Standard or higher (with or without RAC enabled)
DB2	11.1 (with any subsequent Fix Packs for this version)	Workgroup or higher

Microsoft SQL Server and AlwaysON Availability Groups: When using Microsoft SQL Server (2012, 2014, 2016 or 2017), AlwaysON Availability Groups must be disabled. ActiveMatrix BPM does *not* support the use of SQL Server AlwaysON Availability Groups.

See *TIBCO ActiveMatrix BPM Installation and Configuration* for more information.

TIBCO Software Support

ActiveMatrix BPM 4.3 introduces support for the following TIBCO software versions.

TIBCO Enterprise Message Service™

ActiveMatrix BPM 4.3 supports Enterprise Message Service (EMS) version 8.4.1 or later 8.4.*x*.

TIBCO Business Studio™

ActiveMatrix BPM 4.3 supports TIBCO Business Studio - BPM Edition version 4.3.

TIBCO JasperReports® for ActiveMatrix BPM

TIBCO JasperReports for ActiveMatrix BPM, used with ActiveMatrix BPM 4.3, supports:

- TIBCO JasperReports® Server for ActiveMatrix® BPM version 7.1.1 or later 7.1.*x*.
- TIBCO Jaspersoft® Studio for ActiveMatrix® BPM version 7.1.*x*.

See *Using JasperReports with TIBCO ActiveMatrix BPM* for more information.

TIBCO Spotfire®

ActiveMatrix BPM 4.3 supports:

- TIBCO Spotfire Analyst version 7.11.1 LTS or later 7.11*x* LTS. (This product was previously known as TIBCO Spotfire Professional.)

- TIBCO Spotfire Consumer version 7.9.*x*. (This product was previously known as TIBCO Spotfire Web Player.)

Third-Party Software Support

ActiveMatrix BPM 4.3 introduces support for the following third-party software versions.

JDBC Drivers

ActiveMatrix BPM 4.3 introduces support for the following JDBC drivers. These drivers can be used to connect to the databases that will be used to host the ActiveMatrix BPM and ActiveMatrix Administrator databases.

Database	JDBC driver
Microsoft SQL Server 2017	Microsoft SQL Server JDBC Driver 7.0 (`mssql-jdbc-7.0.0.jre8.jar`)
Microsoft SQL Server 2016	Microsoft SQL Server JDBC Driver 7.0 (`mssql-jdbc-7.0.0.jre8.jar`), 6.0 (`sqljdbc42.jar`), or 4.2 (`sqljdbc42.jar`)
Microsoft SQL Server 2012	Microsoft SQL Server JDBC Driver 4.2 (`sqljdbc42.jar`)
Oracle 12c R2	Version 12.2.0.1 (`ojdbc8.jar`)
DB2 11.1	`db2jcc4.jar` Different versions of the `db2jcc4.jar` file correspond to different DB2 releases and Fix Pack levels. Refer to IBM Support for more information.

See *TIBCO ActiveMatrix BPM Installation and Configuration* for more information.

Web Browsers

ActiveMatrix BPM 4.3 introduces support for the following web browser versions.

Browser	Versions	Supported by	Not Supported by
Microsoft Edge	42	Openspace Workspace Application Development TIBCO ActiveMatrix Administrator (GUI)	Openspace (Accessible)

Browser	Versions	Supported by	Not Supported by
Internet Explorer	11.0.6	Openspace Workspace Openspace (Accessible) Application Development TIBCO ActiveMatrix Administrator (GUI)	
Firefox	61	TIBCO ActiveMatrix Administrator (GUI)	Openspace Workspace Openspace (Accessible) Application Development
Chrome	72	Openspace Workspace Application Development TIBCO ActiveMatrix Administrator (GUI)	Openspace (Accessible)

See *TIBCO ActiveMatrix BPM Installation and Configuration* for more information.

Embedded Java 8

The Java 8 JRE is now embedded in ActiveMatrix BPM. It is no longer necessary to upgrade to the Java 8 JRE after installing ActiveMatrix BPM.

Java 8 no longer supports the `PermSize` and `MaxPermSize` JVM properties, as Permanent Generation (PermGen) has been removed in Java 8. PermGen has been replaced by *Metaspace*, which is where class metadata is stored. For information about the JVM properties that can be used to control Metaspace, see "Garbage Collection" in the *TIBCO ActiveMatrix BPM Performance Tuning* guide.

Process Management

Purge Process Command-Line Interface is Now Configurable

The Purge Process CLI (Command-Line Interface) is a utility that can be used, either interactively or via scripting, to remotely purge completed, cancelled or failed process instances that have not been automatically purged. In this version of ActiveMatrix BPM:

- By default, the Purge Process CLI is disabled. You can enable it by using the "ActiveMatrix BPM: Purge Process CLI Configuration" option in the TIBCO Configuration Tool "Edit TIBCO ActiveMatrix BPM Instance" wizard. You can also use the wizard to specify the BPM node, IP address and port number on which the Purge Process CLI will be available.

  See "Edit TIBCO ActiveMatrix BPM Instance" > "ActiveMatrix BPM: Purge Process CLI Configuration" in the "TIBCO CONFIGURATION TOOL REFERENCE" section of the *TIBCO ActiveMatrix BPM Installation and Configuration* guide.

- By default, the first time that an SSH client attempts to connect to the Purge Process CLI, ActiveMatrix BPM automatically generates an SSH host key, then uses that key to negotiate and encrypt the connection. The SSH host key uses updated cryptographic settings compatible with the

Java and Java Cryptography Extension (JCE) version used by ActiveMatrix BPM. If these defaults do not meet your organization's particular cryptographic security requirements, you can:

–   change the encryption algorithm, ciphers and key length used by the generated host key.

–   change the name of and storage location used by the host key.

–   use an externally created host key instead of the generated one.

–   regenerate or replace the host key whenever you need to, forcing subsequent connections from SSH clients to use the new host key.

See "Managing the SSH Host Key Used by the Purge Process CLI" in *TIBCO ActiveMatrix BPM Administration*.

> SSH clients that used the Purge Process CLI in earlier versions of ActiveMatrix BPM will not be able to connect using a cached copy of the host key file from the previous version.

Process Engine Configuration Enhancements

Process Engine (BX and PVM) JVM System Properties Moved to Properties Files

Process instance- and Process Engine-related properties that were previously configured using JVM system properties in TIBCO ActiveMatrix Administrator are now configured in properties files. Two new properties files have been added:

*   `bx.properties` - This file contains process instance-related properties.
*   `pvm-properties` - This file contains Process Engine-related properties.

For more information about these new properties files, see "Process Instance Properties (bx.properties)" and "Process Engine Properties (pvm.properties)" in *TIBCO ActiveMatrix BPM Administration*.

BLOB Data Compression for Process and Instance Attributes is Configurable

When process and instance attributes are written to the PVM tables in the BPM database, large string values are stored as BLOB data. If there are a lot of these large string values, significant amounts of BLOB storage can be used. The `blobCompress`, `blobCompressThreshold` and `blobCompressBufferSize` properties have been added to the `pvm.properties` file. You can use these properties to compress large field values and so reduce the storage used.

See "Configuring BLOB Data Compression" in *TIBCO ActiveMatrix BPM Performance Tuning* for more information.

> Equivalent JVM properties were introduced in version 4.2.0 HF-01. If you are upgrading from that version and you used those JVM properties, you may need to update the values of the new properties in the `pvm.properties` file as part of your upgrade process. See "Performing Post-Installation Tasks > Copying Modified Process Engine-Related JVM Property Values to BPM Properties Files" in *TIBCO ActiveMatrix BPM Installation and Configuration* for more information.

Configurable ID Sequence Caching Provides Easier Performance Tuning

The `sequenceCacheSizeInstTask`, `sequenceCacheSizeInstLink`, `sequenceCacheSizeInstProcess` and `sequenceCacheSizeInstProcessIm` properties have been added to the `pvm.properties` file in this release. These properties can be used to make system performance tuning easier, by defining the number of ID sequences to cache for different entities that are managed by the Process Engine. See "Process Engine Properties (pvm.properties)" in *TIBCO ActiveMatrix BPM Administration* for more information.

Equivalent JVM properties were introduced in version 4.2.0 HF-01. If you are upgrading from that version and you used those JVM properties, you may need to update the values of the new properties in the `pvm.properties` file as part of your upgrade process. See "Performing Post-Installation Tasks > Copying Modified Process Engine-Related JVM Property Values to BPM Properties Files" in *TIBCO ActiveMatrix BPM Installation and Configuration* for more information.

Maximum Call Depth for Sub-Processes Can be Set

The maxSubprocessCallDepth property has been added to the `bx.properties` file in this release.

This property allows you to configure the maximum sub-process depth that can be reached from a parent instance. The call depth is inclusive.

Example 1

- If you have the following process hierarchy - main process > sub-process 1 > sub-process 2 > sub-process 3 > sub-process 4, and

- the maxSubProcessCallDepth is 3, the parent instance halts if it tries to create an instance of sub-process 4. However, sub-process 1 could create hundreds of sub-processes without the parent instance halting.

Example 2

- If you have a main process that calls a sub-process recursively, and

- the maxSubProcessCallDepth is 3, the parent instance halts if it tries to create a fourth instance of the sub-process. This prevents a recursive sub-process loop from creating hundreds of sub-processes, and tying up the Process Engine, preventing the processing of other work.

For more information, see "Process Instance Properties (bx.properties)" in the *TIBCO ActiveMatrix BPM Administration Guide*.

Row Cleanup on the PVM_QUERY_PAGING Table is Configurable

The following properties have been added to the `pvm.properties` file in this release. These properties are used to control the cleanup of rows in the PVM_QUERY_PAGING table:

- queryPagingCleanupBatchSize

- queryPagingCleanupBatchCount

- queryPagingCleanupInterval

- queryPagingCleanupTimeout

For information about these properties, see "Process Engine Properties (pvm.properties)" in the *TIBCO ActiveMatrix BPM Administration* guide.

Configurable Timeout Value for Process Script Execution

A new `se.scriptexecutiontimeout` JVM property is provided, which allows you to define the maximum amount of time (in seconds) that a process script can take to execute before timing out. The default value is 60 seconds.

If a script takes longer to run than the specified timeout value, the process instance halts and the following error is written to the BPM log file:

```
Script execution took more than se.scriptexecutiontimeout specified timeoutValue
seconds.
```

If the property is removed or set to zero, a process instance will wait indefinitely for a script to complete.

On a new installation of ActiveMatrix BPM, this property is automatically set on the BPM node(s). However, if you are upgrading from an earlier version, the property is not set automatically and you must add it manually to the BPM node(s).

See "JVM Properties Reference" in the *TIBCO ActiveMatrix BPM Performance Tuning Guide* for more information.

'Least Recently Used' Cache Size for Process Definitions and Modules Can be Configured

ActiveMatrix BPM maintains a 'least recently used' cache (LRUCache) of process definitions and modules. You can now use the following JVM properties to configure the cache sizes:

JVM Property	Default	Description
`com.tibco.pvm.LRUCache.` `proc.size`	200	Maximum number of process definitions
`com.tibco.pvm.LRUCache.` `module.size`	100	Maximum number of modules

Tuning the cache size can help with system performance.

On a new installation of ActiveMatrix BPM, these properties are automatically set on the BPM node(s). However, if you are upgrading from an earlier version, these properties are not set automatically and you must add them manually to the BPM node(s).

See "Configuring LRUCache Size for Process Definitions and Modules" in *TIBCO ActiveMatrix BPM Performance Tuning* for more information.

ProcessManagerService.listProcessInstances Operation can Return In-memory Process Instances

In the ActiveMatrix BPM public API, the ProcessManagerService.listProcessInstances operation can now return in-memory process instances, if the string '#IN_MEMORY' is appended to the module name specified in the request. For example (using the SOAP API):

```
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
   xmlns:proc="http://www.tibco.com/bx/2009/management/processManagerType">
     <soapenv:Header/>
     <soapenv:Body>
        <proc:qualifiedProcessName>
           <proc:moduleName>/WelcomeUsersDesignSolution/Process Packages/
           ProcessPackage.xpdl#IN_MEMORY</proc:moduleName>
           <proc:processName>WelcomeUsers</proc:processName>
           <proc:version>1.0.0.201106290731</proc:version>
        </proc:qualifiedProcessName>
     </soapenv:Body>
   </soapenv:Envelope>
```

When using the '#IN_MEMORY' option, wildcards ('*' or '?') cannot be used in the module name. The module name must either be specified in full, or left blank. (A blank module name returns all in-memory instances that match the specified process and/or version.)

See "listProcessInstances" in the *TIBCO ActiveMatrix BPM Developer's Guide* for more information about this operation.

Organization Management

Resource Query Language Performance Improvements

ActiveMatrix BPM 4.3 introduces a new property to specify the version of the Resource Query Language (RQL) expression algorithm to use.

The original RQL expression algorithm (version 1) can result in RQL expressions taking a long time to execute. A new version 2 is available, which translates RQL expressions into SQL, resulting in much faster RQL expression processing.

The **ResourceQueryVersion** property, in the `de.properties` file, can be used to specify the algorithm version.

For additional information, see "RQL Expression Evaluation" in the *TIBCO Business Studio BPM Implementation Guide*.

Directory Engine Configuration Enhancements

Ability to Change User Settings Can be Restricted

A new **restrictUserSettings** property has been added to the `de.properties` file.

The setting of this new property determines whether there are additional restrictions when calling the deleteUserSettings or saveUserSettings operations in the UserSettingsService to delete or save user settings that are either managed by the Workspace Configuration Administrator or are defined as part of a system view. For more information, see "Configuration of the TIBCO ActiveMatrix BPM Directory Engine" in the *TIBCO ActiveMatrix BPM Administration* guide.

> This property is included in the `de.properties` file automatically in new installations. However, if you are upgrading ActiveMatrix BPM, and you want to make use of the property, you must manually add it to the `de.properties` file.

Case Sensitivity of Attribute Values in a User's LDAP Distinguished Name When Searching For a User Can be Configured

The `LdapDNCaseInsensitive` property has been added to the `de.properties` file in this release. This property controls whether ActiveMatrix BPM treats attribute values in a user's LDAP distinguished name (DN) as case-sensitive (false) or case-insensitive (true) when searching for that user in an LDAP source.

For information about this property, see "Configuration of the TIBCO ActiveMatrix BPM Directory Engine" in the *TIBCO ActiveMatrix BPM Administration* guide.

> This property is included in the `de.properties` file automatically in new installations. However, if you are upgrading ActiveMatrix BPM, and you want to make use of the property, you must manually add it to the `de.properties` file.

Work Management

Sample Code is Provided to Re-offer Work Items on Session Timeout

If a Workspace user's session times out, by default, work items that the user currently has open are cancelled. You can now customize Workspace so that, in this situation, open work items are re-offered after being cancelled. Sample code, which is commented out by default, is now provided in the `AppMain.js` file.

For more information, see "Re-offering Work Items on Session Timeout" in *TIBCO Workspace Configuration and Customization*.

Case Management

TIBCO DocumentStore Can be Used To Host Case Folders in a Production Environment

The TIBCO DocumentStore is an internal CMS that is installed as part of ActiveMatrix BPM. It uses AtomPub binding and is CMIS 1.0 compliant.

You can now use the TIBCO DocumentStore to host case folders on an ActiveMatrix BPM system in a production environment. (In earlier versions of ActiveMatrix BPM, the TIBCO DocumentStore was only available as part of an ActiveMatrix BPM Development Server installation. It could be used to work with and test case folder functionality in a development / test environment, but could not be used in a production environment.)

For more information, see:

- "Case Folders" in the *TIBCO ActiveMatrix BPM Case Data User's Guide*.

- "Create TIBCO ActiveMatrix BPM Server Wizard" > "ActiveMatrix BPM: CMIS Configuration" in the "TIBCO CONFIGURATION TOOL REFERENCE" section of the *TIBCO ActiveMatrix BPM Installation and Configuration* guide.

- "Edit TIBCO ActiveMatrix BPM Instance" > "ActiveMatrix BPM: CMIS Configuration" in the "TIBCO CONFIGURATION TOOL REFERENCE" section of the *TIBCO ActiveMatrix BPM Installation and Configuration* guide.

Administration of ActiveMatrix BPM

Online Backup of an ActiveMatrix BPM System

This version of ActiveMatrix BPM provides an online backup capability. In earlier versions, it was necessary to take an offline backup, shutting down the ActiveMatrix enterprise before backing up the ActiveMatrix BPM system. (This was necessary to prevent the possibility of state changes to BPM applications occurring while the backups were being taken, which could result in problems if the system was subsequently restored.)

Now, you can *suspend* the ActiveMatrix enterprise, instead of shutting it down, and continue to use the ActiveMatrix BPM system while the backup is being taken. This facilitates taking a backup if your operational requirements do not allow for a suitable window in which to perform an offline backup.

In outline, to perform an online backup you:

1. Suspend the ActiveMatrix enterprise that hosts the ActiveMatrix BPM system. You do not need to shut down the ActiveMatrix BPM system. While the ActiveMatrix enterprise is suspended, any state changes to BPM applications that occur are not processed immediately, but are queued instead.

2. Take the backup of the ActiveMatrix BPM system. You can continue to use the system while the online backup is being performed.

3. Revert the ActiveMatrix enterprise to its unsuspended (normal) state when the backup has completed. Any state changes to BPM applications that were queued while the enterprise was suspended are then processed as normal.

See "Backing up and Restoring the ActiveMatrix BPM System" in *TIBCO ActiveMatrix BPM Administration* for more information.

Logging and Auditing

rulesinfo Utility Can be Used to Validate the Event Probe and Event Rules Files

A new `TIBCO_HOME\bpm\version\bin\rulesinfo` utility is provided, which can be used to show, validate or test proposed modifications to the event processing rules that are defined in the event probe (`ec-probe-rules.xml`) and event rules files (`ec-event-rules.xml`).

See "Using the rulesinfo Utility to Validate the Event Probe and Event Rules Files" in *TIBCO ActiveMatrix BPM Administration* for more information about this utility and how to use it.

ec_delete_case_audit Stored Procedure Can be Used to Clear Audit Data Associated with Cases

A new `ec_delete_case_audit` stored procedure is provided, which can be used to delete audit entries associated with case data from the BPM database (the entries in the `ec_event_int` and `ec_case_status` tables).

In earlier ActiveMatrix BPM versions, case data audit entries were removed using the `ec_delete_non_instance_audit_data` stored procedure, which meant that they were removed only if all the process instance entries for the same period had already been deleted. The `ec_delete_case_audit` stored procedure allows you to delete audit entries for case data independently, whether or not the process instance entries for the same period have already been deleted.

For more information, see "Clearing Audit and Statistical Data Entries Associated with Case Data" in *TIBCO ActiveMatrix BPM Administration*.

Security

Single Sign-On via OpenID Connect

ActiveMatrix BPM applications can now be configured to use OpenID Connect to authenticate users.

To use this capability, the ActiveMatrix BPM application must be registered with an Identity Provider (IdP) that supports OpenID Connect authentication. (Microsoft Active Directory Federation Services (ADFS) is the only IdP that is supported by, and has been tested with, ActiveMatrix BPM.) After the application is registered with the IdP, and properly configured to use OpenID Connect, users of the application can log into the ActiveMatrix BPM application using their IdP-issued credentials.

For more information, see "Using OpenID Connect with ActiveMatrix BPM" in the *TIBCO ActiveMatrix BPM Single Sign-On* guide.

Single Sign-On via SAML Web Profile

ActiveMatrix BPM applications can now be configured to use SAML Web Profile to authenticate users.

To use this capability, the ActiveMatrix BPM application must be registered with an Identity Provider (IdP) that supports SAML Web Profile authentication. (In ActiveMatrix BPM 4.3, the only IdP supported for use with SAML Web Profile is Google.) After the application is registered with the IdP, and properly configured to use SAML Web Profile, users of the application can log into ActiveMatrix BPM applications using their IdP-issued credentials.

For more information, see "Using SAML Web Profile with ActiveMatrix BPM" in the *TIBCO ActiveMatrix BPM Single Sign-On* guide.

Changes in Functionality

BPM Node Recovery

On a distributed ActiveMatrix BPM system, a Process Engine recovery thread runs periodically to detect if any BPM node has failed. The Process Engine on a BPM node performs a "heartbeat" to indicate that it is healthy and performing work. The heartbeat updates the LAST_ACTIVITY value in the BPM database PVM_ENGINE table. In earlier versions of ActiveMatrix BPM:

- One BPM node was elected as the 'leader' node. The leader ran the Process Engine recovery thread - by default, every 30 seconds. (Election of the leader was handled by EMS. If the current leader failed, another node was automatically elected in its place.)

- The recovery thread checked the LAST_ACTIVITY value for each Process Engine. If the value had not been updated for at least the number of seconds defined in the 'com.tibco.bx.engine.recovery.failure.threshold' JVM property, the node was deemed to have failed.

- If a failure was detected, the Process Engine recovery thread:

  - recovered any outstanding in-memory process instances on the failed BPM node.
  - resubmitted the work that was being handled by the failed BPM node to other BPM nodes on the system.

Various internal enhancements have been made to the operation of the Process Engine recovery thread in ActiveMatrix BPM version 4.3.0. Now:

- The `recoveryFailureThreshold` property in the `pvm.properties` file (with a default value of 120 seconds) is used to determine if a node is deemed to have failed, instead of the `com.tibco.bx.engine.recovery.failure.threshold` JVM property (which had a default value of 31 seconds).

- No 'leader' node is used. The Process Engine recovery thread may be performed by any of the BPM nodes. The ActiveMatrix BPM system determines internally which node performs the thread each time.

- If a node failure is detected, an AUDIT message is written to the BPM log file (and to the central event database tables for auditing) indicating which node failed and when it failed, but work is NOT recovered or resubmitted to other BPM nodes.

- When a failed node is restarted, it automatically recovers and resubmits any outstanding work to itself.

  ⚠️ If a failed node cannot be restarted for any reason, you should contact TIBCO Support for assistance in recovering the node's outstanding work.

New Properties for Logging Process Summary

Prior to this release, when a DEBUG-level BPM log was generated, a process summary was generated and included in the log by default. If a process instance had a large number of tasks, the generation of the process summary could take a very long time, and consume a large amount of the CPU. A change has been made in this release so that the process summary is no longer generated by default in DEBUG-level logs. The following properties have been added to the `bx.properties` file to control whether the process summary is generated and included in the BPM log:

bx.properties Property	Default	Description
logInstanceSummary	false	Controls whether a process instance summary is generated and logged at DEBUG level for process instances that complete normally.
logFailedInstanceSummary	false	Controls whether a process instance summary is generated and logged at DEBUG level for process instances that complete abnormally, that is, that failed or were halted.
logMigrateInstanceSummary	false	Controls whether a process instance summary is generated and logged at DEBUG level for process instances that are migrated.

Resource Query Cleanup

The way in which RQL resource queries are evaluated to determine if they are no longer referenced, and therefore can be deleted, has changed in this release. Because of this new method of evaluating and deleting un-referenced resource queries, new properties have been added to de.properties to control the evaluation and cleanup. An existing property has also been removed from de.properties.

The following property has been removed from de.properties:

• ResourceQueryDeletionInterval

The following properties have been added to de.properties to control resource query cleanup:

• ResourceQueryCleanerEnable

• ResourceQueryCleanerStart

• ResourceQueryCleanerInterval

• ResourceQueryCleanerEnd

• ResourceQueryCleanerLimit

• ResourceQueryCleanerPause

For details about these properties, see "Configuration of the TIBCO ActiveMatrix BPM Directory Engine" in *TIBCO ActiveMatrix BPM Administration*.

These properties are included in the de.properties file automatically in new installations. However, if you are upgrading ActiveMatrix BPM, and you want to make use of any of these properties, you must manually add them to the de.properties.

Application Development: Resource Caching

HTTP cache headers have been added to Application Development requests so, by default, all resources used by custom client applications are cached by the browser.

Consequently, when you make and publish changes to an application, those changes may not be immediately reflected because the browser is using a cached copy of some or all changed resources.

If this default behavior is unsuitable, you can switch off caching for specific file extensions. You do this in TIBCO Administrator, by editing the wr.nonCacheableExtensions substitution variable on the amx.bpm.app application. For more information, see "Resource Caching" in the *TIBCO ActiveMatrix BPM Client Application Developer's Guide*.

Deprecated and Removed Features

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.

Description	Deprecated in Release
The use of CA Siteminder or Kerberos to provide Single sign-on (SSO) authentication of ActiveMatrix BPM users has been deprecated and may be removed in a future release. To provide SSO authentication, you are advised to use either of the following: • OpenID Connect JWT tokens. See "Single Sign-On via OpenID Connect" for more information. • OpenID Connect JWT tokens. See "Single Sign-On via SAML Web Profile" for more information.	4.3
The following products, which can be used to visualize and manipulate ActiveMatrix BPM data, have been deprecated and may be removed in a future release: • TIBCO JasperReports for ActiveMatrix BPM • TIBCO Jaspersoft Studio for ActiveMatrix BPM • TIBCO JasperReports Library for ActiveMatrix BPM	4.3
The UserSettingsService has been deprecated. This service and its operations are still available, but new code should not use this service, as it may be removed in a future release.	4.3
In the Client Application Framework, the following business components may be removed in a future release. • <business-actions-drop-down> • <work-list> • <work-views> Renamed versions of these business components are available and you should use these instead.	4.1
"getWorkListItems" has a redundant response type in the xsd. • getWorkListItemsResponseType	4.0
The correlation behavior for all BX audit events will change in future versions.	3.1

Description	Deprecated in Release
ec_stats table is deprecated and will be removed in a future version.	3.1
Message IDs in BRM service faults will be changed in a future version.	3.0
The following Properties are deprecated and will be removed from ECPublicationJMS.properties in a future release. Therefore the legacy method of event publication valid until TIBCO ActiveMatrix BPM 2.2 will no longer be supported in a future release of ActiveMatrix BPM and only the shared resource approach would be supported: • InitialContextFactory • InitialURL • TopicConnectionFactory • SecurityPrinciple • SecurityCredentials • SecurityEncryption • Persistent • Priority • TimeToLive • TopicName	3.0

Discontinued Software Support

Platforms and Databases

From Version 4.3 onwards, ActiveMatrix BPM no longer supports use of the following platforms and database versions.

See *TIBCO ActiveMatrix BPM Installation and Configuration* for more information.

Platforms

ActiveMatrix BPM 4.3 does not support use of the following platforms. These combinations of operating system and processor architecture cannot be used to host ActiveMatrix BPM.

Operating System (64 bit)	Versions	Processor Architectures
Windows	• Microsoft Windows Server 2012 (with any subsequent service packs for this version) • Microsoft Windows Server 2008 R2 with SP1 (and any subsequent service packs for this version) • Microsoft Windows Server 2008 with SP2 (and any subsequent service packs for this version)	x86-64

Operating System (64 bit)	Versions	Processor Architectures
Solaris	Oracle Solaris 10, 11.0, 11.2, 11.3 (and any subsequent patches for these versions)	x86-64
HP-UX	HP-UX 11i V3 (and any subsequent updates for this version)	Itanium

ActiveMatrix BPM 4.3 does not support use of the following platform to host a Developer Server configuration.

Operating System (64 bit)	Versions	Processor Architecture
Windows	Microsoft Windows 8.1 (with any subsequent service packs for this version)	x86-64

Database Versions

ActiveMatrix BPM 4.3 does not support use of the following database versions to host the ActiveMatrix BPM, ActiveMatrix Administrator, and (if required) BDS case data store databases.

Database (64 bit)	Versions	Editions
Microsoft SQL Server 2008 R2	2008 R2 with Service Pack 3 (or any subsequent service packs for this version)	Standard or higher
Oracle 11g R2	11.2.0.4 (with any subsequent 11.2.0.*x* patch sets)	Standard or higher (with or without RAC enabled)
DB2	9.7 (with Fix Pack 4 or later for this version)	Workgroup or higher

TIBCO Software

TIBCO Business Studio™

ActiveMatrix BPM 4.3 does not support use of TIBCO Business Studio - BPM Edition version 4.2.

TIBCO JasperReports® for ActiveMatrix BPM

TIBCO JasperReports for ActiveMatrix BPM, used with ActiveMatrix BPM 4.3, does not support use of:

- TIBCO JasperReports® Server for ActiveMatrix® BPM version 6.4.*x*.
- TIBCO Jaspersoft® Studio for ActiveMatrix® BPM version 6.4.*x*.

See *Using JasperReports with TIBCO ActiveMatrix BPM* for more information.

Third-Party Software

From Version 4.3 onwards, ActiveMatrix BPM no longer supports use of the following third-party software versions.

JDBC Drivers

ActiveMatrix BPM 4.3 does not support use of the following JDBC drivers. These drivers cannot be used to connect to the databases that will be used to host the ActiveMatrix BPM and ActiveMatrix Administrator databases.

Database	Required JDBC driver
Microsoft SQL Server 2014	Microsoft SQL Server JDBC Driver 4.0 (`sqljdbc4.jar`)
Microsoft SQL Server 2012 or 2008 R2	Microsoft SQL Server JDBC Driver 4.0 (`sqljdbc4.jar`)
Oracle 12c	Version 11.2.0.4.0 (`ojdbc6.jar`).
Oracle 11g R2	Version 11.2.0.4.0 (`ojdbc6.jar`)

See *TIBCO ActiveMatrix BPM Installation and Configuration* for more information.

Web Browsers

ActiveMatrix BPM 4.3 does not support use of the following web browsers:

- Internet Explorer versions 8, 9 and 10.
- Firefox - with Openspace, Workspace, Openspace (Accessible) and Application Development. Firefox (version 61 or later) can still be used with TIBCO ActiveMatrix Administrator (GUI).

See *TIBCO ActiveMatrix BPM Installation and Configuration* for more information.

Migration and Compatibility

Migrating Process Instances After Upgrade From a Version 4.0 or 4.1 System

Warnings about missing process instances may be written to the BPM log file upgrading from one of the following ActiveMatrix BPM versions: 4.0, 4.0.0_HF_*x*, 4.1, 4.1.0_HF-001. For example:

```
[WARN] com.tibco.n2.ec.core.triggers.ProcessHierarchy - Could not find instance
[pvm:0a123f3e4l]!
```

These warnings may occur when the following process instances are completed or cancelled:

- any process instance that was started on the pre-upgrade version 4.*x* system prior to the upgrade to version 4.3.

- any sub-process instance that is started on the upgraded (version 4.3) system, but which has a parent process instance that was started on the pre-upgrade version 4.*x* system.

Version 4.1.0_HF-002 introduced a change to the way that lifecycle events for process instances are recorded in the BPM database. As a result, these particular process instances are not correctly recorded as completed in the ec_managed_obj_lifecycle database table. This results in the warning message in the BPM log file, and also means that these instances cannot be purged or archived.

To resolve this problem, a new `amxbpm_set_lifecycle_root_ids` stored procedure is provided. This stored procedure corrects the information held in the ec_managed_obj_lifecycle table for affected process instances, meaning that they can be subsequently purged or archived.

You should run `amxbpm_set_lifecycle_root_ids`:

- after upgrading, if you see warnings about missing process instances in the BPM log file.

- before attempting to purge completed and cancelled process instances.

- periodically, if you want to archive audit data about completed and cancelled process instances.

You may need to run `amxbpm_set_lifecycle_root_ids` repeatedly, until all process instances that were started on the pre-upgrade version 4.*x* system have completed or been cancelled.

You may then need to run `amxbpm_set_lifecycle_root_ids` again periodically, to catch any newly completed or cancelled process instances. Repeat this cycle until you are certain that all process instances started on the pre-upgrade version 4.*x* system have completed or been cancelled.

The `amxbpm_set_lifecycle_root_ids` stored procedure is supplied as part of the migration scripts provided in the *TIBCO_HOME*\bpm*n.n*\scripts\migration*database*, where *n.n* is the version of ActiveMatrix BPM and *database* is the type of database you are using (`db2`, `mssql` or `oracle`).

See "Migrating Data Stored in Event Collector" in the *TIBCO ActiveMatrix BPM Installation and Configuration* guide, for more information.

amxbpm_set_lifecycle_root_ids Parameters

```
amxbpm_set_lifecycle_root_ids (batch_size, max_updates)
```

where:

- *batch_size* - is the number of rows to update before performing a commit.

- *max_updates* - is the maximum number of updates to perform before exiting.

Running amxbpm_set_lifecycle_root_ids

1. From an appropriate database query/management tool (for example, SQL Server Management Studio, Oracle SQL*Plus or a DB2 command window), connect to the BPM database using the BPM database user credentials (default: `bpmuser`).

2. Run the `install-migration-tools.sql` script to create the `amxbpm_set_lifecycle_root_ids` stored procedure.

3. Execute the `amxbpm_set_lifecycle_root_ids` stored procedure, using appropriate parameters.

Modifying the Indexes Used on the 'ec_managed_obj_lifecycle' Table

Modifying the indexes used on the **ec_managed_obj_lifecycle** table:

1. On SQL Server: prevents a known issue from occurring where, in certain circumstances, deadlocks can occur on the **ec_managed_obj_lifecycle** table.

   > If deadlocks occur on the **ec_managed_obj_lifecycle** table, an error similar to the following example is written to the BPM log file:
   > ```
   > [ERROR] org.hibernate.util.JDBCExceptionReporter - Transaction (Process
   > ID 110) was deadlocked on lock | communication buffer
   > resources with another process and has been chosen as the deadlock
   > victim. Rerun the transaction.
   > ```

2. On SQL Server, Oracle or DB2: improves database query performance.

See "Modifying the Indexes Used on the 'ec_managed_obj_lifecycle' Table", in the "Performing Post-Installation Tasks" section of the *TIBCO ActiveMatrix BPM Installation and Configuration* guide, for more information about how to make the necessary modifications.

XSD Changes May Require Application Rebuild

The `ec-basetypes.xsd` has changed in this release of ActiveMatrix BPM. This XSD was modified to resolve an issue when the getProcessInstanceAudit operation, from the EventCollectorReportService, was called against a process instance that had itself invoked a service process. The call failed and an error was written to the BPM log file. (See WRM-11075 for more details.)

If you have developed client applications that use the BPM public web service API and that call the getProcessInstanceAudit operation, you will need to modify the EventCollectorReportService schema definition used by your application. To do this:

1. If your application uses:

   - a WSDL generated from the EventCollectorReportService running on the ActiveMatrix BPM runtime, regenerate that WSDL.

   - the BPM public web service API (WSDL and XSD files) directly, an updated version of the `ec-basetypes.xsd` file is supplied with this release.

2. Update your application to use the new `ec-basetypes.xsd` file or regenerated WSDL, as appropriate.

Updating Custom Client Applications to Use New jQuery and AngularJS Versions

ActiveMatrix BPM version 4.3 uses new versions of the jQuery and AngularJS third-party libraries, as follows:

- jQuery v3.3.1 (replacing v3.1.1)

- AngularJS v1.7.5 (replacing v1.6.0)

These libraries are packaged as part of Application Development, in the **App Cdn** library application.

Before attempting to run any of your existing custom client applications against ActiveMatrix BPM 4.3, you must update any references in them to the old versions of these libraries, replacing them with the new versions. For example:

```
<script type="text/javascript" src="/apps/app-cdn/tcf/tcf.nocache.js"></script>
<script type="text/javascript" src="/apps/app-cdn/jquery/jquery-3.3.1.js"></script>
<script src="/apps/app-cdn/angular/1.7.5/angular.min.js"></script>
<script src="/apps/app-cdn/angular-ui-grid/ui-grid.min.js"></script>
```

Possible Process Halt with "...cannot cast to..." Error After Upgrade

After upgrading ActiveMatrix BPM, you may experience processes that halt with the following error:
ApplicationName.bdsutil.BDSNotifyingCalendar cannot be cast to
com.sun.org.apache.xerces.internal.jaxp.datatype.XMLGregorianCalendarImpl

This error occurs only if the following two conditions are met:

- You have date/time types in a BOM for which you have set a default value.

- Your BOM was created in version 4.2, or earlier, of TIBCO Business Studio, and you have upgraded to version 4.3, or later, of ActiveMatrix BPM.

If you experience this error, see "Process Halts with "... cannot be cast to..." Error" in the *TIBCO ActiveMatrix BPM Troubleshooting* guide for information about how to resolve it.

Workspace Migration

This section describes migration issues if you are upgrading TIBCO Workspace to version 4.3 from a previous version.

The most common migration task involves migrating new configuration parameters (in config.xml) and user access elements (in userAccess.xml). The way in which you migrate new configuration parameters and user access elements after upgrading depends on whether you are using the default Workspace application, a customized Workspace application, or a custom WCC application, as described in the subsections below.

How you migrate configuration parameters and user access elements also depends on whether you are upgrading from version 4.2, or from an earlier version. If you are upgrading from version 4.2, the only configuration change is to the **HelpFileLocations** parameter value, as described in Configuration Changes in Version 4.3 below. If you are upgrading from an earlier version of TIBCO Workspace, you will need to also migrate configuration parameters and user access elements that were new to the intervening releases. See the release notes for those releases to determine the configuration parameters and user access elements you need to migrate.

Default Workspace Application

The default Workspace application is the Workspace application that is deployed by default when ActiveMatrix BPM is installed, that is, you did not package it into a DAA and deploy it yourself.

If you are running the default Workspace application, the way in which you migrate configuration changes after upgrade depends on whether you've used Configuration Administrator, as follows:

- If you have used the Configuration Administrator to configure your application, after upgrade, you must use the Configuration Administrator to update the **HelpFileLocations** parameter, as described in Configuration Changes in Version 4.3. Plus, if you are upgrading from a pre-version 4.2 release, you must add new configuration parameters and user access elements from the intervening releases.

- If you have NOT used the Configuration Administrator to configure your application (that is, your configuration has not been written to the database), your `config.xml` file is automatically updated upon upgrade. No migration task is required.

Custom WCC Application

A custom WCC application is an application that you created using WCC components, or the Workspace application that you have modified and then packaged into a DAA, and then deployed to the server.

If you are running a custom WCC application, migration consists of the following tasks after upgrading:

1. Copy your custom application-specific directory from the previous release to the new release. For example, if the name of your custom application is "accounts", copy this directory:

   StudioHome\wcc*oldVersion*\JSXAPPS\accounts\

   to:

   StudioHome\wcc*newVersion*\JSXAPPS\

   where *oldVersion* is the version you are upgrading from and *newVersion* is the new version to which you are upgrading.

2. Copy the launch fragment for your custom application from the previous release to the new release. For example, if the name of your custom application is "accounts", copy:

   StudioHome\wcc*oldVersion*\accounts.html

   To:

   StudioHome\wcc*newVersion*\accounts.html

   where *oldVersion* is the version you are upgrading from and *newVersion* is the new version to which you are upgrading.

3. Copy the `.war` creation command file for your custom application from the previous release to the new release. For example, if the name of your custom application is "accounts", copy:

   StudioHome\wcc*oldVersion*\accounts.create.war.cmd

   to:

   StudioHome\wcc*newVersion*\accounts.create.war.cmd

   where *oldVersion* is the version you are upgrading from and *newVersion* is the new version to which you are upgrading.

4. Update configuration parameters and user access elements. This includes the updated **HelpFileLocations** parameter from version 4.3, as well as configuration parameters and user access elements from previous releases if you are upgrading from a release prior to version 4.2. The way in which you do this depends on whether you have used Configuration Administrator to change configuration in your custom WCC application, as follows:

   - If you have used the Configuration Administrator to configure your application, that configuration is stored in the database (not the `config.xml` and `userAccess.xml` files). Therefore, you must use Configuration Administrator to add any new configuration. However, this must be done AFTER you redeploy the application in step 5 so that the new configuration is written to the database.

   - If you have NOT used the Configuration Administrator to configure your application (that is, your configuration has not been written to the database), manually add any new configuration to the `config.xml` and `userAccess.xml` files in your development environment.

5. Undeploy your custom WCC application.

6. Create a new `.war` file for your custom application, then redeploy the application using ActiveMatrix Administrator.

   For information about the process of creating the `.war` file and deploying an application, see "Deploying an Application After Customizing" in the *TIBCO Workspace Configuration and Customization* guide.

Configuration Changes in Version 4.3

The only configuration change in this release of TIBCO Workspace is to update the URLs to the Workspace and Organization Browser help that are used by the help links in the Workspace application and Organization Browser. These URLs are specified in the **HelpFileLocations** parameter in the Workspace application's `config.xml` file:

```
<record jsxid="HelpFileLocations"
    workspace="https://docs.tibco.com/dyno/amx-bpm/Version/doc/html/bpmhelp/GUID-
BEC930CC-206C-4026-8DAB-95AA8DF9A56F.html"
    orgBrowser=" https://docs.tibco.com/dyno/amx-bpm/Version/doc/html/bpmhelp/
GUID-53A14AF5-1FF4-4FC9-82F2-004ACD349025.html">
</record>
```

To update these paths, change the *Version* value to the most recent release.

Updating Client Applications to Use SOAP Version 1.2

A TIBCO ActiveMatrix BPM version system can be configured to use SOAP version 1.1 (the default) or version 1.2 bindings. (See *TIBCO ActiveMatrix BPM Installation and Configuration* for more information.)

Up to and including version 2.2, TIBCO ActiveMatrix BPM only supported SOAP version 1.1.

To communicate with a (new or reconfigured) TIBCO ActiveMatrix BPM system that uses SOAP version 1.2 bindings, an existing client application built using a version 2.2 (or earlier) BPM web service API must be modified as follows.

API Used	Modification Required
BPM web service API	Rebuild the application using the SOAP 1.2 version of the API.
Java Service Connector	Reconfigure the application to use SOAP version 1.2.

Closed Issues

ActiveMatrix BPM Runtime

Key (Case ID)	Description
WRM-11391 (CN-01674458)	Sometimes Case Creation messages did not get processed properly to the ec_case_status table, meaning that statistics for those cases remained out of date. The messages ended up "stuck" in ec_event_trigger were not processed. Now they are processed by the recovery thread.
WRM-11357 (CN-01675642, CN-01683038)	If a sub-process is invoked in Asynchronous Detached mode, the invoking call activity completes immediately and the process flow continues. The sub-process lifecycle is independent of the invoking process. In this case, a sub-process instance may still be active when the parent process instance has completed, cancelled or failed. When the `ec_delete_audit_stats_data_db.sql` script was used to purge audit data for a process instance, if that process instance had any detached, sub-process instances that were still active, the audit data for those active sub-process instances was incorrectly purged as well. Now, the `ec_delete_audit_stats_data_db.sql` script checks to see if a completed, cancelled or failed process instance has any child, detached sub-process instances that are still active before it purges audit data. If the process has: • no active, detached sub-process instances, audit data is purged for the whole process chain. • any active, detached sub-process instances, no audit data is purged, either for the root process instance or any of its child sub-process instances. A new *delete_active_subprocs* parameter is provided on the `ec_delete_audit_stats_data` stored procedure, which you can use to override the default behavior if you wish. If this parameter is set to `true`, audit data for the root process instance and its chain of sub-process instances will be purged even if any of those sub-process instances are active. See "How Detached Sub-Process Instances Are Handled When Purging Audit Data" in *TIBCO ActiveMatrix BPM Administration* for more information.
WRM-11166 (CN-01656951)	The Monitoring database configuration screen was present while using the BPM server wizard but not present in the Administrator server wizard. This screen has been removed in this release.
WRM-11100 (CN-01650389)	The bpm-db-cleanup utility did not support the clearing out of a global signal application from the PVM tables.

Key (Case ID)	Description
WRM-11075	If a client application called the getProcessInstanceAudit operation (from the EventCollectorReportService) against a process instance that had itself invoked a service process, the call failed and the following error was written to the BPM log file: `Internal Server Error: Process Runner Failed with the exception PVM-XML-106017: Expression Evaluation Error` This error occurred because the getProcessInstanceAudit response returns "nil" for a service process call, but the EventCollectorReportService schema did not specify the `nillable="true"` attribute for the `instanceId` element used by the getProcessInstanceAudit operation. The schema has now been updated. NOTE: If you have developed client applications that use the BPM public web service API and that call the getProcessInstanceAudit operation, you will need to modify the EventCollectorReportService schema definition used by your application to prevent this error from occurring. See XSD Changes may Require Application Rebuild.
WRM-11059 (CN-01587997)	There was an issue that script could be injected in the standard http server request and REST service requests. To prevent exceptions and error messages which could contain sensitive data, configuration options in RESTServiceConfig.properties have been provided to prevent these messages.
WRM-11043 (CN-01642678)	A problem occurred when using the updatePushDestinations operation (in the OrgModelService of the ActiveMatrix BPM public API) to update a push destination that had no value for its 'name' attribute. Instead of updating the existing push destination, a new push destination was erroneously created.
WRM-11027 (CN-01639513)	After upgrading to ActiveMatrix BPM 4.2.0, a work item was cancelled because a null value was incorrectly received for a field in the work item. When this occurred, the following error was written to the BPM log file: `com.tibco.bx.plugin.ActivityFault: BRM supplied an invalid value for field 'fieldName'.` The error occurred because ActiveMatrix BPM incorrectly returned an empty string value for *fieldName*, when *fieldName* was a non-string field type.
WRM-11010 (CN-01646233)	Following an upgrade of ActiveMatrix BPM to version 4.2, canceling a sub-process caused the parent process to fail (instead of halting). This error only occurred when canceling a process instance that already existed on the previous version of the ActiveMatrix BPM system. Process instances created after the upgrade were not affected. The following error was written to the BPM log file when the main process instance failed: `java.lang.NullPointerException at com.tibco.pvm.infra.api.impl.finder.IpmObjectFinder.findObject( IpmObjectFinder.java:93)`

Key (Case ID)	Description
WRM-11006	An attempt to deploy a new minor version of a process application failed because a change to the application's service interface was incorrectly detected when no such change had been made.
WRM-10931 (CN-01636058)	If the database used by the ActiveMatrix BPM system failed and then recovered, the following warning was written to the BPM log file: ```[WARN] com.tibco.pvm.infra.system.recovery - Engine is [RUNNING] and has no engine Id```
WRM-10811 CN-01631001	Attempts to retry a halted process instance kept failing.
WRM-10806 (CN-01611384)	A StackOverFlowError occurred when trying to submit a work item. (This error occurred when the data being passed to a pageflow did not match the underlying BOM.)
WRM-10778 (CN-01621677)	When a resource attribute was mapped to an LDAP attribute for which an LDAP entry had no settings (not even null), a null pointer exception occurred if an RQL query evaluation encountered that LDAP entry.
WRM-10776 (CN-01612932)	A new `ec_delete_case_audit` stored procedure is provided, which can be used to delete audit entries associated with case data from the BPM database (the entries in the `ec_event_int` and `ec_case_status` tables). For more information, see "Clearing Audit Entries Associated with Case Data" in *TIBCO ActiveMatrix BPM Administration*.
WRM-10775	When defining an LDAP group source for an LDAP container (using either the Organization Browser or the DirectoryService in the ActiveMatrix BPM public API), a 'member' attribute must be specified. The 'member' attribute holds the collection of member identifiers (DNs) that provides the list of candidate resources. If the LDAP server is an Active Directory server, the 'member' attribute name can be specified as a range query. However, if the query range specified more entries than existed on the LDAP server, no candidate resources were displayed. For example, if the 'member' attribute name was defined as: ```member;range=0-1000``` and the LDAP server contained more than 1000 matching entries, the list of candidate resources was displayed correctly. If there were only 975 matching entries, no candidate resources were displayed. (This error occurred because the attribute name returned from the Active Directory server contained "`member;range=0-*`", to indicate the end of the results. This did not match the expected attribute name, so no results were returned.) With this fix, the list of candidate resources is displayed correctly even if the range specifies more entries than exist on the LDAP server.

Key (Case ID)	Description
WRM-10719 (CN-01561981)	A process application behaved differently following an upgrade to ActiveMatrix BPM 4.2.0 HF-001. Prior to upgrading, if an in-memory task failed at a specific point, a process instance would fail and enter a halted state. After upgrading, if an in-memory task failed at the same point, a process instance would instead remain active, becoming stuck. The problem occurred because changes in the way transactions are used for in-memory instances (made via WRM-10209 in 4.2.0_HF-001) did not handle tasks that might require XA transactions. With this fix, the transaction is handled correctly - so in the example above, a process instance will behave correctly and halt.
WRM-10708 CN-01235974/ CN-00714988/ CN-00735811/ CN-00717886/ CN-00712139	When a work item is allocated to a user, a spurious "[ERROR] - {WPCORE_PROCESSWORKITEM_PUSH_WORK_FAILED} - Error occurred while attempting to push work" message is written to the BPM log file, even though work allocation for that user does not involve push destinations. (No push destinations involving that user are enabled.)
WRM-10706 (CN-01609969)	Case instances could not be deleted when using the ActiveMatrix BPM public API BusinessDataService.deleteCaseByRef operation. The problem only occurred if the case model specified in the request contained a particular pattern (a circular arrangement of one-to-many containments).
WRM-10702 (CN-01647205)	Although product upgrade was successful, there were errors observed in the bpm log during product upgrade: for example, "Can not set boolean field com.tibco.pvm.db.common.orm.dataobj.sys.IdbEngineDOImpl.failed to null value".
WRM-10609 (CN-01609969)	Case instances could not be deleted when using the ActiveMatrix BPM public API `BusinessDataService.deleteCaseByRef` operation. The problem only occurred if the case model specified in the request contained a particular pattern (a circular arrangement of one-to-many containments).
WRM-10600 (CN-01601857)	A sub-process call to a Business Process from a pageflow failed with a parsing error: ``` com.tibco.bx.core.faults.BxException: The element type "proc:value" must be terminated by the matching end-tag "</ proc:value>". ```
WRM-10586 (CN-01571053, CN-01601320)	When automatically archiving event data, OutOfMemoryError exceptions could occur in the BPM log file when large numbers of process instances were being processed. For example: ``` [ERROR] com.tibco.pvm.system.PvmSystem - Unexpected Error processing WorkItem java.lang.OutOfMemoryError: Java heap space ```
WRM-10577 (CN-01593230)	When passing a parameter value in a process instance, an empty string was incorrectly changed to a null value. When using an Oracle database, this sometimes resulted in the process instance failing.

Key (Case ID)	Description
WRM-10479 (CN-01601488)	Process instances were not moving to ACTIVE state after they had been started. They remained stuck in STARTING state. This problem occurred when the system contained large numbers of stuck process instances, which are automatically assigned a low priority, and normal process instances which were being started with low priority. Work was being selected for processing (from the PVM_REQUEST_QUEUE database table) based on priority, with no distinction between the type of process instance. This could result in significant delays in starting new process instances. With this fix, requests to start new process instances are selected first, resulting in no (or minimal) delay.
WRM-10423	After upgrading from a 4.0 version of ActiveMatrix BPM to either version 4.1 HF-002 (or to a later 4.1.0 Hotfix), or to version 4.2.0 (or to a later 4.2.0 Hotfix), warnings about missing process instances were written to the BPM log file. For example: `[WARN] com.tibco.n2.ec.core.triggers.ProcessHierarchy - Could not find instance [pvm:0a123f3e4l]!` These warnings occurred when the following process instances completed or were cancelled: • any process instance that was started on the version 4.0 system prior to the upgrade to version 4.1 or 4.2. • any sub-process instance that was started on the upgraded (version 4.1 or 4.2) system, but which had a parent process instance that was started on the version 4.0 system. Version 4.1.0_HF-002 introduced a change to the way that process instances lifecycle events were recorded in the BPM database. As a result, these particular process instances were not correctly recorded as completed in the ec_managed_obj_lifecycle database table. This resulted in the warning message in the BPM log file, and also meant that these instances could never be purged or archived. With this fix, a new `amxbpm_set_lifecycle_root_ids` stored procedure is provided to resolve this problem. This stored procedure corrects the information held in the ec_managed_obj_lifecycle table for affected process instances, meaning that they can be subsequently purged or archived. See Migrating Process Instances After Upgrade From a Version 4.0 System for more information about when and how to use the `amxbpm_set_lifecycle_root_ids` stored procedure.
WRM-10415 (CN-01587144)	When using a business service to start a process instance, the process instance failed to start if the business service passed a null case reference parameter to the call sub-process task used to start the process instance. The following error was written to the BPM log file: `com.tibco.bx.core.faults.BxException: Null passed where a valid Case Object expected` With this fix, any null parameter passed to the sub-process task used to start the process instance is handled correctly, allowing the process instance to start.

Key (Case ID)	Description
WRM-10405 (CN-01580927, CN-01634816)	Process instances were failing (with null pointer exceptions) when checking for pending correlation messages.
WRM-10397 (CN-01578184)	In Workspace, a View of halted process instances incorrectly also listed process instances that were active, not halted. The problem occurred because the ActiveMatrix BPM public API ProcessManagerService.queryHaltedProcessInstances operation incorrectly returned active process instances as well as halted ones in its results list.
WRM-10394 (CN-01574792)	In some circumstances, when a process instance was interrupted - for example, on receiving a case data signal event, if a user task was completed at the same time that the process instance was resumed, the process instance became stuck and did not continue to the next task in the business process.
WRM-10346 CN-01574642	Using the BPM Task Retry pattern permitted in a task in a REST Service task did not work.

WRM-10345
 	
(CN-01566830)
	Upgrading to ActiveMatrix BPM version 4.2.0 failed when starting the ActiveMatrix BPM application. The following error was written to the `CONFIG_HOME\tct\bpmupgrade\timestamp\logs\upgrade.bpm.log` file:
	
	`{EC_LIFECYCLE_STARTUP_ERROR} - Start-up Process failed!`
	
	This error occurred because the upgrade process did not find a
	
	`<messageIds>`
	`    </messageIds>`
	
	block in the `CONFIG_HOME\bpm\bpm_app_name\configuration\ec-probe-rules.xml` file. (This code block had been removed or commented out before upgrading.)

WRM-10339	ActiveMatrix BPM 4.3 introduces a new property to specify the version of the Resource Query Language (RQL) expression algorithm to use. See Resource Query Language Performance Improvements for more information.
WRM-10331 (CN-01569887)	Database performance was impacted if an application generated duplicate correlation data (as multiple process instances attempted to SELECT...FOR UPDATE a number of the same rows on the PVM_MSG_PENDING database table, leading to row lock contention). Now, when using Oracle or Microsoft SQL Server, the Process Engine includes a SKIP LOCKED clause in the query to reduce the impact of any such contention. IMPORTANT - Using the same correlation value for multiple process instances IS NOT SUPPORTED. Doing so means that correlation cannot function correctly - that is, it cannot correctly target a single, specific process instance. This JIRA is not intended to fix the behavior associated with using correlation in an unsupported way, only to allow the Process Engine to process other correlation data in a more efficient fashion.

Key (Case ID)	Description
WRM-10313	In the ActiveMatrix BPM public API, the ProcessManagerService.listProcessInstances operation can now return in-memory process instances, if the string '#IN_MEMORY' is appended to the module name specified in the request. See listProcessInstances Operation can Return In-memory Process Instances for more information.
WRM-10308	A process instance would wait indefinitely for a script to complete. This could result in problems - for example, if a script contained an infinite loop, the process instance would never complete. Now, a new se.scriptexecutiontimeout JVM property is provided, which allows you to define the maximum amount of time (in seconds) that a process script can take to execute before timing out. See Configurable Timeout Value for Process Script Execution for more information.
WRM-10298	Various internal enhancements have been made to the operation of the Process Engine recovery thread. See BPM Node Recovery for more information.
WRM-10290 CN-01564412/ CN-01628576)	A privilege check has been added on executing a Business service so the user can constrain the executing of Business services.
WRM-10289 CN-01559881	During installation, custom values are provided during the "ActiveMatrix BPM: Host and Node Configuration" step and are saved. Later, when the saved build.properties file is loaded, in the "ActiveMatrix BPM: Host and Node Configuration" step, the saved custom values are not shown, and instead it displays the default values.
WRM-10277 (CN-01597028)	When using the ActiveMatrix BPM public API, EventCollectorQueryService calls were sometimes failing with null pointer exceptions. The problem occurred if the request contained a query filter string that used the currentUser() function. (The problem was caused by the currentUser() function returning a null value as a result of a race condition that occurred in certain circumstances.)
WRM-10269 (CN-01563523)	When Statistics Collector was processing events, a race condition could result in large numbers of 'unique constraint (constraintName) violated' database errors being written to the BPM log file.
WRM-10244	The ActiveMatrix BPM JVMInfo utility can now return additional Process Engine information gathered from the BPM node, using the -m process_ID option. See "JVMInfo" in the *TIBCO ActiveMatrix BPM Performance Tuning* guide for more information.
WRM-10239	Various internal enhancements have been made to the operation of the Process Engine recovery thread. See BPM Node Recovery for more information.

Key (Case ID)	Description
WRM-10231	New INFO and WARN level logging messages have been added to provide more detailed information about Process Engine recovery following a node failure or restart. These messages contain either `IpmRecoveryServiceDistributed` or `IdbRecoveryProviderDistributed`. For example: ``` [INFO] com.tibco.pvm.system.PvmSystem - IpmRecoveryServiceDistributed: attempting to perform periodic group recovery [WARN] com.tibco.pvm.system.PvmSystem - IdbRecoveryProviderDistributed: found 1 inactive engine(s) . . . [INFO] com.tibco.pvm.system.PvmSystem - IdbRecoverProviderAbstract: recovering engine [1] ``` See WRM-10176 below for more information about the Process Engine recovery thread.
WRM-10227 (CN-01558641)	The `bpm-db-cleanup` utility could not be used with applications that did not have a `'qualifier'` component in their version number.
WRM-10223	A new `TIBCO_HOME\bpm\version\bin\rulesinfo` utility is provided, which can be used to show, validate or test proposed modifications to the event processing rules that are defined in the event probe (`ec-probe-rules.xml`) and event rules files (`ec-event-rules.xml`). See "Using the rulesinfo Utility to Validate the Event Probe and Event Rules Files" in *TIBCO ActiveMatrix BPM Administration* for more information about this utility and how to use it.
WRM-10222	ActiveMatrix BPM maintains a 'least recently used' cache (LRUCache) of process definitions and modules. You can now use the `com.tibco.pvm.LRUCache.proc.size` and `com.tibco.pvm.LRUCache.module.size` JVM properties to configure the cache sizes. Tuning the cache size can help with system performance. See "Configuring LRUCache Size for Process Definitions and Modules" in *TIBCO ActiveMatrix BPM Performance Tuning* for more information.
WRM-10219	When DEBUG level was set for the `com.tibco.bx` logger, a process instance summary was written to the BPM log file whenever a process instance completed. This summary is now only written when TRACE level is set.
WRM-10218	Implemented some low level changes to reduce the number of calls that Process Engine makes to the BPM database.

Key (Case ID)	Description
WRM-10214	When process and instance attributes are written to the PVM tables in the BPM database, large string values are stored as BLOB data. If there are a lot of these large string values, significant amounts of BLOB storage can be used. You can now use the `blobCompress`, `blobCompressThreshold` and `blobCompressBufferSize` properties, in the `pvm.properties` file, to compress large field values and so reduce the storage used. See "Configuring BLOB Data Compression" in *TIBCO ActiveMatrix BPM Performance Tuning* for more information.
WRM-10210	Implemented some low level database processing optimizations to improve performance.
WRM-10209	Too many transactions were used when handling in-memory process instances.
WRM-10206	Implemented some low level Process Engine optimizations to improve performance.
WRM-10205 (CN-01557165)	The `ec_delete_audit_stats_data_db.sql` and `ec_delete_non_instance_audit_data_db.sql` scripts (used to delete audit entries and statistical data for process instances) did not delete data that had been archived.
WRM-10195	To make system performance tuning easier, new properties (`sequenceCacheSizeInstTask`, `sequenceCacheSizeInstLink`, `sequenceCacheSizeInstProcess` and `sequenceCacheSizeInstProcessIm`) can be used to define the number of ID sequences to cache for different entities that are managed by the Process Engine. These properties are available in the `pvm.properties` file - see "Process Engine Properties (pvm.properties)" in *TIBCO ActiveMatrix BPM Administration* for more information. Equivalent JVM properties were introduced in version 4.2.0 HF-01. If you are upgrading from that version and you used those JVM properties, you need to manually copy them into the `pvm.properties` file as part of your upgrade process. See "Performing Post-Installation Tasks > Copy Process Engine-Related JVM Properties to BPM properties Files" in *TIBCO ActiveMatrix BPM Installation and Configuration* for more information.
WRM-10193	A `BX_INSTANCE_TASKS_COMPLETED` event now also includes the time taken for the task to complete.
WRM-10186	Log Viewer failed to start on an ActiveMatrix BPM 4.2.0 system (either on a new installation or following an upgrade from an earlier version).

Key (Case ID)	Description
WRM-10176	An active process instance may hang after a failure and restart of a BPM node, if that process instance had been running a child service process instance when the BPM node failed.

Because service processes run in-memory, they must be recovered after a node failure, allowing the parent task to complete and its instance to continue. Note that any data generated during the in-memory instance's processing cannot be recovered. This task is performed by a Process Engine recovery thread. (This thread runs periodically, as specified by the `recoveryFailureThreshold` property in the `pvm.properties` file - by default, after 120 seconds of inactivity of the JVM process that runs the node.)

However, this thread only recovers service process instances associated with valid BPM nodes (as identified in the PVM_ENGINE table in the BPM database). Any service process instance associated with a no longer existing BPM node (that is, without a corresponding entry in the PVM_ENGINE table) would not be recovered. This meant that the parent process instance could not continue, and so would hang indefinitely.

Now, an additional Process Engine recovery thread is run to recover any such 'orphaned' service process instances, allowing the parent process instances to continue. The thread runs periodically, as specified by the `bpelInMemoryRecoveryInterval`, in the `pvm.properties` file, which takes a periodic value (in minutes) with a minimum value of "P1".

WARN messages are written to the BPM log file identifying service process instances that have been recovered by either of these threads. Messages containing the string '`_recoverEngine`' identify instances associated with the BPM node being recovered. For example:

```
[WARN ] com.tibco.pvm.system.PvmSystem - _recoverEngine(1):
recovering in-memory instance [101]; spawner task
[CallSubProcess3]; parentProcessId [33]
```

Messages containing the string '`IdbInMemoryInstanceRecovery`' identify orphaned instances being recovered. For example:

```
[WARN ] com.tibco.pvm.system.PvmSystem -
IdbInMemoryInstanceRecovery: recovering in-memory instance
[40]; spawner task [CallSubProcess2]; parentProcessId [18]
```

For more information see:

- BPM Node Recovery.
- "Process Engine Properties (pvm.properties)" in *TIBCO ActiveMatrix BPM Administration* |
| WRM-10175 | An active process instance could hang waiting for a child service process instance to complete. The child service process instance would never complete because it had been suspended or cancelled by an event intended for a different child service process instance, sent by that child's parent process instance.

This problem could occur because service process instance IDs were not globally unique. Now, globally unique service process instance IDs are allocated from a database sequence value (and stored in the PVM_INST_PROCESS_IM_SEQ database table). |

Key (Case ID)	Description
WRM-10163 (CN-01555743)	When attempting to deploy a global signal application on an ActiveMatrix BPM system with 4.0.0 HF-003 applied, deployment failed with a (class cast) exception.
WRM-10157 (CN-01553310)	When upgrading a global signal definition project to a new minor version, deployment succeeded even though the project contained a parameter which had been changed from mandatory to optional. (This is an invalid change for a minor version - if you want to change a mandatory field to an optional one, you must deploy a new major version of the project.) This resulted in a runtime error when the global signal was called. With this fix, a deployment error occurs if you attempt to upgrade a global signal definition project to a new minor version when a mandatory parameter has been removed or changed to optional.

WRM-10155
 	
(CN-01542714)
	When using ActiveMatrix BPM with a DB2 database, a call to the 'queryProcessInstancesAlt' operation (BPM public API) sometimes resulted in the following exception:
	
	`java.lang.ClassCastException: java.lang.String cannot be cast to java.lang.Number`
	`.`
	`.`
	`at`
	`com.tibco.bx.amx.container.management.BxManager.queryProcessIns`
	`tances (BxManager.java:2365)`

WRM-10139
 	
(CN-01543457)
	If a parent process instance sent a SUSPEND, CANCEL or RESUME event to a child service process that had failed, the event could not be processed. A WARN message was written to the BPM log file. For example:
	
	`[WARN ] com.tibco.pvm.system.PvmSystem - Unable to schedule`
	`life cycle event on in-memory process: PVM-MODEL-102501: Life`
	`Cycle command 'SUSPEND' is not allowed from 'FAILED' status`
	
	The Process Engine continued to try and process these events for the failed service process instances. If a backlog of such events built up, processing of service process instances would be slowed and CPU usage on the BPM node would increase significantly.
	
	Now, completed, halted or cancelled service process instances are removed from the in-memory work list. Any associated events are also cleared.

WRM-10126 (CN-01539679)	If a service process halted as a result of reaching its MAX_TASKS_PER_INSTANCE_REACHED threshold value, the halt did not propagate back to the parent process.

Key (Case ID)	Description
WRM-10123 (CN-01521867)	When a sub-process returned case data to its parent, if the data contained an attribute that was not present in the case data model used by the parent, the parent process halted. Now, if this happens: • The unknown attribute is simply removed, allowing the parent process to continue. • A WARN message is written to the BPM log file. For example: `[WARN] - {BX_UNKNOWN_XML_ATTRIBUTES_REMOVED} - Process[Root Task] Instance [pvm:0a125]: removed unknown attributes from XML value...` • A BX_UNKNOWN_XML_ATTRIBUTES_REMOVED message is displayed in the audit trail.
WRM-10121	Process instance execution and work item scheduling performance problems were encountered when the system was handling a high rate of incoming cases. For example, there was a significant delay between completing one user task and starting the next one. The problem occurred when processing global signal event handlers. (Specifically, adding a new waiting receiver to the signal, or subsequently removing that receiver, caused a processing bottleneck where all threads within all nodes blocked on the same signal definition.)
WRM-10113	When purging audit data, data for sub-process instances could be incorrectly purged when the parent process instance had not yet completed, resulting in an incomplete audit trail. This error could occur if the ActiveMatrix BPM system had been upgraded from a pre-4.0 version, when purging audit data that had been migrated from the pre-4.0 version. To correct this problem, a new `amxbpm_set_lifecycle_ids` stored procedure is provided as part of the migration scripts supplied in *TIBCO_HOME*\bpm*n.n*\scripts\migration*database*, where *n.n* is the version of ActiveMatrix BPM and *database* is the type of database you are using (`db2`, `mssql` or `oracle`). You must run the `amxbpm_set_lifecycle_ids` stored procedure after migrating your audit data. See "Migrating Data Stored in Event Collector" in the *TIBCO ActiveMatrix BPM Installation and Configuration* guide for more information.

WRM-10099	After upgrading to ActiveMatrix BPM 4.2.0, process instances that existed prior to the upgrade sometimes failed with the following exception:
	
	`com.tibco.pvm.system.util.exceptions.PmSystemException: PVM-SYS-100351: Error occurred when deserializing the object`
	`.`
	`.`
	`Caused by: java.io.InvalidClassException:`
	`com.tibco.pvm.api.token.PmTokenBlockerFactory`
	`$PmTokenBlockerImpl; incompatible types for field`

Key (Case ID)	Description
WRM-10086 (CN-01537624)	On an ActiveMatrix BPM system with Cross-Origin Resource Sharing (CORS) support configured, when using the ActiveMatrix BPM REST APIs, PUT requests were failing because the responses did not contain a CORS response header. The browser therefore rejected the response and no data was received by the calling application. (This problem affected Chrome and Firefox but not Internet Explorer.) PUT and DELETE CORS requests are now also supported.
WRM-10084 (CN-01535994, CN-01487999)	After deploying a new major version of a case data model, a `StackOverFlowError` occurred when trying to open a work item.
WRM-10060 (CN-01536612)	All BDS applications needed to be running for the list of case data models to be populated in the Case Data Management gadget. If one or more BDS applications had been in the Stopped state since the last node restart, BDS's getCaseClassInfo API (when called to fetch information for all applications) failed, returning no results.
WRM-10058 CN-01531717	There was an issue with being shown full table scans on very high frequency BPM queries. To improve performance, the following indexes are now provided to prevent continual full table scans : PVM_DEF_LINK table, adds an index on columns (IDX,OWNER_ID). PVM_TOKEN_PATH_COUNTER table, adds an index on columns (PARENT_TASK_ID,PATHSTARTER_DEFID).
WRM-10057 (CN-01534206)	After upgrading to ActiveMatrix BPM 4.2.0, process instances that existed prior to the upgrade, and that used global signals, failed with the following exception: `java.lang.ClassCastException: [Ljava.lang.Integer; cannot be cast to [Ljava.lang.Long;`

WRM-10045
(CN-01535912)
	In a client application, a call to the getProcessInstanceAudit operation (in the EventCollectorReportService) returned an exception if the specified process instance did not exist in the ec_event view. This could happen if either the specified process instance did not exist, or if the audit data for that process instance had been purged.
	
	Now, the getProcessInstanceAudit operation returns a successful response that contains no entries. For example:
	
	``xml
	<xml-fragment>
	   <endPosition>0</endPosition>
	   <startPosition>0</startPosition>
	   <totalItems>0</totalItems>
	   <processInstanceRef>
	      <instanceId>jnlkjn</instanceId>
	   </processInstanceRef>
	</xml-fragment>
	``

Key (Case ID)	Description
WRM-10024 (CN-01534901)	The version number of the EventCollectorReportService on ActiveMatrix BPM 4.1.0 was 1.11.0. On ActiveMatrix BPM 4.2.0 it was erroneously changed to 1.10.0.
WRM-10023 (CN-01533640)	A BPM background job periodically deletes completed rows from the PVM_WORK_ITEM table. If Process Manager tried to update a row in the PVM_WORK_ITEM table at the same time as the background job tried to delete it, the following error occurred (when using an Oracle database): `ORA-00060: deadlock detected while waiting for resource` With this fix, the Process Manager update now ignores already completed rows. (See also WRM-9982.)
WRM-10019 (CN-01532397/ CN-01676661/ CN-01676009)	The ec_event_attr table was no longer tidied up by purge scripts.
WRM-10017 (CN-01532586)	Additional WARN level logging has been added to identify any errors that occur when a BPM node attempts to compile a process definition. DEBUG level logging has also been enhanced to provide additional detail about the cause of any such errors.

WRM-10011
(CN-01532586)
	A resume event can be generated for an instance that has not yet started, with the resume starting the instance so that the start event will not occur after the resume event.
	The following audit messages have been added:
	`PROCESS_INSTANCE_RESUMED_WHILE_STARTING,`
	`PROCESS_INSTANCE_RESUMED_WHILE_NOT_STARTED`
	See "Auditable Messages" in TIBCO ActiveMatrix BPM Administration.

WRM-10002
(CN-01528420)
	When a client application used a BusinessService or PageFlowService operation (for example, startBusinessService), if the request body contained a type-based value for a data field defined as a complex type (complexSpec), the response failed XML schema validation. For example:
	`Invalid xsi:type qname: 'xs:anySimpleType' in element complexSpec`
	This problem occurred because the response included a *value* that contained an "xsi:anySimpleType" xsi:type definition, which is invalid.
	To fix this schema validation issue, change the value of the enableComplexTypeValidation property (in the `CONFIG_HOME`\bpm \`bpm_app_name`\configuration\PFEConfig.properties file), from its default value of `false`, to `true`:
	`enableComplexTypeValidation=true`

Key (Case ID)	Description
WRM-10000	After upgrading to ActiveMatrix BPM 4.2.0, an application that used correlation, and that had been running before the upgrade, failed to start. The following error was written to the BPM log file: ``` PVM-MODEL-102104: Get Value '$bx_correlations' failed. . . Caused by: PVM-SYS-100351: Error occurred when deserializing the object . . Caused by: java.io.InvalidClassException: com.tibco.pvm.infra.api.impl.id. IpmIdImpl; incompatible types for field ``` This problem only occurred if the application used correlation and a BLOB_VALUE existed for a $bx_correlations attribute in the PVM_DEF_TASK_ATTR database table.
WRM-9983 (CN-01531013)	When an organization model was upgraded and privileges were removed, the privileges were only removed from fixed organization units, not from dynamic organization units. With this fix, the privileges are now also removed from the existing dynamic organization unit and position instances when the extension points are next processed.
WRM-9982 (CN-01529439, CN-01521867)	When Process Manager processes a row in the PVM_WORK_ITEM or PVM_REQUEST_QUEUE database tables, it sets that row's STATUS value to 2 (DONE). A background job periodically cleans these rows up. However, if the number of such rows grew too large, performance problems were noticed when the background job was processing work, particularly if Process Manager was configured to use large batch sizes (using `com.tibco.bx.groupRQ.batchSize`). With this fix, Process Manager now deletes a row in the PVM_WORK_ITEM or PVM_REQUEST_QUEUE database tables when it has processed it, instead of setting it to DONE. The following new properties, in the `pvm.properties` file, are used to enable this as the default behavior: ``` workItemCleanupInline=true requestQueueCleanupInline=true ``` If you want to continue to use the original behavior instead, change the value of these properties to `false`.
WRM-9981 (CN-01529123)	Attempted retries of halted process instances sometimes failed with the following exception in the BPM log file: ``` [ERROR] com.tibco.bx.core.BxSystemImpl - [ERROR] - {BX_TASK_REPORTED_ERROR} - BX-800009: Task reported an error ... com.tibco.bx.core.faults.BxException: ... Caused by: java.lang.IndexOutOfBoundsException: ```
WRM-9874 CN-01519754	A Bulk Cancellation API could cause deadlock, and some process instances were not cancelled.
WRM-9870 CN-01519754	The Bulk cancellation API was taking a lot of time for the process instances to get cancelled, and some were not getting cancelled. An index has been added to managed_obj_id to improve performance.

Key (Case ID)	Description

WRM-9963
 	
(CN-01528379)
	Service process calls were taking a long time to respond to the main process.
	
	This problem occurred if the PVM_REQUEST_QUEUE database table contained rows for process applications (modules) that were not running. This could happen if, for example, large numbers of process instances were cancelled when the process application itself was not running.
	
	With this fix, performance improvements have been made in this area. Additional WARN messages are also now written to the BPM log file to identify messages that cannot be processed because a module is either not running or not available. For example:
	
	`RequestQueueItem[qid:608, id:14805]: module[22] is not ready,`
	`rescheduling event with lower priority`
	`RequestQueueItem[qid:608, id:14805]: module[22] is not ready,`
	`rescheduling event for job[103]`
	
	You can then move or delete the affected messages or fix the problem with the indicated module.

WRM-9949 (CN-01524734)	In Workspace, when viewing the details of a process instance (in the Process Instance Data dialog), unexpected custom attributes were displayed. These were attributes prefixed with "v_", for example "v_b6ab020b.parameters" or "v_48fe6ccc.annualSubReq", which had not been defined as data fields in the process when it was defined. These fields were internal fields (generated by Process Engine) that should not have been displayed. These fields were returned by the queryProcessInstances or queryProcessInstancesAlt operations on the ProcessManagerService service of the ActiveMatrix BPM public web service API. With this fix, these fields are filtered out and not displayed, either in Workspace or in a client application that uses the queryProcessInstances or queryProcessInstancesAlt operations. 📝 Any custom fields in a process prefixed with either "v_" or "BX_" will also be filtered out and not displayed.

WRM-9877
 	
(CN-00708438, CN-00728410, CN-00712381, CN-00800718)
	Setting TRACE level logging for the com.tibco.pvm logger sometimes resulted in an exception that caused a process instance to halt. The following exception was reported to the BPM log file:
	
	`com.tibco.pvm.api.exceptions.PmModelException: PVM-`
	`MODEL-102001: Invalid Object:`

WRM-9840 (CN-01519185)	Following migration, process instances were hanging (using CPU). This occurred because migration rules had been specified where the "from" version was the same as the "to" version.

WRM-9838
 	
(CN-01486745)
	A process instance failed when attempting to reschedule a timer on a user task. The following error was reported:
	
	`com.tibco.bx.core.faults.BxException: BX-100002: Invalid`
	`expression value`
	
	even though the value specified for the timer in the process data was valid. The error occurred if the user task had multiple timers, only some of which had reschedule scripts. When ActiveMatrix BPM processed the timers, it would sometimes run the wrong reschedule script for a timer.

Key (Case ID)	Description
WRM-9817 (CN-01458313)	Security enhancement: Avoid disclosing details about authentication failures under certain circumstances.
WRM-9800 (CN-01484928, CN-01488930, CN-01523498, CN-01536193, CN-01541007)	When using an ActiveMatrix BPM Developer Server, errors like this were written to the BPM log file: ``` [ERROR] com.tibco.pvm.system.PvmSystem - TxBlock: Error Running Block - Last State: STARTED_TRANSACTION com.tibco.pvm.db.common.dao.util.fault.IpmPersistenceFault: PVM-PERSIST-100001: Database Query Error: Engine.lockEngineById . . Caused by: org.hibernate.MappingException: Named query not known: Engine.lockEngineById ``` This error occurred because the named SQL query 'Engine.lockEngineById' was missing from the Postgres database implementation used by the ActiveMatrix BPM Developer Server. This issue did not affect ActiveMatrix BPM systems using Oracle, SQL Server or DB2 databases.

Key (Case ID)	Description
WRM-9789	Upgrading an already deployed Business Data project to a new minor version sometimes failed if:
	• the project depended on another Business Data project, and
	• both projects had been initially deployed on an earlier version of ActiveMatrix BPM.
	• the referenced Business Data project contained multiple Business Object Models (BOMs).
	The error occurred because, in this scenario, the BPM runtime incorrectly detected incompatible changes, even though the project did not contain any such changes. For example, if BDP-X contains a case class with an attribute ('attribute1') which is of type 'GlobalY' (which is a global class defined in BDP-Y), then deploying a new version of BDP-X may fail with an error like this:

	<pre>...
	Incompatible changes made during upgrade of version <number>
	of model <name>
	Details:
	The following unsupported changes were made:
	  1. [Change] Reference eType in attribute1 changed from
	org.eclipse.emf.
	    ecore.impl.EClassImpl@227b328a (eProxyURI: #//GlobalY)
	to org.eclipse.
	    emf.ecore.impl.EClassImpl@69b15443 (name: GlobalY)
	(instanceClassName:
	    null) (abstract: false, interface: false)"
	  ...</pre>

	In this example, the error suggests that the type of the attribute has changed from 'GlobalY', even though it has not.
	You can use the `onlyCheckNameForReferenceTypesOnUpgrade` property, in the *CONFIG_HOME*\bpm*bpm_app_name*\configuration\bds.properties file, to temporarily disable the checking that produces this error and so successfully upgrade any affected Business Data project. See "Upgrading a Business Data Project That References Another Business Data Project Fails" in *TIBCO ActiveMatrix BPM Troubleshooting* for more information.
WRM-9778 (CN-01486185)	The ActiveMatrix BPM application now generates additional DEBUG, WARN and ERROR logging statements relating to Process Engine module deployment. This additional logging has been added to make it easier to investigate issues that involve starting, stopping, deploying or undeploying BPM applications.

Key (Case ID)	Description

WRM-9776
 	
(CN-01485111)
	On a system with the `supportTimeZoneInDateTime=false` property set (in the *CONFIG_HOME*\bpm*bpm_app_name*\configuration\bds.properties file), an attempt to write a DateTime value to a case object failed, even though the DateTime value supplied did not include a timezone. An error like this was written to the BPM log file:
	
	`[ERROR] org.hibernate.util.JDBCExceptionReporter - Time-zone`
	`not allowed in DateTime due to supportTimeZoneInDateTime=false`
	`setting: 2017-07-07T15:06:25.000Z`
	
	See "Business Data Services Properties (bds.properties)" in *TIBCO ActiveMatrix BPM Administration* for more information about the use of the `supportTimeZoneInDateTime` setting.

WRM-9763 (CN-01484112, CN-01521719)	On a distributed BPM system, an API call using the queryDone operation (in the ProcessManagerService) returned a Fault response if the paged query was held on a different node to the one on which the queryDone operation was being executed. (This occurred because the queryDone operation was incorrectly only trying to locate the referenced query on the same node.)
WRM-9709	On a DB2 version of ActiveMatrix BPM, the PVM_WORK_ITEM database kept getting larger over time.

WRM-9692
 	
(CN-01474725)
	After deploying a new minor version of a case data model, users were unable to open work items that referenced earlier versions of the case data model. A BDS_GLOBAL_DATA_READ_CASE_FAULT error was written to the BPM log file:
	
	`Fault in reading a BDS case ... Caused by:`
	`java.sql.SQLSyntaxErrorException: ORA-00942: table or view`
	`does not exist`
	
	This error only occurred in the following scenario:
	
	• Two Business Data Projects were in use - for example, BDP1 and BDP2, and
	
	• BDP1 depended on BDP2, and
	
	• BDP2 contained one or more global classes, but no case classes, and
	
	• multiple versions of BDP1 and BDP2 had been deployed, and
	
	• the BPM node had been restarted since the original deployment of BDP1 and BDP2.

Key (Case ID)	Description
| WRM-9618<br><br>(CN-01477393) | Deployment of a new minor version of an existing case data project sometimes failed with an error like this:<br><br>```
Incompatible changes made during upgrade of version <number>
of model <name>
```<br><br>This error could occur if you made a change to the case data project that resulted in the BOM becoming larger - for example, adding a new optional attribute to a class. The BPM runtime then incorrectly detected incompatible changes, even though the project did not contain any such changes. (Adding a new optional attribute to a class is a non-destructive change.)<br><br>This error was more likely to occur with very large BOMs, and could be triggered by any non-destructive change (not just the addition of a new optional attribute). |
| WRM-9599<br><br>(CN-01475438) | When a global signal was thrown by either a service process or a case action, the signal was not caught by the target business process instance. A NullPointerException was written to the BPM log file. For example:<br><br>```
java.lang.NullPointerException
   at
com.tibco.bx.core.signal.BxGlobalSignalApplicationImpl.getSigna
lParameters(BxGlobalSignalApplicationImpl.java:613)
   .
   .
   com.tibco.bx.core.BxSystemImpl - dispatchSignal failed with
exception java.lang.IllegalArgumentException: TIBCO-AMX-
CF-020001: Fault "{http://www.tibco.com/bx/2009/management/
process}operationFailedFault" not found in PortType "{http://
www.tibco.com/bx/2009/management/process} processManagement"
``` |
| WRM-9585

(CN-01473539) | ActiveMatrix BPM performs various regular cleanup operations, as scheduled background tasks, to maintain system state and performance. When using a distributed ActiveMatrix BPM system, if a network or database outage occurred some of these cleanup operations stopped running, resulting in a gradual degradation of system performance (until the BPM nodes were restarted). |
| WRM-9516

(CN-01480529) | A BPM node showed CPU usage constantly at 100%, with a consequent impact on system performance. When in-memory sub-process instances are started, rows are added to the PVM_INMEM_PROC_TRACKER database table. However, these rows were not being removed when those instances completed. As a result, the number of entries in the table continued to increase over time, with a consequent impact on SQL query performance. |
| WRM-9420<br><br>(CN-01453705,<br>CN-01467542) | An attempt to cancel a work item or its associated process instance failed if the work item was in the SUSPENDEDFROMOPENED(14) or SUSPENDEDFROMOPENOFFERED(15) state. The following error was written to the BPM log file:<br><br>```
[ERROR] - {UT_DELEGATE_BRM_CANCEL_ERROR} - UT-010122: BRM
cancel work item error org.osoa.sca.ServiceRuntimeException:
com.tibco.n2.logging.exceptions.
N2LFClassPropertyMappingRunException:
{CLASS_PROPERTY_RUN_EXCEPTION} - ClassPropertyMapping Runtime
Failure. Class: [WorkItemModel], Mapping: [auditedGoRefData],
ComponentAttribute: [caseReference], Failed Mapping Element:
[auditedGoRefData].  Exception caused while doing mapping...
``` |

Key (Case ID)	Description
WRM-9400 (CN-01311541)	If a negative duration was specified in a Reschedule Timer script calculation, the duration was treated as a positive value and added to the existing deadline instead of being subtracted from it. The error occurred because ActiveMatrix BPM does not support the use of negative durations in a deadline calculation. With this fix, a negative duration in a deadline calculation is now treated as a zero-length duration, not as a positive value.
WRM-9398 (CN-01446119, CN-01455654, CN-01449993, CN-01557047)	Changing the value of the pe.engineThreadCount substitution variable (on the BPM application) to set the number of threads in the Process Engine background thread pool had no effect. Whatever the value of pe.engineThreadCount, the number of process engine threads remained at the default value (5). This problem did not occur if you used TIBCO Configuration Tool to set the number of threads (using the "Number of Process Engine Threads" field in the ActiveMatrix BPM: Sizing Configuration panel of the Create TIBCO ActiveMatrix BPM Server wizard).
WRM-9386 (CN-01520603)	Work items assigned by RQL were occasionally being sent to the Undelivered group instead of the intended recipient, even though the RQL query was valid.
WRM-9355 (CN-01445771)	A catch signal event pointing to case data stopped working. (It had been working fine and there had been no recent changes to the system.)
WRM-9302 (CN-01437559)	Completing a work item resulted in the following exception in the BPM log file: ```java.lang.ClassNotFoundException: com.tibco.n2.brm.api.OnNotificationDocument``` This error only occurred when using an application where: • A process made a service call to one of the operations provided by the Business Resource Management services API (brm.wsdl). • The application version was greater than 1.8.0.
WRM-9275 CN-01255882/ CN-01472884/ CN-01476858/ CN-01521879)	The JavaScript API did not pass the organization model version to the listAssociatedResources API, meaning that it only located organization model entities in the highest model version.
WRM-9244 (CN-01251784, CN-01249908)	After upgrading from a pre-4.0 version of ActiveMatrix BPM, no process definitions were visible when trying to create a new Process View in Workspace.

Key (Case ID)	Description
WRM-9090 (CN-00723245)	Using a script of the form: `ScriptUtil.subtract(DateTime1, DateTime2);` in a timer event caused a process instance to hang in an infinite loop on that timer event, resulting in high CPU utilization by ActiveMatrix BPM. This error occurred if the *DateTime1* and *DateTime2* values used different timezones.
WRM-9088 (CN-00739977)	The LDAP DN stored in each BPM user's record was previously case-sensitive. It is now case-insensitive.
WRM-9020 (CN-00733773)	A process containing a call to a sub-process, with invocation mode configured as "Asynchronous Attached", was not being purged when both the process and sub-process had completed.
WRM-9012 (CN-00733242)	A generated DDL uses the VARCHAR2 data type (instead of NVARCHAR2) when the text length is 3500.
WRM-9011 (CN-00716727)	Deployment can fail to complete (giving the appearance that it is taking forever) if a certain pattern of classes exists in a BOM. This issue can occur when a case class contains the same global class twice (whether by an attribute or composition relationship). For example, a 'Customer' case class may contain an 'Address' global class (multiplicity 0..1). If 'Customer' also has a one-to-many composition to 'PlaceOfWork' which, in turn, contains that same 'Address' class, then this issue may be exposed.
WRM-8949 (CN-00729540)	After migrating a process to a new version, an attempt to resume a previously halted process instance failed. This problem occurred when the process was migrated to the new version by setting a migration point on a failed task of the halted process instance. After migration, on retrying the process instance, the failed task completed successfully. However, the process instance remained stuck.
WRM-8944 (CN-00730451)	In the ActiveMatrix BPM web service API, using the previewWorkItemFromList operation allowed the calling user to see the details of a work item that was currently allocated to another resource in the same offer set, if that work item had been originally offered to the entity specified in the request.

Key (Case ID)	Description
WRM-8943 (CN-00729689)	When dynamic organization model extension points are used, the organization model cannot be undeployed until any dynamically generated organization model entities have been removed. Attempting to force undeploy the organization model results in an error in the BPM log file - for example: ``` [ERROR] com.tibco.amx.cf.logger.internal.core.ComponentFramework – Error while executing component action UNCONFIGURE_READY_FOR_UNDEPLOY_COMPONENT_ACTION for component com.tibco.amf.platform.runtime.componentframework.internal.comp onent.ImplementationComponent@50e26321. java.util.concurrent.ExecutionException: com.tibco.n2.de.dao.exception.DeleteEntityException: Error encountered whilst deleting entity. [XYZInsuranceOrganizationModel(1.0.0.201310270716)] ```
WRM-8728 (CN-01470620, CN-00802041, CN-01466929)	When a process uses a timer event as a deadline on the boundary of a user task, the timer may not fire as expected if the timer duration is expressed in increments of 24 hours.
WRM-8725 (CN-00788068)	When the start task of a process that used a message halted, a retry of the halted instance cleared out the task attribute that contained the data the instance was started with. This meant the instance could not be retried.
WRM-8684	In graphical audit, a time-stamp was not displayed for the tasks (displays as "pending") of process instances resumed after product upgrade.
WRM-8446 (CN-01248735, CN-01249742)	TIBCO ActiveMatrix BusinessWorks returned the following validation error when processing a JMS message containing audit data published by ActiveMatrix BPM: ``` A validation occurred while parsing: validation error: no declaration for element "Event" ({com.tibco.xml.validation} COMPLEX_E_MISSING_ELEMENT_DECLARATION) at /Event[1] com.tibco.xml.validation.exception.MissingDeclarationException: no declaration for element "Event" ``` Messages published in TIBCO ActiveMatrix BPM Event format conform to the definition of the Event element in the EventCollectorQueryService schema (`ec-basetypes.xsd`). However, ActiveMatrix BPM did not include the namespace of this schema in the "Event" element when publishing an event as a JMS message, resulting in the validation error reported by TIBCO ActiveMatrix BusinessWorks. ActiveMatrix BPM now includes the namespace of the EventCollectorQueryService schema (`http://base.api.ec.n2.tibco.com`) in the `Event` element when it publishes the event as a JMS message. If you want to publish messages without the namespace, add the following (empty) property definition to the *CONFIG_HOME*/bpm/bpm_app_name/configuration/ec.properties file: ``` jmsPublicationRootNamespace= ```

Key (Case ID)	Description
WRM-8262 (CN-01235974, CN-00714988, CN-00735811, CN-00717886, CN-00712139)	When a work item is allocated to a user, a spurious "[ERROR] - {WPCORE_PROCESSWORKITEM_PUSH_WORK_FAILED} - Error occurred while attempting to push work" message is written to the BPM log file, even though work allocation for that user does not involve push destinations. (No push destinations involving that user are enabled.)
WRM-8168 (CN-01241257)	When a process user application references a Business Data user application, if there is a qualifier missing from the project version, then you may receive errors when opening forms.

Application Development

Key (Case ID)	Description
WBPM-1518	In the following ActiveMatrix BPM client applications, no Logout button is displayed when a user logs in using one of the supported SSO authentication methods (SAML Web Profile, SiteMinder, Kerberos, OpenID Connect JWT token): • Openspace • Workspace • Application Development • WorkApp (Application Development example application) If a user has logged in using direct authentication (supplying valid TIBCO ActiveMatrix BPM login credentials), the Logout button is displayed and works normally. See "ActiveMatrix BPM Client Applications Do Not Provide a Logout Button When A User Logs In Using SSO Authentication for more information.
WBPM-1456 (CN-01636854)	Application Development was hanging during startup when applications were being deployed.
WBPM-1409 (CN-01638654 and CN-01647968)	A lock on the database was not being released after a failed Application Development startup. The lock on the database in this situation is now automatically released in 30 minutes.

WBPM-1390
 	
(CN-01590188)
	When using French locale, the implicit validation message provided by the 'validation_pattern' resource key:
	
	`''{0}'' has the wrong format for the ''{1}'' data type`
	
	did not display correctly on the form. For example:
	
	`Le format de 'Code Postal:' n'est pas bon pour le type de données {1}'`
	
	The {1} parameter was not replaced by the text identifying the data type. (This error occurred as a result of an incorrectly escaped single quote in the `common_fr_XX.properties` file.)

Key (Case ID)	Description
WBPM-1369 (CN-01543382)	In Application Development, deleting an application from the List of Applications sometimes resulted in mistakenly deleting previously selected applications. The deletion confirmation dialog also did not list the application(s) that were going to be deleted. Previously selected applications are now deselected when selecting an application, and the deletion confirmation dialog now lists the application(s) that will be deleted.
WBPM-1361 (CN-01250961)	When a user selected a date using a date picker on a form, the date picker automatically closed (even though there is an **OK** button on the picker), not giving the user the opportunity to specify a time.
WBPM-1360 (CN-00722616)	The label on the **Local host** field on the Preview / Live Dev dialog in TIBCO Business Studio (**Window** > **Preferences** > **Form Designer** > **Preview / Live Dev**) was misleading, as the field setting does not apply to Preview; it only applies to Live Dev. The label has been changed to **Local host (Live Dev)**.
WBPM-1356 (CN-01591037)	In the Organization Browser, when defining an LDAP group source for an LDAP container, clicking 'Show sample of LDAP Entities' sometimes returned no candidate resources even though those resources existed on the LDAP server. This problem only occurred when using an Active Directory server configured to use a range query on the 'member' attribute. (The 'member' attribute holds the collection of member identifiers (DNs) that provides the list of candidate resources. If the query range specified more entries than existed on the LDAP server, no candidate resources were displayed. See WRM-10775 for more information.) With this fix, the list of candidate resources is displayed correctly even if the range specifies more entries than exist on the LDAP server.
WBPM-1350 (CN-01591729)	If incorrect credentials were entered when logging into the sample Workapp application, an error dialog was not displayed.
WBPM-1336 (CN-01615038, CN-01566783, CN-01611036)	If, using Javascript, an undefined value was set on a form data field, the form could not be submitted.
WBPM-1333 (CN-01562785)	On a form, when sorting data in a grid pane, rows containing empty values were not sorted correctly. They remained mixed in with other values instead of appearing either at the top or bottom of the sorted data. (This error occurred only when sorting after new rows with empty values had been added.)

Key (Case ID)	Description
WBPM-1330	When upgrading an ActiveMatrix BPM system to version 4.2.0 from 4.1.0 HF-6 or later, the default applications supplied with Application Development did not get upgraded to 4.2.0. These applications continued to run on the 4.2.0 system, but did not include fixes introduced in 4.2.0. (These were minor fixes affecting the user interface.) The affected applications were: • example applications (Workapp, Case Management, Mobile Case Management, ComponentShowcase) • bundled applications (Open Work Item, Start Biz Action) • library application (App Cdn)
WBPM-1319	On a distributed ActiveMatrix BPM system, when adding a new node to the system, the operation to add the new node could take a long time to complete. This happened if the BPM database contained a large number of Jackrabbit journal entries (in the `APA_JL_Journal` table). (The Jackrabbit content repository is used by Application Development. Jackrabbit maintains an internal journal of all changes made to the repository, and replays those journal entries when a new node gets added. If the journal contains a large number of entries, the time taken to replay them can be significant.) To prevent this problem, a Jackrabbit janitor thread is now used. This thread periodically cleans up the journal entries so that the number of records in the `APA_JL_Journal` database table does not continually grow. For more information, see: • "Performing Post-Installation Tasks -> Adding Jackrabbit Janitor Thread Configuration Parameters (Optional)" in *TIBCO ActiveMatrix BPM Installation and Configuration*. • "Configuring the Jackrabbit Janitor Thread" in *TIBCO ActiveMatrix BPM Administration*.
WBPM-1306	Part of the startup operation for the ActiveMatrix BPM application (amx.bpm.app) is to start Application Development, which in turn has to deploy custom client applications to its runtime repository. Waiting for Application Development startup to deploy these applications could result in a delay to amx.bpm.app startup. A new `startDeploymentThread` configuration parameter is provided, which allows you to separate startup of Application Development from startup of the ActiveMatrix BPM application. See "Configuring how Application Development Starts with ActiveMatrix BPM" in *TIBCO ActiveMatrix BPM Administration* for more information.
WBPM-1297 (CN-01462676)	After deploying a new minor version of a case data model (containing additional attributes), existing process instances were unable to display the associated case data. The addition of new attributes should not have impacted existing process instances.

Key (Case ID)	Description
WBPM-1283	When using Mobilespace on an Apple iOS device, the user's initials that are shown on the side menu were overlapping the menu options, making it difficult to navigate between the different menu options.
WBPM-1281 (CN-01489479, CN-01479358)	In a localized custom client application, localized phrases could be corrupted, causing them to be displayed as question mark characters ('?') instead of using the correct, localized characters. The problem was most likely to occur in applications using non-Latin based languages and could occur if, for example: • the BPM node was restarted, or • if a localized phrase was subsequently edited in Application Development (using Language > VIEW PHRASES) The problem occurred because system default encoding was used when saving localization property files, instead of UTF-8. Now, Application Development always uses UTF-8 encoding when saving localization property files. If you edit and save changes to an exported localization file, either locally or in a browser-based editor, you MUST use an editor that uses UTF-8 encoding. If you inadvertently save the file in a non-UTF-8 encoding, you may still encounter this problem if you subsequently re-import the modified custom client application to Application Development.
WBPM-1275	On an Apple iOS device, if you try to download a pdf file using the download pdf option, it displays the first page of the pdf in full screen mode, and does not render the page correctly.
WBPM-1249	After upgrading the ActiveMatrix BPM system, Application Management sometimes took a long time to start, or failed to start.
WBPM-1192	When using the Case Management application, a text field containing multiple lines (separated by CRs) was incorrectly displayed as a single line in a form. Now, the field is rendered correctly as multiple lines of text.
WBPM-1075 (CN-01455768, CN-01256209, CN-01468278)	When upgrading a version 4.1 ActiveMatrix BPM system to a later 4.1 Hotfix version, sometimes the existing versions of the example applications hosted in Application Development were left in place. They should have been upgraded as part of the upgrade process. An "Already installed" message in the BPM log file indicated if an application had not been upgraded - for example: ``` INFO [ComponentFrameworkDelegate] c.t.c.p.c.AppProvisionerService : Already installed: apps/ CaseManagement.app.zip ```
WBPM-1002 (CN-01440950 and CN-01447977)	The first day of the week could not be changed using the `date_first_day_of_week` Data-Time resource key on a TIBCO Business Studio form calendar.

Key (Case ID)	Description
WBPM-961	In the Workapp sample application, some comments showing the use of individual business components specified the wrong path for the "template-path" attribute.
WBPM-960	In Application Management, changes made to a cloned application were not published. (When you launched the published application the original version, without the changes, would be launched.) This error would occur if, when cloning the application, you used a space character (' ') in the new application's name.
WBPM-940 (CN-00726099)	Debug Settings were not appearing on the Settings dialog in Application Development in some operating system environments.
WBPM-868	When using Application Management with a load balancer on a web proxy server, and the load balancer is mapped from a sub-context of the web proxy server URL to the Application Management URL, Application Management application resources were not served correctly.
WBPM-733	A custom client application displayed invalid date formatting on a work item, if the target date set for that work item was greater than or equal to the current date.
WBPM-704	In Application Management, on the "List of Applications" pane: • When using "Card View", clicking the "Language Pack Attached" button on a selected application's card deselected the application instead of opening the Language pane for that application. • A "More" button was sometimes shown even though there were no more applications available.
WBPM-517	You could not categorize applications in Application Management. The `Category` property in the *applicationName*`.desc.json` file was not being recognized in Application Management.

Openspace

Key (Case ID)	Description
OS-3570 (CN-01574257)	When using the Organization Browser, an attempt to fetch LDAP attributes for an LDAP container failed if a CN entry in the LDAP contained a comma character ",". (This resulted in an error in the URL used by the ActiveMatrix BPM REST API call used to fetch LDAP attributes.)

Key (Case ID)	Description

OS-3567	When using the Case Management application, a text field containing multiple lines (separated by CRs) was incorrectly displayed in a form as a single line containing the string:
	
	`#text`
	
	Now, the field is rendered correctly, showing the intended content as multiple lines of text. For example:
	
	`Text on line 1 <CR>`
	`Text on line 2 <CR>`
	`Text on line 3`

OS-3552 (CN- 01531306)	When specifying search criteria in Data View, you can now enter multiple values for an IN condition.
OS-3505 (CN-00719889)	Rendering problems in the Dynamic Organization Configuration dialog made it difficult to configure a dynamic organization model extension point.
OS-3469 (CN-00716307)	If the connection was slow, performance problems were encountered when loading locales in Openspace.
OS-3198 (CN- 01241760)	The Purge Process CLI (Command-Line Interface) is now configurable. See "Purge Process Command-Line Interface is Now Configurable" for more information.

Workspace

Key (Case ID)	Description

WS-1861	In Workspace:
	
	• When trying to create or edit a filter on a view, using the Filter dialog, the 'Add' button on the *attributeName* data-entry dialog did not work if you were using Chrome version 71.
	
	    This problem did not occur when using Chrome version 70 or earlier.
	
	• When viewing a list of process instances, clicking the column header to sort the list of items by the values in that column had no effect. Although an up-arrow (for ascending order) or down-arrow (for descending order) was displayed in the column header, the order that the list items were displayed in did not change.
	
	    This problem did not occur when sorting the list by using the 'Sort list contents' button.

WS-1853	If you used the process view wizard to create a new process view with the "Halted instance view with fault details" option selected, the Sort page was empty and an exception was logged to the console in the browser developer tools.

Key (Case ID)	Description
WS-1838 (CN-01640405)	When using the case view wizard to edit an existing case view: • the case class that was initially selected when creating the case view was not selected. • the **Finish** button was enabled, but clicking it did nothing.
WS-1831	On the New Case View screen (displayed when using the case view wizard to create a new case view), only the attributes for the first listed case class were displayed, irrespective of which case class was actually selected.
WS-1830 (CN-01618533)	If a user has set user options (filters, sorts, column settings, and so on) on various lists in Workspace, then the user's access rights to those user options are revoked, the user options are not reverting to their default values the next time the user logs in, as they should.
WS-1827 (CN-01605193)	If a user is a recipient of a system view, but does not have the DE.browseModel system action, when the user logs in, a JavaScript error is displayed, and the "Loading data..." mask does not go away. If the user does not have the DE.browseModel system action, the system view for which the user is a recipient should simply not appear (plus the **Help** > **Access Privileges** dialog should indicate that system views are not being displayed due to the lack of the system action).
WS-1812	In the Workspace Organization Browser, if a user tried to edit an LDAP container, a blank window was incorrectly displayed. This error occurred if the user did not have the 'DE.organizationAdmin' system action and the selected LDAP container was associated with a subset of the organizations that are deployed.
WS-1811	In Workspace, if a "View is unavailable due to server side fault" error occurred as a result of an invalid filter or sort definition, you could not correct the error after dismissing the error message because the toolbar tools were disabled. Now, the Filter and Sort tools (on the lists of Work Items, Process Instances and Events) are enabled after an error, allowing you to correct the invalid filter or sort.
WS-1810	In Workspace, if you selected a Master system view and opened the Column Selector on the list of items, any selected columns were not saved after you logged out. This problem affected Work, Process and Event Views.
WS-1809	In Workspace, if you defined a sort by using the Sort tool on the list of process instances, then re-opened the Sort tool, the selected sort attributes were missing from both the list of available attributes and the list of selected sort attributes. (The sort definition was still applied to the list of process instances, but the sort definition was not displayed.)

Key (Case ID)	Description
WS-1808 (CN-01542714)	In Workspace, if you created a (Work, Process or Event) View and applied a refinement filter to the list, then after deleting and recreating the View with the same name, the new View had a refinement filter defined which was the same as the View that was removed. Now, when the view is recreated, the refinement filter is empty.
WS-1797 (CN-01520145)	When defining a filter, you can now use negative values on integer and decimal fields.
WS-1796 CN-01520145	For a work view, process view or event view, if you created a view and defined a filter on one of the integer or decimal fields, you could not enter a negative value. You can now enter negative values.
WS-1794 (CN-01488237)	In Workspace, a case view displayed cases from the wrong version. This problem occurred if multiple versions of the same case class were deployed. These versions were displayed in the Case View wizard. However, selecting one version and proceeding to the next page sometimes resulted in filter attributes belonging to another (unselected) version of the class, so that when the Case View was created it displayed cases from the wrong version.
WS-1793 (CN-01517761)	If custom access was defined for custom menus or toolbars in the userAccess.xml file, the Configuration Administrator did not display those settings correctly in the Graphical Editor. (The settings did display correctly in the XML Editor.) Also: • Using "Add", "Edit" or "Remove" did not properly update the Graphical Editor with changes to custom access elements. • Using "Defaults" did not revert the custom access settings to those in userAccess.xml.
WS-1792 (CN-01488237)	When multiple versions of the same case class are deployed, they display in the Case View Wizard. Selecting one of the multiple versions and proceeding to the next page sometimes resulted in filter attributes belonging to another version of the class that wasn't selected. And when the Case View is created, it displayed cases from the wrong version. Also, multiple case classes can be selected in the wizard, and you could drag and drop classes in the list. Neither of those actions should be allowed.
WS-1791 (CN-01517761)	When custom access was defined in userAccess.xml for custom menus or toolbars, the Configuration Administrator did not display all of the custom access settings in the Graphical Editor, although they did display correctly in the XML Editor. Also, the **Defaults** tool did not revert the custom access settings to those in userAccess.xml, and the **Add**, **Edit** and **Remove** tools did not properly update the Graphical Editor with changes to custom access elements. And when viewing **Help** > **Access Privileges**, the "User Access Sets" list did not display all custom access elements defined in userAccess.xml.

Key (Case ID)	Description
WS-1771	The default value of the **propagateStackTraceToClient** property in the `WSProperties.properties` file, which specifies whether a full stack trace should be passed to the client if an exception occurs in the Action Processor, or in an upstream service request made by the Action Processor, was changed from true to false.

Known Issues

Important Notes

ActiveMatrix BPM Client Applications Do Not Provide a Logout Button When A User Logs In Using SSO Authentication

When a user uses one of the supported SSO authentication methods (SAML Web Profile, SiteMinder, Kerberos, OpenID Connect JWT token) to log in to any of the following ActiveMatrix BPM client applications, no Logout button is displayed in the application:

- Openspace
- Workspace
- Application Development
- WorkApp (Application Development example application)

To log out of the application, the user must close the browser tab or window in which the application is running.

If a user has logged in using direct authentication (supplying valid TIBCO ActiveMatrix BPM login credentials), the Logout button is displayed and works normally.

The *ActiveMatrix BPM Single Sign-On*, *Openspace Customization* and *Workspace Configuration and Customization* guides contain, in various sections, information about how to configure logout behavior when using SSO, using the following resources:

- TIBCO Configuration Tool wizard screens
- shared resource templates
- Openspace configuration file (`config.properties`)
- Workspace configuration file (`config.xml`)

Where any such configuration is described as optional, you can ignore it. Where it is described as mandatory, you must still set it as documented, even though it will have no effect when using the client applications listed previously.

For example, if you are configuring ActiveMatrix BPM to use OpenId Connect for single sign-on authentication, you must set the `logout.path` property (in the Openspace `config.properties` file) to `/bpm/logout`. See "Configuring What Happens on Openspace Logout" in *TIBCO Openspace Customization*. However, as no logout button is displayed when logged in to Openspace using SSO, this setting currently has no effect.

Unable to Launch TIBCO ActiveMatrix BPM Clients (Microsoft Edge Only)

TIBCO ActiveMatrix Administrator and TIBCO ActiveMatrix BPM clients applications fail to launch in Microsoft Edge and no error is displayed. This occurs when including an IP address in the URL.

This is an issue related to the Microsoft Edge browser - see https://support.microsoft.com/en-gb/help/4487044/windows-10-update-kb4487044.

To resolve this, either:

- include the machine name instead of the IP address in the URL.
- add the IP address to your Trusted sites list.

Problems Accessing Application Development When Using a Scripted Installation of ActiveMatrix BPM

Part of the startup operation for the ActiveMatrix BPM application (amx.bpm.app) is to start Application Development, which in turn has to deploy custom client applications to its runtime repository. By default, Application Development uses a separate processing thread to deploy custom client applications. This allows the ActiveMatrix BPM application to complete its startup without having to wait for custom client applications to finish deploying.

A series of messages are written to the BPM log file, showing the thread starting, deploying applications, and completing.

In ActiveMatrix Administrator, the amx.bpm.app Status changes to RUNNING before the thread completes. This can potentially cause a problem if you are performing a scripted installation of ActiveMatrix BPM. If the script restarts the BPM node when ActiveMatrix Administrator reports that amx.bpm.app is RUNNING, any custom client applications that are still deploying will remain in a partially deployed state. Subsequently, depending on which applications have not deployed properly, users will receive HTTP "404 Not Found" errors when trying to access either Application Development itself, or particular custom client applications.

To avoid this problem, modify your scripting to check that the deployment thread has completed before restarting the BPM node. You can do this in two ways:

*   Check that the `BPM.log` file contains the following messages:
    ```
    AppProvisioner : ALL APPS PROVISIONED
    .
    .
    AppProvisioner : STARTUP COMPLETED
    ```

*   Check that you can access the URL of the Application Development login page (by default, *protocol*://*host*:*port*/apps/apa/login.htm). If the deployment thread is still running, the browser returns an HTTP "302 Found" status and redirects to a `notfound.html` page. If the thread has completed, the browser returns an HTTP "200 OK" response.

Alternatively, you can configure the startup behavior so that Application Development startup uses the same thread as the ActiveMatrix BPM application. The ActiveMatrix BPM application then cannot complete its startup until all custom client applications have finished deploying. ActiveMatrix Administrator only reports that amx.bpm.app is RUNNING when all custom client applications have finished deploying.

To do this, change the value of the `startDeploymentThread` property to `false`. This property is found in the *CONFIG_HOME*\bpm\bpm_app_name\configuration\appDev.properties file. See "Configuring how Application Development Starts with ActiveMatrix BPM" in *TIBCO ActiveMatrix BPM Administration* for more information.

Work Manager

Key	Description
WRM-11488	**Summary:** When the ActiveMatrix platform is upgraded to 3.4.0, TIBCO ActiveMatrix BPM system applications (amx.bpm.app and amx.bpm.apacheds) are stopped during the upgrade. After restarting the TibcoHost in the ActiveMatrix platform, bundle exception errors are returned in the BPMNode.log file. **Workaround:** None. (These errors are harmless and can be ignored.)

Key	Description
WRM-10779 (CN-01616763)	**Summary:** In TIBCO Administrator, undeployment of a Business Data application from TIBCO Administrator may get stuck. A warning message is written to the BPM log file - for example: ```[ComponentFrameworkDelegate] [WARN] com.tibco.bds.core.deployment.BDSImplementationType - [WARN] - {BDS_COMPONENT_PREPARE_TO_UNINSTALL_ACTIVE} - BDS: Unable to complete prepare to undeploy phase ? {extendedMessage=`*33778*BDS bundle(s) in the user-app attempting to be undeployed is referenced by the following other user-apps: app_list``` where one of the applications listed in *app_list* is a system-bundle - for example, starting with `com.tibco.n2`. > Using Force Undeploy with the Resolve mode option set successfully undeploys the application. This problem occurs only when there is a cross-BOM dependency between 2 BOMs (either within the same project or across projects), such that: • BOM1 depends on BOM2, and • BOM1 has a package name that is a parent package of BOM2. For example: • BOM1 has a package a.b that contains a case class Class1. • Class1 has a member variable attribute1 that is of type a.b.c.Global. • Global is the classname of a Global class defined in a package a.b.c in BOM2. **Workaround:** Change the package name of BOM1 such that it is not starting with the same package name fragment as any other BOMs on which it depends. Using the above example, you could rename the package a.b in BOM1 to a.b.d, so that it is not considered a parent package of package a.b.c in BOM2.
WRM-10097 (CN-01612091, CN-01613955/ CN-01579038, CN-01575437, CN-01638123/ CN-01659430)	**Summary:** The pageflow start order component gets out of order, so the older component starts after the newer component. The last process deployed is treated as the latest version, assuming that this is the order in which they were deployed. However, in certain parent-child update scenarios this is not always the case. **Workaround:** Start the latest component after every restart to make sure that it gets picked up.
WRM-9432 (CN-01457356)	**Summary:** The Auto-archiver deletes all sub-processes from a batch of root process instances in one go. However, this may not result in a manageable list of sub-processes. **Workaround:** None.

Key	Description
WRM-9396 (CN-01310845/ CN-01543335/ CN-01640863)	**Summary:** Using an instance query that contains an 'OR' can result in a limit on the in clause if more than 1000 instances match the filter. **Workaround:** Select only one process, which will mean that an 'OR' will not be used in the underlying instance query. Instead create a separate view for each process you want to list instances for.
WRM-8893 (SR-678188)	**Summary:** In a pageflow, using the `clear()` method on a field of type `TextArray` results in a `java.lang.UnsupportedOperationException` run-time error. **Workaround:** Use the `DataUtil.createList()` method to clear the array instead. For example: ```\n//Use:\n//TextArray = DataUtil.createList();\n// instead of:\n// TextArray.clear();\n```
WRM-8652 (SR-635185)	**Summary**: When an audit event is passed to Event Collector, if the event contains an attribute that is invalid for its declared data type, the event is written to the audit trail but the invalid attribute is omitted. No warning or error message is written to the BPM log file indicating that the invalid attribute has been omitted. This issue is most noticeable on events that use date fields. **Workaround**: None.
WRM-8468	**Summary**: Audit/graphical audit for processes which have not had their audit migrated after upgrade to this version will be incomplete and the Graphical Audit Trail may not be visible. **Workaround**: Run the migration tool, then view the Graphical Audit Trail , and it should work correctly.
WRM-8158	**Summary**: When you upgrade from TIBCO ActiveMatrix BPM 3.1.0, in the `ec_event_rules.xml` file the commented section 'default_archive channel' and ExcludeID rules are missing in the upgraded setup **Workaround**: Manually edit the file to add them. • Keep a backup of the `ec_event_rules.xml` file of previous TIBCO ActiveMatrix BPM 3.1.0 version before upgrading to this version and then copy the missing commented tag on the upgraded `ec_event_rules.xml` file from the backup file. • Copy the missing channel default_archive below in `ec_event_rules.xml`

Key	Description
WRM-7736 (was WRM-5878)	**Summary**: If the Close/Submit fails because the update on the case reference has failed because the case reference is stale, errors are recorded in the BPM log, and the work item is stuck in Opened state. **Workaround**: Cancel the work item, then re-open it (this causes it to re-read the case reference, thus getting the up-to-date version). Then the Close/Submit should work. If the update fails because the case reference no longer exists, there is no workaround.
WRM-7593	**Summary**: If process data is mapped to attributes 15, 38, 39 and 40 you might see the data also assigned to iteration, iteration ID, Host task name, and Host task type respectively. **Workaround**: Avoid using attributes 15, 38, 39 and 40 when mapping data fields.
WRM-7589	**Summary**: REST operations in BusinessDataService that pass CDATA in the request body (createCase, deleteCaseByCID, findCaseByCID, findCaseByExample, and updateCase), cannot be called with Content-Type set to application/json. **Workaround**: When making calls to REST operations in BusinessDataService that pass CDATA in the request body, use a Content-Type of application/xml.
WRM-7577	**Summary**: When you install TIBCO ActiveMatrix BPM, it will not work if you have spaces in TIBCO_CONFIG_HOME. **Workaround**: Avoid having any spaces in TIBCO_CONFIG_HOME.
WRM-7549	**Summary**: Error while performing SiteMinder SSO authentication in Openspace/Workspace when the IP address is populated in resource template. **Workaround**: Remove the client IP address from the runtime.
WRM-7512	**Summary**: TIBCO JasperReports Server for ActiveMatrix BPM: (For all claims) Clicking on a claim whose instance is completed, in the claim exposure value "-" is shown. **Workaround**: None.
WRM-7509	**Summary**: TIBCO JasperReports Server for ActiveMatrix BPM: Internet Explorer specific (Internet Explorer 9, 10 and 11) : Intermittent error where sometimes all report contents are not loaded on the first attempt. **Workaround**: Reload the report.
WRM-7508	**Summary**: TIBCO JasperReports Server for ActiveMatrix BPM : When you suspend process instances and resume, work items of such processes are not displayed in the Offered Work report. **Workaround**: None.

Key	Description
WRM-7507	**Summary**: TIBCO JasperReports Server for ActiveMatrix BPM: Work items of cancelled and suspended process instances should not be displayed in the Outstanding tasks report. **Workaround**: None.
WRM-7484	**Summary**: TIBCO JasperReports Server for ActiveMatrix BPM: Not able to format and apply filters on Top 5 claims reports. **Workaround**: None.
WRM-7481	**Summary**: If a BOM contains a type hierarchy, for example a class 'Drink' and sub-classes 'Coffee' and 'Tea', then problems can arise when manipulating instances of such Business Objects via a User Task meaning that you may lose some sub-class data. If a class 'Person' has an attribute/composition of type 'Drink' then, although a Form may appear to allow Coffee and Teas to be assigned, the resulting Business Object will always record these as the base type, Drink. **Workaround**: None.
WRM-7437	**Summary**: TIBCO JasperReports Server for ActiveMatrix BPM: On loading Claim Breakdown dashboard for first time if you click on the clear filter, 'All' claims are displayed though selected option is 'open' claim. **Workaround**: Click on **Open** and then **Closed** again.
WRM-7333	**Summary**: TIBCO JasperReports Server for ActiveMatrix BPM: Column filters should not reset on refresh gadget or user login/logout. **Workaround**: None.
WRM-7281	**Summary**: Case Data: When you delete a Case and the referring form has the same Case marked as Mandatory, you receive an error and the case is not deleted. **Workaround**: To remove the case you must cancel the process instance.

WRM-6964	**Summary**: If you enter a valid JSON string in a text field on a form, either an error message is displayed or the string is not stored in the ActiveMatrix BPM database exactly as you entered it. For example, if you enter:
	
	`{"name":"joe"}`
	
	ActiveMatrix BPM interprets the string as a JSON string, and tries to process it accordingly. This is because ActiveMatrix BPM uses JSON internally to handle form data.
	
	Workaround: To store in the database a JSON string that you have entered in a text field, escape the double quotation marks using the backslash character. For example, to store the above string, enter:
	
	`{\"name\":\"joe\"}`
	
	Consequently, when the string is retrieved from the database, the escape characters must be removed, using http://org.apache.commons.lang3.StringEscapeUtils, for example.

Key	Description
WRM-6802	**Summary**: Event Collector Purge: Cursor_refresh (the number of process instances that should be deleted before the cursor is refreshed) is still considered as a mandatory parameter. Because the parameter is in the middle of the list of parameters and not at the end, providing no value for it causes a problem. For example : `EXEC amxbpm.ec_delete_audit_stats_data NULL, '08-OCT-10 13:35:37', NULL, 'TRUE'` would return an error as it tries to assign 'TRUE' to `cursor_refresh` which is a BIGINT. **Workaround**: Provide a value for the Cursor_refresh parameter. For example, change the above command to `EXEC amxbpm.ec_delete_audit_stats_data NULL, '08-OCT-10 13:35:37', NULL, '10', 'TRUE'`
WRM-6791	**Summary**: *TIBCO ActiveMatrix BPM Business Data Services Developer Guide*: screenshots of TIBCO Business Studio's **Properties** tab are out of date. **Workaround**: None.

Key	Description
WRM-6756	**Summary**: Search conditions based on certain attributes, whether specified in a Data View or DQL expression, can result in SQL errors at run-time. Specifically, this can occur when (1) The attribute is multiplicity-many and on a global class, not the case class. **and** (2) The global object containing the attribute is in an attribute path that contains an [ALL] or [<index>] suffix in an earlier fragment of the path. For example, consider searching for Clubs in the following BOM: DQL expression: `members[ALL].favouriteColours = 'Red'` Meaning: Find Clubs where all members have Red as one of their favorite colors. DQL expression: `members[0].favouriteColours = 'Blue'` Meaning: Find Clubs where the first member has Blue as one of their favorite colors. Both of the expressions above can exhibit the problem. To be clear, the problem occurs only when `[ALL]` or `[<index>]` are used, as described above. The following DQL expression does *not* suffer from the problem: DQL expression: `members.favouriteColours = 'Red'` Meaning: Find Clubs where any member has Red of one of their favorite colors. **Workaround**: Altering the BOM to eliminate the multiplicity-many attribute avoids the problem. In the following modified BOM, a Person contains many Colours, each of which has a text attribute containing the name of the colour: The original DQL queries would then be rewritten as follows: DQL expression: `members[ALL].favouriteColours.colour = 'Red'` Meaning: Find Clubs where all members have Red as one of their favorite colors. DQL expression: `members[0].favouriteColours.colour = 'Blue'` Meaning: Find Clubs where the first member has Blue as one of their favourite colours.

Key	Description
	In terms of the generated database tables, this is of equivalent complexity to the original BOM, and may even be considered better practice.

WRM-5686	**Summary**: BPM Cleanup utility fails to generate scripts on AIX.
	
	Workaround:
	
	1. Download XmlTask source from http://www.oopsconsultancy.com/software/xmltask/.
	
	2. Extract the downloaded tar file and edit the `com/oopsconsultancy/xmltask/jdk15/XPathAnalyser15.java` file, replacing:
	
	`import com.sun.org.apache.xpath.internal.objects.*;`
	
	`import com.sun.org.apache.xpath.internal.*;`
	
	with
	
	`import org.apache.xpath.objects.*;`
	
	`import org.apache.xpath.*;`
	
	3. Download the `junit.jar` (required by the build), place it in the XmlTask source folder and then update CLASSPATH to refer to it: `export CLASSPATH=./junit.jar`
	
	4. Run **ant** to compile the source, and **ant package** to create the `xmltask.jar` file.
	
	5. Copy the `xmltask.jar` file to the `/opt/apache-ant-1.7.1/lib` folder.

WRM-4186	**Summary**: If an enumeration in a BOM is a restriction of another enumeration, it is shown in TIBCO Business Studio as if one is a generalization of the other. However, they are two separate enumerations, with no inheritance from each other in the underlying code. Therefore, an interface that expects the base type to be passed to it cannot be passed the restricted type, and there will be a run-time failure. **Workaround**: If this XSD construct is used in a web service that ActiveMatrix BPM needs to interact with, use a Mediation between BPM and the external web service.
WRM-2604	**Summary**: Service Connector uses third-party Apache Axis2 and Apache Rampart libraries. This may increase the Java CLASSPATH length. **Workaround**: To avoid CLASSPATH length issues, use the new feature provided in Java 1.6 to include all binaries by using the wildcard character(*). 1. Unzip the service connector to a folder, for example `c:\service-connector`. 2. Set the CLASSPATH to the `c:\service-connector` folder using the wildcard character, for example: `SET CLASSPATH=%CLASSPATH%;c:\service-connector\*`

Key	Description
WRM-1671	**Summary**: In TIBCO Workspace **Event Views**, the Push-related columns for the PUSH events do not display any information. **Workaround**: None.
WRM-1539	**Summary**: If a measure is requested for a particular process, the returned data is a cumulative roll-up of the data for the process. However, the statistics collector does not return any roll-up data for hours in which there is no activity in the process. **Workaround**: If data for any hour is missing, assume that it is the same as that for the previous hour.
WRM-521	**Summary**: If a pageflow process has no user tasks, this causes an exception when it is called from a client application, for example from either Openspace or Workspace. **Workaround**: Add page activities to the pageflow process.
WRM-69	**Summary**:The Email presentation channel does not support SMTP authentication. **Workaround**: None.

Process Manager

Key	Information
WRM-8726 (was BX-3756)	**Summary**: In a Global Signal audit, a persistent signal is not purged after its stale timeout has expired, but more that 10 minutes later. **Workaround**: None.
WRM-8725 (was BX-3634)	**Summary**: Do not reset scope attributes on retry if they were set before entering the scope. **Workaround**: None.
WRM-8732 (was BX-3591)	**Summary**: Could not synchronize database state with session on invoking message start event in a service process. **Workaround**: None.
PVM-550	**Summary**: Maximum key length warnings appear when running ProcessManagerCreate.sql for SQL Server 2012. **Workaround**: None.

Application Development

Key	Information
WBPM-1271	**Summary**: In the Mobile Case Manager App, a loading indicator is not displayed when the user opens a document. **Workaround**: None
WBPM-1225	**Summary**: Within the Mobile Case Manager App, the hierarchy for the business actions at the third or higher level sub-categories is not displayed correctly. For example, **Main Category** > **Sub Category 1** > **Sub Category 2** > **Sub Category 3** > **Business Action** is not displayed in the proper hierarchy. **Workaround**: Within the Mobile Case Manager App, the business actions need to be at the most at the second level of sub-categories. For example, the business actions in the following cases will work. • **Main Category** > **Business Action** • **Main Category** > **Sub Category** > **Business Action** • **Main Category** > **Sub Category 1** > **Sub Category 2** > **Business Action**
WBPM-1170	**Summary**: When you launch the MobileSpace app on an Apple device, if you supply incorrect server details, you will not see an error pop-up. **Workaround**: Ensure that you enter the correct server details.
WBPM-1161	**Summary**: When projects without the qualifier are deployed, those using the WP model get deployed to Web IT. Web IT maintains a map of locations to paths and this gets updated on every deployment by taking the details from WP model. However when the model gets deployed without a qualifier, Web IT overrides the paths of projects with a qualifier with the paths of projects without the qualifier. During this process Web IT is not able to serve any resources of the project that were earlier deployed with the qualifier. **Workaround**: Use the Qualifier in projects. If this issue currently exists, undeploy the project without the qualifier and redeploy the project with the qualifier.
WBPM-437	**Summary**: If you have modified the locales for an application between versions, reverting an application to a previous version does not revert the locales. **Workaround**: You must manually modify the locales for the reverted application, depending on your requirements. See "Localizing Applications" in *TIBCO Active Matrix BPM Application Management Guide*.

Clients

TIBCO Forms

Key	Description
FORM-6714	**Summary**: On Windows 7 or 8, forms may not load properly on the GWT Preview tab of TIBCO Business Studio, if Internet Explorer has been upgraded. **Workaround**: Use an external browser to preview forms.
FORM-6705	**Summary**: After working on a form in Workspace, if you open the same form in Internet Explorer as a work item and see the data preview, going back to the Summary tab throws an exception in GWT Log. **Workaround**: None. You can safely ignore the exception.
FORM-6466	**Summary**: Custom controls of complex type are not validated. **Workaround**: None.
FORM-6460	**Summary**: A select event is triggered on value update in a grid pane even when there is no selection. **Workaround**: In the action scripts, add null checks when the grid pane selection API is used.
FORM-6446	**Summary**: The API setFocus(Integer index, Integer item) does not work on controls in a record pane. **Workaround**: None
FORM-6110	**Summary**: When editing a list control in Openspace or Workspace, if you scroll the window using the scroll-wheel, the edit box in the list control remains on the page, and does not scroll with the window. It is also applicable to editing controls in a grid pane when not in Always Render mode. **Workaround**: Pressing the Escape or Enter key closes the edit box.
FORM-5717	**Summary**: At runtime, only one version of a Component Library can be loaded within the same browser session. **Workaround**: If later versions of a process need to use an updated version of a library, then that library should be renamed to avoid a conflict with the earlier version of the library.
FORM-4164	**Summary**: A mobile form that contains a Duration list control is not properly destroyed when the form is submitted. **Workaround**: None. The only workaround is to avoid using Duration list controls for forms targeting the mobile presentation channel type.
FORM-4145	**Summary**: In mobile forms, the deletion of values from multi-valued list controls is not working. **Workaround**: None.

Key	Description
FORM-3544	**Summary**: Sometimes the loading of a mobile form is slow or can appear to freeze. This only happens during the initial load of the particular form and for subsequent instances of the same form load. **Workaround**: None.
FORM-2592	**Summary**: The setOptions() method on RadioGroups and OptionLists in Google Web Toolkit (GWT) fails if an array of numbers is passed as the option values array. **Workaround**: Use an array of strings to set the option values for an OptionList or RadioGroup control.
FORM-2376	**Summary**: Specific to Google Web Toolkit (GWT) presentation of forms. For image controls, the settings of width and height do not have any effect on the rendered image. **Workaround**: The size of images can be set using CSS. Follow these steps: 1. Create a CSS file in the Presentation Resources folder that contains a CSS rule for setting the size of an image control, for example: `.TibcoForms .imageSize img {width: 100px; height: 100px;}` 2. Add the CSS file as a reference in the Form Resource property sheet. 3. Add imageSize as the Style Class Name for the image control. (You can use whatever CSS class name you want as long as it matches what is used in the CSS file.)

Openspace

Key	Information
OS-3620	**Summary**: If you want to support internationalization, your system must be configured to use UTF-8. On Windows systems, UTF-8 is not set by default, so you must manually configure the ActiveMatrix BPM system to use UTF-8. **Workaround**: In ActiveMatrix Administrator, set the file.encoding property on your BPM Node to UTF-8. (See "Installation and Upgrade Procedures > Performing Post Installation Tasks > Configuring Support for Internationalization (Windows Systems Only)" in *TIBCO ActiveMatrix BPM Installation and Configuration*.
OS-3551	**Summary**: When you log in to the Openspace using correct credentials and then you open a new tab, but this time you enter invalid credentials, still Openspace says it is authenticated. **Workaround**: None. This is standard browser behavior. For more understanding, consult the browser provider's documentation.
OS-3421	**Summary**: In the Process Views gadget, if you start a process instance, all the details of the process instance, for example, priority, start times and so on, are not displayed immediately. **Workaround**: Refresh the gadget to display the details about the process instance.

Key	Information
OS-3097	**Summary**: In the Organization Browser, a problem can occur when using the Clear Selections checkbox in the Map to Positions tab to map resources to positions. Sometimes, selecting the Clear Selections icon leaves check marks besides positions even though the Grant button is grayed out. **Workaround**: Use the Space or Enter key to make selections.
OS-2962	**Summary**: If you are creating a work view in the accessible variant of Openspace and you select a work item attribute as part of your sort criteria, the name of the attribute does not display. The work item attributes display as attribute1, attribute2 and so on. **Workaround**: None.
OS-2438	**Summary**: In the Organization Browser, if you select some resources and then change the organization model version, the resources are deselected and you have to select them again. **Workaround**: None.
OS-2326	**Summary**: You cannot delete extension points using Openspace. **Workaround**: You must delete extension points using the TIBCO ActiveMatrix BPM API.
OS-2140	**Summary**: You cannot contribute the sample Work View gadget supplied TIBCO ActiveMatrix if your environment is enabled for SSL. **Workaround**: The sample gadgets URL has to use HTTP and not HTTPS.
OS-1914	**Summary**: When you first open the Calendar gadget and click **Edit** next to **SYSTEM**, the **Working Days** and **Exclusion** tabs do not display. **Workaround**: Click **Back** then click **Edit** again and the tabs display.

Workspace

Key	Description
WS-1710	**Summary**: When opening a work item in Workspace, if an error occurs in the Forms runtime, it can result in the application hanging. The application may have to be restarted to recover from the error. **Workaround**: None
WS-1604	**Summary**: If an LDAP container is created in the Organization Browser, the name of the LDAP container may not display properly if certain characters are used in the name. The specific characters are difficult to identify. **Workaround**: If the name of a newly created LDAP does not display correctly, use different characters for the name.

Key	Description
WS-1610	**Summary**: If long names are used when specifying items in Workspace (for example, views), or the Organization Browser (for example, LDAP containers), the names can overlap on the display, causing them to become unreadable. You may also experience a "DE_ENTITY_SAVE_ERROR " when attempting to save items with long names. **Workaround**: When naming items in Workspace or the Organization Browser, limit the length to 80 characters.
WS-1524	**Summary**: When Workspace is using a Microsoft SQL Server database, if you create a process view using the **Include selected processes** option and then individually select hundreds of process templates, a SQLServerException may be thrown that states `Some part of your SQL statement is nested too deeply`. **Workaround**: None
WS-672	**Summary**: Pageflow definitions can include branching that would require the simultaneous handling of multiple user tasks, each requiring the display of a form (this same scenario could also occur in embedded sub-processes set up for chained execution). Workspace cannot currently display multiple forms resulting from these parallel pageflows. If one is encountered in a WCC application (including the default Workspace application), the following warning message is displayed: "The business service or work item has encountered a parallel pageflow which cannot be displayed in Workspace". **Workaround**: Rework the process/pageflow to eliminate the parallel display of multiple forms, or create a custom BPM application using the available APIs that can handle pageflow branching (for information, see the *TIBCO ActiveMatrix BPM Developer's Guide*).

ActiveMatrix Platform

Known Issues

The table lists known issues in this release of TIBCO ActiveMatrix.

Key	Summary
AMRP-5628	**Summary**: The node status does not include custom features during the sequential checks when determining node health. **Workaround**: None
AMRP-5445	**Summary**: If a Node Start action has been performed and the messaging bundle is found to be in a `Stopped` state, the ActiveMatrix Administrator CLI hangs as the EMS messaging bundle is not loaded in the OSGi. This happens due to a limitation in the ActiveMatrix platform. **Workaround**: Re-install the node as the node is in a corrupt state.

Key	Summary
AMRP-5043	**Summary**: The timeout value of a promoted service or a component service cannot be updated when a promoted service or a component service is promoted. **Workaround**: Specify the timeout value using the application-level property. For example, if the name of an application is `weatherApp`, the following property can be specified for the promoted service or component service that is promoted: `java.property.weatherApp.invocationTimeoutInMilliseconds`. For example, `java.property.weatherApp.invocationTimeoutInMilliseconds=12000` sets the timeout value to 2 minutes.
AMRP-4754	**Summary**: If a service provider and a service consumer exist in the same BPM application, undeploying the application might undeploy the service provider even though the service consumer still requires the service provider. **Workaround**: Separate the service consumer and the service provider so that they're both in two separate user applications.
AMRP-4744	**Summary**: If you upgrade ActiveMatrix BPM to release 2.2.0 and ActiveMatrix to release 3.3.0, and upgrade a pre-existing user application so that it is a web service implementation with REST enabled, you might see exceptions similar to the following in the logs during the reply message event although the response is successfully received: ```[INFO] stdout - java.io.IOException: Exception in opening zip file: C:\ProgramData\amx-bpm-2.1.0v12\tibco\data\tibcohost\Admin-AMX BPM-AMX BPM Server\data_3.2.x\nodes\BPMNode\work\cf\cdfa6b9e-d49d-4764-8623-fa331f8820c3\bundle 28 Aug 2013 16:52:32,824 [Framework Event Dispatcher] [INFO] stdout - at org.eclipse.osgi.framework.util.SecureAction.getZipFile(SecureAction.java:291) 28 Aug 2013 16:52:32,824 [Framework Event Dispatcher] [INFO] stdout - at org.eclipse.osgi.baseadaptor.bundlefile.ZipBundleFile.basicOpen(ZipBundleFile.java:87)``` **Workaround**: Restart the node in which the application is deployed.

AMRP-4736	**Summary**: You might not be able to start ActiveMatrix BPM as a Windows Service after upgrading to ActiveMatrix release 3.3.0 from release 3.1.5 (or previous releases) or ActiveMatrix BPM release 2.2.0 from release 2.1.0 (or previous releases).
	
	Workaround: If you encounter this issue:
	
	1. Launch a command prompt where `tibcohost.exe` is located.
	2. Uninstall existing ActiveMatrix BPM windows service by executing:
	`tibcohost.exe --uninstall`
	3. Install the windows service again by executing:
	`tibcohost.exe --install`

Key	Summary
AMRP-4013	**Summary**: Acceptor threads for HTTP connectors might consume excessive amounts of CPU. The processing performance of any node that uses an HTTP connector experiencing this issue might be affected when asynchronous IO is involved. **Workaround**: Edit the HTTP Connector resource template to use blocking IO. For more information, see the section "Managing Resource Templates" in *TIBCO ActiveMatrix Service Grid Administration*.
AMRP-3788	**Summary**: The LDAP resource template pool properties are not used when initializing the connection pool. **Workaround**: Configuring the connection pool using system properties specified for the target node applies them to all instances deployed to that node. Refer to the Oracle documentation for more information: http://docs.oracle.com/javase/jndi/tutorial/ldap/connect/config.html.
AMX-17411	**Summary**: When the `java.property.com.tibco.amx.decouple.Manual.Nodes` property is set to `true` in the TRA file, the SystemHost gets downgraded but the SystemNode fails to downgrade. **Workaround**: 1. Set the following property: `java.property.com.tibco.amx.decouple.Manual.Nodes=false` 2. Restart ActiveMatrix Administrator. 3. Upgrade SystemHost to 3.4.0 and downgrade again.
AMX-17409	**Summary:** Consider that an ActiveMatrix Administrator server is upgraded to 3.4.0 from a prior version and this server is downgraded with a wrong ActiveMatrix Administrator port. In this case, if you do not test the connection to the ActiveMatrix Administrator server before the downgrade, the TIBCO Configuration Tool downgrade process hangs when checking ActiveMatrix Administrator initialization at the "Checking for Admin initialization..." step. **Workaround:** Kill the TIBCO Configuration Tool and provide correct information for ActiveMatrix Administrator configuration. For example, port, SSL information, and so on. Run the downgrade wizard again.
AMX-17393	**Summary**: When SAML Single Sign On configuration is enabled, if you delete the browser cookies, after re-directing from error page to landing page, you are not prompted for login credentials. **Workaround**: Logout from the previous browser session.

Key	Summary
AMX-17365	**Summary**: After upgrading to ActiveMatrix 3.4.0, the ActiveMatrix 3.3.0 Hotfix<x> runtime host fails to be downgraded back with the following error: ```product feature com.tibco.amf.sharedresource.extensions.runtime.tibcohost.product. feature 3.3.xx.000 contains a release unit com.tibco.amf.hpa.core.runtime.services.feature 1.5.0.003 that does not exist in the machine model``` **Workaround**: Always select the **Mediation Runtime** option while installing the **Runtime Host** profile for the remote hosts.
AMX-17351	**Summary:** Even after downgrading from 3.4.0 to a lower version and uninstalling 3.4.0, the **Configure TIBCO Service Performance Manager - V2.3** option is available in the TIBCO Configuration Tool. If you click the option, a Null Pointer exception is thrown. **Workaround:** None. Do not click the **Configure TIBCO Service Performance Manager - V2.3** option.
AMX-17343	**Summary:** If one of the EMS servers fails on an Amazon Web Services (AWS) setup, the status of some nodes is shown as `LOST_Contact`. **Workaround:** Reconnect the EMS connections by clicking **Admin Configuration > Admin Server > Transport Configuration tab > Administrator Reconnect**. After the reconnection, all the entities are shown as online.
AMX-17323	**Summary:** The **TIBCO ActiveMatrix Governance Agent for TIBCO BusinessWorks Notification** screen of the **Create TIBCO ActiveMatrix Policy Director Administrator Server - V3.4** wizard is removed in 3.4.0. However, some shared resources related to this screen (EMS ConnectionFactory, JMS Destination, JNDI Connection) are created in ActiveMatrix Administrator. These shared resources are added as an application property and can be viewed from the ActiveMatrix Administrator UI: • Application name: `com.tibco.ampd.ogp.de` • Properties: `bwJmsSharedResource` and `bwAgentAdapterJmsDestination` **Workaround:** The shared resources created by the screen are not used for anything. You can ignore them.
AMX-17316	**Summary:** After the uninstallation of ActiveMatrix Service Grid 3.4.0, some files and folders are not removed from TIBCO_HOME. For example, the `tibamx_hostmanager.properties` file from the `TIBCO_HOME/amx/3.4/scripts` and `TIBCO_HOME/tct/1.6` directories is not removed. **Workaround:** None
AMX-17226	**Summary:** On IBM AIX, if the **Deploy Log Service** option is selected and you create the ActiveMatrix Administrator server, the following error is displayed: ```Error Loading Extension Registry error``` **Workaround:** Clear the **Deploy Log Service** option when creating the ActiveMatrix Administrator server.

Key	Summary
AMX-17182	**Summary:** In the TIBCO Configuration Tool, host names or DNS names cannot have underscores in their names. As a result, TIBCO Configuration Tool fails if the name of the **Available Group Listener** contains underscores while configuring the `AlwaysOn` Database Setup in SQL Server 2017. **Workaround:** Do not use underscores in the name of the **Available Group Listener** while configuring the `AlwaysOn` Database Setup on SQL Server 2017.
AMX-17144	**Summary:** On Microsoft Windows, when you try to update JRE by using TIBCO Configuration Tool, occasionally the following error occurs: `Caused by: TIBCO-AMX-TOOLS-JREUPDATER-000048: Cannot write to the file. E:\AMX_v43\amx\3.4\scripts\rpflauncher_classpath_3.4.0.tra.` **Workaround:** Run the command two or three times until it succeeds.
AMX-17120	**Summary:** Occasionally because of manual intervention or execution of certain scripts, the network time of the machine where Active Directory Federation Services (ADFS) or WebApp is hosted might be out of sync and result in authentication failure for response being too old or from future. **Workaround:** The network time of the machine must be synchronized. For Linux, the synchronization must happen with the Network Time Protocol server. For Windows, use the Windows time service. There are standard operating system level procedures for synchronizing the machine network time.
AMX-16828	**Summary:** If you invoke a REST service binding with an OpenID Policy through a SOAP client such as SoapUI, it always sends an Access Token, which is an opaque token. Access Tokens are not, currently, supported. **Workaround:** Use the ID Token (which is a JWT token) generated by the Access Token URI to send the request in SoapUI.
AMX-16800	**Summary:** On a replication setup, when upgrading from 3.3.0 to 3.4.0, the primary ActiveMatrix Administrator server does not get started correctly after a successful upgrade. **Workaround:** Restart the ActiveMatrix Administrator server.
AMX-16672	**Summary:** Double downgrade is not supported. For example, downgrading from 3.4.0 to 3.3.1 to 3.3.0 fails with the following errors: `TIBCO-AMX-CLI-000944: Failed to downgrade TIBCO Host instance(s). TIBCO-AMX-CLI-000942: Downgrade TIBCO Host instance <instance name> is not possible.` **Workaround:** None
AMX-16634	**Summary:** For an upgraded TIBCO host, the `tibcohost describeHost` command incorrectly shows the upgrade status as `None`. **Workaround:** None
AMX-16542	**Summary**: After upgrading TIBCO Business Studio to TIBCO ActiveMatrix 3.4.0, it is no longer supported on the Mac operating system. **Workaround**: None

Key	Summary
AMX-16505	**Summary:** On a replicated setup, if one of the servers is downgraded, the version of the TIBCO ActiveMatrix REST BT Administrator Plug-in shows as 3.4.0 instead of showing the older version. **Workaround:** None
AMX-16084	**Summary**: The Service Performance Manager (SPM) dashboard does not work with EMS fault tolerance mode. **Workaround**: None
AMX-16083	**Summary**: If a Java project has errors (faults) configured in RRC and has execution environment as JAVASE-1.6 or lower, DAA generation fails. **Workaround:** To generate the DAA file, make sure that the `RequiredExecutionEnvironment` field in the `Manifest.MF` file is empty. It allows you to create the DAA and deploy it at runtime.
| AMX-16017 | **Summary:** When 3.4.0 is installed over 3.3.0 with Hotfix 17 applied to it, if all the check boxes (3.3.0, Hotfix 17, and 3.4.0) are selected in the Custom Uninstall dialog box, the following error is displayed during the TIBCO ActiveMatrix SPM Dashboard uninstallation:<br><br>```
ANT Task: TIBCO ActiveMatrix Pre-Uninstallation - ActiveMatrix
SPM Dashboard has failed.
```<br>**Workaround:** Uninstall the products in the following order:<br><br>1. 3.4.0<br>2. 3.3.0 Hotfix 17<br>3. 3.3.0 |
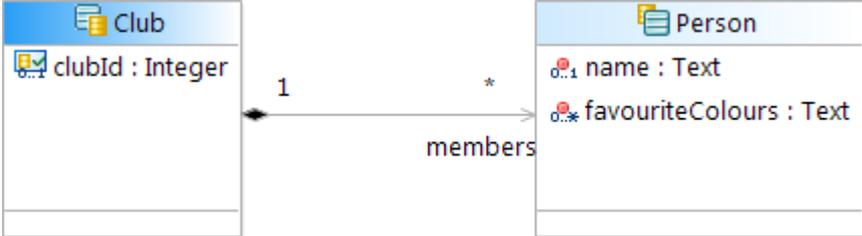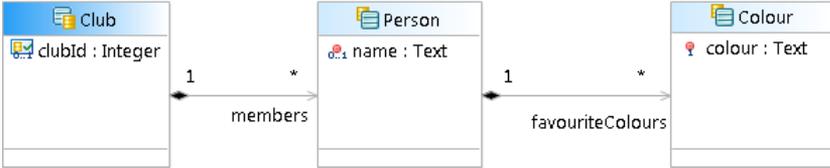| AMX-16016 | **Summary**: Downgrading SystemHost from ActiveMatrix 3.4.0 to an earlier version fails if the `CONFIG_HOME` where the SystemHost is present contains other runtime hosts that are bound to a different ActiveMatrix Administrator server instead of the ActiveMatrix Administrator server from the selected `CONFIG_HOME`.

Workaround: Ensure that all the runtime hosts that are in the selected `CONFIG_HOME` must be bound to the ActiveMatrix Administrator Server from the same `CONFIG_HOME`. |
| AMX-15975 | **Summary:** Even when the command line interface is used, the notification transport update fails with the following error message:<br><br>```
TIBCO-AMX-ADMIN-021085: Failed to update the notification
transport!, Caused by:
TIBCO-AMX-ADMIN-021281: The number of hosts in this enterprise is
more than 10.
Please use the Administrator Command Line Interface for updating
the Notification Transport.
```<br>**Workaround:** None |
| AMX-15840 | **Summary**: After upgrading from 3.2.0 to 3.4.0, the Mediation application template shows version as `3.4.0.007` instead of `3.5.0.007`.

Workaround: None |

Key	Summary
AMX-15806	**Summary:** When a DAA created in 3.3.0 with `javax.servlet` is run as a composite application in 3.4.0 (**Deployment Artifacts** > right-click the DAA file > **Debug As** > **Composite application**), RAD starts but fails with Provisioning Node errors. **Workaround:** Re-create the DAA in 3.4.0.
AMX-15775	**Summary**: In 3.4.0, an HTTP connector is created as non-blocking by default. That is, the **Use Non-Blocking IO Sockets** check box on the **Advanced** tab is selected by default. When this check box is selected, the **Acceptor Threads** field on the **General** tab is disabled and 1 is used as the default number of **Acceptor Threads**. For an internal HTTP connector, if the **Use Non-Blocking IO Sockets** check box is cleared and a value greater than 1 is specified in the **Acceptor Threads** field, all except one of the acceptor threads are in a blocked state. **Workaround**: Keep the **Use Non-Blocking IO Sockets** check box on the **Advanced** tab cleared.
AMX-15756	**Summary**: During installation using the GUI mode, a name cannot be specified for the installation environment. **Workaround**: Install using the Silent installation mode if you want to specify an environment name.
AMX-15614	**Summary:** When creating an ActiveMatrix Administrator server by using TIBCO Configuration Tool, if the Oracle user name has quotes (" ") and hyphen (-), TIBCO Configuration Tool fails to create the ActiveMatrix Administrator server and returns the following error: `Caused by: java.sql.SQLSyntaxErrorException: ORA-00942: table or view does not exist` **Workaround:** Avoid using quotes (" ") and hyphen (-) in the user name.
AMX-15592	**Summary**: For HP-UX machines, the Patch Manager functionality to shutdown TIBCOHost instances before running the commands `applyPatch` and `revertPatch` is not supported. For the same commands, the ability to start the TIBCOHost instances after running the commands is also not supported. That is, if `applyPatch` or `revertPatch` commands are run with the `-handleStart` or `-handleStop` arguments, the commands does not work as expected. In this case, the shutdown and startup of TIBCOHost instances must be handled manually. **Workaround**: Run the `applyPatch` and `revertPatch` command without `-handleStart` and `-handleStop` arguments, and handle shutdown and startup of TIBCOHost instances manually.
AMX-15569	**Summary:** The `-ignoreNodeStartupMode` argument of the Host Manager's `startAllHosts` command does not work for a Microsoft Windows NT host. For a Microsoft Windows NT host, it starts a node configured for automatic startup but does not start a node configured for manual startup. **Workaround:** Start Microsoft Windows NT host or service manually.

Key	Summary
AMX-15379	**Summary**: If application `App1` with promoted service `Service1` containing a SOAP/HTTP binding `Binding1` is deployed in environment `Env1`, and another application `App1` with promoted service `Service1` containing a SOAP/JMS binding `Binding1` is deployed in environment `Env2`, the TIBCO ActiveMatrix SPM dashboard shows an incorrect binding type for the application `App1` deployed in `Env2`. That is, the dashboard shows the binding type as SOAP/HTTP instead of SOAP/JMS. This issue applies to promoted references as well. Additionally, it applies to all binding types - SOAP/HTTP, SOAP/JMS, and JMS. **Workaround**: None
AMX-15261	**Summary**: On a machine which has a TIBCO ActiveMatrix 3.3.0 Hotfix installed, while upgrading to ActiveMatrix BPM 4.0.0, the TIBCO ActiveMatrix version is downgraded if all the following options are selected: • **Upgrade ActiveMatrix TIBCO Host Instance** • **Upgrade ActiveMatrix Administrator** • **Upgrade Nodes Hosting ActiveMatrix BPM Instance** • **Upgrade ActiveMatrix BPM Instance Application [Upgrading Database]** **Workaround**: 1. Stop tibcohost. 2. Apply the TIBCO ActiveMatrix 3.3.0 Hotfix again by running the patch manager. 3. Start tibcohost. 4. From ActiveMatrix Administrator, check systemnode and bpmnode. The expected hotfix version is displayed. 5. Launch TIBCO Configuration Tool to upgrade to ActiveMatrix BPM 4.0.0. Select the last two options: **Upgrade Nodes Hosting ActiveMatrix BPM Instance** **Upgrade ActiveMatrix BPM Instance Application [Upgrading Database]**

Key	Summary
AMX-13851	**Summary**: If you use Microsoft SQL Server 2012 as an external database server and use its Mirror Mode to establish a connection to a secondary failover database server, TIBCO ActiveMatrix Administrator fails to connect to either database server. **Workaround** In addition to providing the JDBC URL of the mirrored servers in SQL Server 2012, you must set the IP and hostname of both the primary and secondary database servers in the hosts file. The location of the hosts file depends on the operating system: • Windows: `ROOT_DIR\system32\drivers\etc\hosts` • UNIX/Linux: `/etc/hosts` For example, you have two database servers. The primary server's IP is 192.167.71.42 and its hostname is `amx-db42`; the secondary server's IP is 192.167.71.60 and its hostname is `amx-db60`. You would provide the following JDBC URL for these two mirrored primary and secondary servers: ``` jdbc:sqlserver:// 192.167.71.42:1433;databaseName=db1;failoverPartner=192.167.71.60 ``` To ensure that ActiveMatrix Administrator successfully connects to both servers and allows for seamless switching between them using SQL statements, you must add the following entries to the hosts file: ``` 192.167.71.42 amx-db42 192.167.71.60 amx-db60 ```
AMX-11970	**Summary**: In a replicated ActiveMatrix Administrator server setup, if you deploy to the system node applications with policies applied on them, the policies are not enforced after upgrade. **Workaround**: First undeploy and then redeploy these applications after upgrading all system nodes.
BJMS-1490	**Summary**: JNDI Resource Template using Custom Property for LDAP Provider URL will not get installed. **Workaround**: Provide URL in the Provider URL field on the Resource Template.
BJMS-1382	**Summary**: If JMS Binding configured with JMS AL Least Once Policy is undeployed before the redelivery count is exhausted, and deployed again, the message is not redelivered. **Workaround**: None
BJMS-1374	**Summary**: If JMS Binding is configured with JMS At Least Once Policy and the EMS Provider URL used for connection is fault tolerant, the message is not redelivered in case EMS crashes. **Workaround**: None

Key	Summary
BJMS-755	**Summary**: Enterprise Message Service XA Resources from orphaned transactions do not disappear after transaction timeout from Enterprise Message Service server. They are seen on the Enterprise Message Service server as a part of show transactions command. **Workaround**: Re-start the Enterprise Message Service server. As there is no locking in messaging associated with an XA resource, this issue is not serious.
BJMS-736	**Summary**: When a 2.x project containing a JMS binding is migrated to 3.x the JNDI resource template required for looking up the destination are not created and the generated warning does not clearly state that JNDI resource templates need to be created. **Workaround**: Manually create JNDI resource templates required for defining inbound and outbound destination configurations.
BJMS-726	**Summary**: On re-starting Enterprise Message Service, for in-flight messages, transaction does not get committed. Re-delivery happens and message is forwarded to error queue. **Workaround**: Recover the requests from the error queue.
BJMS-718	**Summary**: For JMS binding, the SDS UI allows you to set Context Parameters of type Message. This is not supported for JMS Binding. **Workaround**: Do not use type Message for Context Provisioning related to JMS Binding.
BJMS-636	**Summary**: The show connection command in the TIBCO Enterprise Message Service administration tool `ems-admin` does not contain "ClientID" value for connections created by JMS resource instances for outbound connections. **Workaround**: None
BJMS-603	**Summary**: ActiveMatrix Administrator does not validate that an application with JMS Transacted One-Way policy set should be deployed on a single node. **Workaround**: Ensure that the JMS binding that has a JMS Transacted One-Way Policy is deployed on the same node as that of component(s), it is wired to.

BJMS-355	**Summary**: When a JMS service is deployed in LB setup over routed queues, the following message is displayed and the service does not start:
	
	`javax.jms.IllegalStateException: Not allowed to use transacted session on routed queues`
	
	Workaround: Enterprise Message Service does not support transactions on routed queue consumers. Enterprise Message Service 6.0 added an explicit check to prevent this. You can restore the old behavior by setting the following configuration parameter:
	
	`allow_unsupported_tx_routed_q_consumers = true`

BJMS-139	**Summary**: If you rename an operation in a WSDL file, JMS bindings on composite services and references are not updated correctly. **Workaround**: Create new JMS binding after renaming the WSDL operation or re-assign the WSDL file to existing JMS binding.

Key	Summary
DSS-982	**Summary**: Changing or updating the TIBCO Credential Server (TCS) certificate results in host security failure. **Workaround**: None
DSS-813	**Summary:** While upgrading to ActiveMatrix release 3.3.0, you might see benign errors similar to the following example: ```[ERROR]com.tibco.trinity.runtime.base.provider.identity.CipherSupport``` **Workaround**: Such errors are harmless and do not mean that the upgrade failed. No action is required.
HKAM-411	**Summary:** On the Solaris operating system, the AMXNode microagents are not shown in the Hawk Display. **Workaround:** None
HKAM-402	**Summary**: After upgrading ActiveMatrix 3.3.0 to ActiveMatrix 3.4.0, when you call the `getConfig` method, the Monitoring Application State is shown as NOT CONFIGURED. **Workaround**: Before upgrading to ActiveMatrix 3.4.0, apply ActiveMatrix 3.3.0 Hotfix 10 or higher.
HKAM-397	**Summary**: When Hawk ActiveMatrix Plug-in (HKAM) is used for large scale systems, `tibhawkagent` stops automatically with the following error ```RV: DrainQueue: out of memory.``` **Workaround**: If HKAM is configured with more than 10 hosts, increase memory of `tibhawkagent`. To change memory of `tibhawkagent`: 1. Open `tibhawkagent.tra` located at `<hawk.config.home>/tibco/cfgmgmt/hawk/bin`. 2. Change values of `-XX:MaxPermSize`, `java.heap.size.initial` and `java.heap.size.max` based on number of hosts. For 60 hosts, the following values are recommended: • `java.heap.size.max` = 4 GB • `-XX:MaxPermSize` = 1 GB
HKAM-389	**Summary**: After a Notification Transport Server Configuration update, the TIBCOHost's HKAM rulebases point to the previous Notification Transport Server Configuration. **Workaround**: After a Notification Transport Server Configuration update, you must manually update the TIBCOHost's HKAM rulebases.
HKAM-384	**Summary:** When HKAM is configured on a large scale setup, invoking a method on a Host microagent fails with a timeout. **Workaround:** Change the default HKAM rulebase for host and node. Make it event-driven rather than polling at a fixed interval.

Key	Summary
HKAM-374	**Summary**: On Windows Server 2008 R2, if a node belongs to a host created with a Windows NT service, invocation of the following methods on the node microagent fails with a `StatsDataAdapter is null` error: • `changeMonitoringConfig` • `getBindingOperationStats` • `getComponentOperationStats` • `getConfig` **Workaround**: None
HKAM-373	**Summary:** When QIN update is performed on a host which is already configured with HKAM, the EMS related information in the `hawkems<host_name>.hma` file points to the old notification server. **Workaround:** Change the EMS values for `-user`, `-encryptedPassword`, and `-server` of the new notification server manually in the `hawkems-<host_name>.hma` file. ``` <arg>-user</arg> <arg>${new_username}</arg> <arg>-encryptedPassword</arg> <arg>${new_password}</arg> <arg>-server</arg> <arg>${new_notification_server_url}</arg> ```
HKAM-343	**Summary**: On Solaris, `hawk.log` shows the following error and method invocation for `CLEventPublisherMicroAgent` does not return any data: ``` Error loading microagent from com.tibco.hawk.microagent.commonlogging.publisher.CLEventPublisher MicroAgent: java.lang.IllegalArgumentException ``` **Workaround**: None
HKAM-337	**Summary**: For a node, you cannot view statistics for a WebApp component using the `onComponentOperationStats` Hawk method. **Workaround**: None
HKAM-336	**Summary**: For a node, you cannot view statistics for a WebApp component using the `getComponentOperationStats` Hawk method. **Workaround**: None
HKAM-266	**Summary**: If the ActiveMatrix Administrator server or TibcoHost instance is configured to use SSL-enabled Enterprise Message Service on AIX platform, and Hawk 5.0 is installed, then starting Hawk Agent fails with an error. **Workaround**: Use Hawk 4.9 instead of Hawk 5.0.
HKAM-264	**Summary**: You cannot change the timeout of method invocation for Custom microagent. **Workaround**: None

Key	Summary
HKAM-253	**Summary**: Hawk Display shows multiple entries for node Service microagent when rulebases for TibcoHost or nodes are invoked after the TibcoHost or node crash. **Workaround**: Click **Done**, and open the microagent again. Alternatively, restart Hawk Display.
HKAM-251	**Summary**: Continuous error messages are seen in the `hawk.log` file after starting `tibhawkagent.exe` on HAWK 5.0. Hawk 5.0 is unable to run `powershell.exe` used in TibcoHost rulebase. **Workaround**: Prefix `powershell.exe` in the rulebase of the TibcoHost with the absolute path of `powershell.exe`.
HKAM-250	**Summary**: When using Hawk 5.0, logs are not generated in the `CONFIG_HOME/hkam/<host_instance_name>/logs` folder. The Hawk Agent shows errors related to `slf4j` in the Hawk logs. **Workaround**: Remove the `slf4j` jars and jars with different versions of `slf4j` from the agent classpath.
HKAM-249	**Summary**: The Stop Reason and Reason Code arguments are not updated for the `onNodeEvent` method after calling `stopNode`. **Workaround**: None
HKAM-242	**Summary**: Hawk 5.0 cannot find Windows PowerShell. **Workaround**: Prefix `powershell.exe` in the rulebase of the TibcoHost with the absolute path of `powershell.exe`.
HKAM-237	**Summary**: On creating a node in the ActiveMatrix Administrator web interface, its rulebase is created in the `CONFIG_HOME/hkam/<host_instance_name>/rulebases` folder. If the node is deleted, the `HAWK.log` file continuously produces errors. **Workaround**: Manually delete the rulebase to avoid error entries in the `HAWK.log` file.
HKAM-193	**Summary**: Hawk ActiveMatrix Plug-in displays some ActiveMatrix applications or components in runtime state as uninstalled, but ActiveMatrix Administrator or nodeutil do not show these applications. **Workaround**: Restart Hawk Agent to clear the cache.
IWAP-725	**Summary**: (ActiveMatrix BPM only) If you change a substitution variable (such as `%%httpConnectorPort%%`) from a hardcoded value (such as 443)—or vice versa—in an HTTP connector resource template, Workspace and Openspace fail to open and you might see an error similar to the following example in the logs: ```[ERROR] com.tibco.n2.rtc.ap.ActionProcessor - [ERROR] - {WS_REQUEST_EXCEPTION} - Workspace caught an Exception ¬{extendedMessage=`Invalid Security Context: Missing requested attribute``` **Workaround** Redeploy the application and restart Workspace and Openspace.

Key	Summary
IWAP-669	**Summary**: If you add a WebApp component to an imported project created in ActiveMatrix 3.2.0 that already has a WebApp component, every time you select the newly added WebApp component after selecting the original WebApp component the Thread Context Class Loader Type drop-down list in the Properties > Implementations tab is disabled. **Workaround**: Deselect the newly added WebApp component (by selecting any area on the canvas that is not the original WebApp component from the imported project), then select the newly added WebApp component again. The Thread Context Class Loader Type drop-down list is enabled.
IWAP-223	**Summary**: In the `web.xml` file, `resource-ref` elements are not supported. **Workaround**: None
IWAP-72	**Summary**: The WebApp component does not have an option to modify the Web Application connector during deployment in TIBCO Administrator UI. **Workaround:** To configure or change the connector name in TIBCO ActiveMatrix Administrator: 1. In TIBCO Business Studio, open the project containing the Web Application component. 2. Promote the defaultConnector property to a composite level: a. Select the `defaultConnector` property on the component. b. Right-click and select **Promote**. 3. Make the composite property a substitution variable so it can be substituted in TIBCO Administrator before deployment. 4. Right-click on composite and select **Create DAA**. 5. In ActiveMatrix Administrator, make sure a connector with the same name is created in ActiveMatrix Administrator and deployed on to the node before the Web Application DAA is deployed.
MCR-2002	**Summary**: If you have configured Microsoft SQL Server 2012 as a database for Administrator, invoking a custom DAA might result in harmless exceptions similar to the following examples: `Caused by: com.microsoft.sqlserver.jdbc.SQLServerException: Violation of UNIQUE KEY constraint 'UQ__Mcr2Stat__1C012A471DC5DDE4'. Cannot insert duplicate key in object 'dbo.Mcr2StatisticsMetric'. The duplicate key value is (93, 21, 22, 3, -1). at com.microsoft.sqlserver.jdbc.SQLServerException.makeFromDatabaseError(SQLServerException.java:216) at com.microsoft.sqlserver.jdbc.SQLServerStatement.getNextResult(SQLServerStatement.java:1515) at com.microsoft.sqlserver.jdbc.SQLServerPreparedStatement.doExecutePreparedStatement SQLServerPreparedStatement.java:404)` **Workaround**: None

Key	Summary
MCR-1995	**Summary**: If you have configured IBM DB2 as an external database, you might see harmless exceptions similar to the following examples in `SystemNode.log`: ``` Retrying database transaction after error: Processing of metric requestsIn for event com.tibco.governance.amxserviceprobe.ServiceProbeInstruments.ServiceRequestIn failed for measure Total and time window Since Started Time Window Retrying database transaction after error: Processing of metric faults for event com.tibco.governance.amxserviceprobe.ServiceProbeInstruments.ServiceExecutionTime failed for measure Total and time window Since Started Time Window ``` **Workaround**: Such exceptions are benign and do not require any action.
MCR-1943	**Summary:** If you have upgraded to ActiveMatrix release 3.3.0 from a prior version and attempt to replicate the upgraded configuration, deploying the replicated configuration might fail. **Workaround:** Replicate your configuration before upgrading to ActiveMatrix release 3.3.0.
MCR-1823, TAP-10602	**Summary**: The value for the uptime displayed in the infrastructure dashboard screens are accounted from the time a request is made to the application by invoking the endpoint or through an internal call from another application. If an application is deployed and not used, the value for uptime is 0. **Workaround**: None
MCR-1422	**Summary**: If nodes are restarted when the SystemNode is down, the Uptime and Since Started statistics are not reset. **Workaround**: Either make sure that the system node is running using admin replication or restart the applications for which incorrect statistics are seen.
MCR-1350	**Summary**: The number of components reported for a given node in the Enterprise Graphical View includes components that belong to the ActiveMatrix Platform Application. The Dashboard component count does not include these components. **Workaround**: None
MCR-1226	**Summary**: The **Endpoint**, **Service**, and **References** tabs display an incorrect value for **Avg Comp Process Time** when extended monitoring is enabled. The value displayed is **Req Comp Time**. **Workaround**: The correct average component processing time is available in the **Components** and **Applications** tabs.
MCR-1205	**Summary**: If the TibcoHost is shutdown while the dashboard is running, the following error message is seen in the SystemNode log files: ``` [ERROR] org.apache.axis2.engine.AxisEngine - bean:name=govObjFilterServiceMBean ``` **Workaround**: None. This error can be safely ignored.

Key	Summary
MCR-1204	**Summary**: Stopping the TibcoHost instance occasionally causes exceptions to be thrown in the log file. During a graceful stop of TibcoHost instance there might be some exceptions in the log file with the root cause. For example: `Caused by: java.lang.RuntimeException: Statistics aggregator is closing down, rolling back transaction` **Workaround**: Ignore the error.
MCR-1162	**Summary**: Statistics for Web Application components do not display in the dashboard. **Workaround**: None
MCR-876	**Summary**: Status value is `Unknown` and uptime is empty when the same application is deployed on two nodes across environments. **Workaround**: Change the application name during deployment. It must be unique for an enterprise for dashboard to show correct status and uptime.
MCR-800	**Summary**: When a component reference is promoted, component reference metrics show zero values. All metrics are shown on the promoted reference and reference endpoint. **Workaround**: View metrics on the promoted reference.
MCR-753	**Summary**: In the **Dashboards > Infrastructure** screens the application request count includes requests counts from all services promoted to application level. In addition, it incorrectly includes reference invocations count from all references promoted to application level. **Workaround**: None
MCR-521	**Summary**: If a node is stopped or started several times while SystemNode is down, the last stop or start time of SystemNode is used to calculate the node's uptime percentage. Other stops and starts are missed and not used in uptime calculation. **Workaround**: Configure the ActiveMatrix Administrator server in fault tolerant mode.
MED-3306	**Summary**: SOA projects created by the AutoMediate Tool might fail to be deployed by the tool if the projects have SOAP over JMS bindings. **Workaround**: Re-create all JMS Connection Factory and Destination resources in TIBCO Business Studio.
MED-2907, MED-2885	**Summary**: The Mediation editor does not reload changes to the XSD unless the project is restarted. **Workaround**: To resolve this: 1. Import all projects into the workspace. 2. Restart TIBCO Business Studio. 3. Run **Project** > **Clean** > **Clean all projects**.

Key	Summary
MED-2055	**Summary:** The Transform task does not handle the Byte Order Mark (BOM) in external stylesheet files. **Workaround**: Open the stylesheet in a text editor and save it manually in a format without using BOM.
MED-1827	**Summary**: Deploying a mediation application that uses custom XPath functions and if the custom XPath function plug-in is not deployed, results in errors at the time of deployment. **Workaround**: None
MED-1739	**Summary**: When adding a PortType with many (about 50+) operations, the validation begins before the mediation flow is fully updated. This causes error markers to appear on the mediation operations when no actual problems exist. **Workaround**: Select **Project > Clear** from the menu bar and the validation restarts. The error markers disappear, unless there are actual problems that remain.
MED-1736	**Summary**: Dragging and dropping a WDSL onto a mediation flow results in the following error: `Receive Wrong Transfer data` **Workaround**: None
MED-1703	**Summary**: Creating schema using the **Create** button creates the schema for CMT model plugin wizard but does not set it. **Workaround**: Once the schema is created, you can browse and select the schema in the wizard to set it for both Input and Output Schemas in the plugin wizard.
MED-1652	**Summary**: The message type context property does not specify an unbound message even though the selection list contains all message elements in the WSDL. An unbound message is one that is not used for Input, Output, or Fault parts. **Workaround**: Only select unbound message elements for context properties.
PD-4435	**Summary**: When the Basic or UsernameToken Authentication Governance Control is enforced on the object group with a WebApp and REST binding member, the policy does not work when used as UsernameToken Authentication but works when used as Basic Authentication. **Workaround**: None
PD-4431	**Summary**: A policy is not enforced for an application if the application is deployed before deploying the Policy Director Governance server. **Workaround**: None

Key	Summary
PD-4429	**Summary:** Even after successfully downgrading from 3.4.0 to ActiveMatrix 3.3.0 (with Hotfix 23 and Policy Director Hotfix 02 installed), the following plug-ins show 3.4.0 as the version: • TIBCO ActiveMatrix Operations Governance Platform Administrator plug-in • TIBCO ActiveMatrix Administrator Governance Policy Director admin plug-in **Workaround:** This issue does not have a functional impact; everything works as expected.
PD-4423	**Summary**: Logging policy is not supported by the ActiveMatrix Administrator server (with ActiveMatrix Policy Director Governance services) of ActiveMatrix 3.4.0 when the server is configured with SSL-enabled Enterprise Message Service. **Workaround**: None
PD-4420	**Summary**: On the **Governance** tab of the ActiveMatrix Administrator UI, the applications that have policies applied to them incorrectly show their undeployed policies as `Active`. **Workaround**: None
PD-4371	**Summary:** OpenID Connect authentication is not supported via Policy Director Governance in this release. Consequently, the following operation in TIBCO ActiveMatrix Administrator fails: **Governance** > **New** > **Authentication By OpenID** **Workaround:** None

Key	Summary
PER-1931	**Summary**: Nonce is not supported for messages sent from TIBCO ActiveMatrix BusinessWorks to ActiveMatrix BPM. Therefore, if you use TIBCO ActiveMatrix BusinessWorks as a client to invoke an ActiveMatrix BPM process as service, you might see the following error:

```
PolicyEnforcement Failed to Authenticate the request.
```

Workaround: Modify the WSDL generated by ActiveMatrix to add the following schema, WSDL message, and WSDL input in binding to successfully invoke an ActiveMatrix BPM service from TIBCO ActiveMatrix BusinessWorks.

Schema

```
<xsd:schema elementFormDefault="qualified"
targetNamespace="http://schemas.xmlsoap.org/ws/2002/07/secext">
<xsd:import namespace="http://schemas.xmlsoap.org/ws/2002/07/
utility"/>
<xsd:element name="Security" type="s2:Security"/>
<xsd:complexType name="Security">
<xsd:sequence>
<xsd:element minOccurs="0" maxOccurs="1" name="UsernameToken"
type="s2:UsernameToken"/>
</xsd:sequence>
</xsd:complexType>
<xsd:complexType name="UsernameToken">
<xsd:sequence>
<xsd:element minOccurs="0" maxOccurs="1" name="Username"
type="xsd:string"/>
<xsd:element minOccurs="0" maxOccurs="1" name="Password"
type="xsd:string"/>
</xsd:sequence>
</xsd:complexType>
</xsd:schema>
```

WSDL Message

```
<wsdl:message name="PUTSecurity">
<wsdl:part name="Security" element="s2:Security"/>
</wsdl:message>
```

WSDL Input in Binding

```
<soap:header message="tns1:PUTSecurity" part="Security"
use="literal"/>
```

For example:

```
<wsdl:binding name="ProcessPackageProcess_EP"
type="tns1:ProcessPackageProcess">
<soap:binding style="rpc" transport="http://schemas.xmlsoap.org/
soap/http"/>
<wsdl:operation name="CatchMessageEvent">
<wsdl:documentation/>
<soap:operation style="rpc" soapAction="CatchMessageEvent"/>
<wsdl:input>
<soap:header message="tns1:PUTSecurity" part="Security"
use="literal"/>
<soap:body use="literal" parts="in1"/>
</wsdl:input>
<wsdl:output>
<soap:body use="literal" parts="out1"/>
</wsdl:output>
</wsdl:operation>
</wsdl:binding>
<soap:header message="tns1:PUTSecurity" part="Security"
use="literal"/>
```

Key	Summary
PER-714	**Summary**: Multiple SOAP references deployed in a single node sending different credentials to a single SOAP service protected with Basic Authentication Policy could result in erroneous authentication failures for some of the references even if they are sending valid credentials. **Workaround**: You can either: • Deploy these references in different nodes • Configure these references with different HTTP client resource instance configurations
PER-632	**Summary**: For proper policy enforcement, every composite containing a web application component must have a different context root. **Workaround**: None
PER-609, PER-623	**Summary**: The `UsernameTokenAuthentication` and `WSSProvider` are incompatible policies. These policies have redundant functionality, but they cannot co-exist on the same SOAP service. `UsernameTokenAuthentication` authenticates using only the username token in the WS-Security header. `WSSProvider` authenticates using any available information in the WS-Security header. Both policies remove the WS-Security header from the message after successful authentication. If both policies are in effect at the same service, when the first one (`WSSProvider`) succeeds, the second (`UsernameTokenAuthentication`) must fail, because the WS-Security header is no longer available. This failure causes request messages with proper credentials to fail erroneously. **Workaround**: Do not apply the policies `WSSProvider` and `UsernameTokenAuthentication` together at the same SOAP service.
PER-583	**Summary**: For bundled policies added in this release, if the resource instance(s) used in the policy is reinstalled, policy enforcement fails. **Workaround**: Redeploy the application after reinstalling the resource instance(s).
PER-557	**Summary**: The policy AuthorizationByRole does not support nested groups. Suppose user A is a member of group B, which is a subgroup of group C. If group C has access permission to request an operation, and user A attempts to request that operation, then the request fails. That is members of group B do not inherit access permission from group C. **Workaround**: Configure access permissions directly in each subgroup (in this example, in group B).
PER-49	**Summary**: When configuring an LDAP Authentication resource template in Administrator, the option to generate SAML 1.1 assertion is not supported by platform policies. **Workaround**: When configuring an LDAP Authentication resource template, accept the default setting to generate SAML 2.0 tokens.

Key	Summary
RSBT-784	**Summary**: Open ID authentication is not supported when invoking REST Service Bindings using the Swagger UI. Only basic authentication is supported. **Workaround**: None
RSBT-779	**Summary**: For a REST binding, when using the POSTMAN REST client, the basic or username token authentication policy is not enforced if you do not provide authentication. **Workaround**: None
RSBT-721	**Summary**: In the Swagger UI, if SSL is enabled over a REST binding that uses the self-signed certificate and you send a request over HTTP, it returns the following error: `TypeError: Failed to fetch` **Workaround**: Add the certificate as an exception in the browser.
RSBT-719	**Summary**: In Swagger UI, on selecting parameter `content-type` as `application/bjson`, the schema is not populated with the correct BJSON format. **Workaround**: You can manually form the request payload of type Badgerfish JSON (`application/bjson`) to get a proper response.
RSBT-716	**Summary**: To test an endpoint, when you select the request `content-type` as `application/xml`, an XML request payload is generated in the Swagger UI. The payload does not include the namespace for the elements that are defined in an imported XSD, that is, namespace is not pre-populated in the payload. **Workaround**: Manually provide a namespace for such elements.

RSBT-603	**Summary**: When the Java property `com.tibco.amf.runtime.bindingtype.rest.extendedJsonConversion` is set to `true` for a runtime node in the REST Resource Configuration (`.RRC`) file for a reference binding, and if the POST request contains a JSON array with exactly one JSON element in it (as specified below), the JSON array is treated as a single, non-array element. This results in a `NullPointerException` at runtime when multiple elements are sent as part of the request.
	
	Erroneous usage:
	
	`{"addRequestOperation": {"Arrays":[{"Key":"key1", "Value": "value1"}]}}`
	
	Workaround: In the RRC file, specify multiple elements in the JSON Array element as follows
	
	Correct usage:
	
	`{"addRequestOperation": {"Arrays":[{"Key":"key1", "Value": "value1"},{"Key":"key2", "Value": "value2"}]}}`
	
	With this change, the Array object is treated as a JSON array at runtime and the `NullPointerException` is not seen.

Key	Summary
RSBT-408	**Summary**: A Null Pointer Exception is thrown when a Pass Through Mode sample project is deployed in RAD. **Workaround**: Deploy the project in ActiveMatrix Administrator.
RSBT-398	**Summary**: A REST service binding is updated after an operation is added to a WSDL. **Workaround**: None
RSBT-391	**Summary**: After renaming an RRC file through the Process Explorer, the name of the file is updated in the reference > **Bindings** tab > **Rest Resource Configuration File** link. **Workaround**: None
RSBT-382	**Summary**: If the RRC file name begins with `xml`, an error is thrown while generating the Java implementation. **Workaround**: None
RSBT-371	**Summary**: When a context parameter is added or edited, the following message is displayed at the promoted reference: `Regenerated context parameter mappings` When you click the message, the mappings are created but the error message does not disappear. **Workaround**: Clean the project.
RSBT-368	**Summary**: In the RRC file, if an operation name begins with a '/', an exception is thrown. **Workaround**: None
RSBT-363	**Summary**: While creating a REST binding on a promoted service, clicking **Next** does not result in any action. **Workaround**: Click **Finish**.

Key	Summary
RSBT-358	**Summary**: The following data types in a generated XSD do not match the data types in the JSON payload: 1. `unsignedByte` mapped to `short` 2. `nonpositiveinteger` mapped to `float` 3. `nonnegativeinteger` mapped to `float` 4. `unsignedshort` mapped to `int` 5. `gYear` mapped to `short` 6. `negativeinteger` mapped to `float` 7. `unsignedlong` mapped to `float` 8. `positiveinteger` mapped to `float` 9. `boolean` mapped to `string` **Workaround**: Edit the XSD file manually to reflect the correct datatypes.
RSBT-346	**Summary**: Error messages for duplicate resource names or operation names are not displayed immediately when configuring a REST resource configuration (`.rrc`) file. Similarly, the error message does not go away automatically when the duplicate resource names or operation names are removed. **Workaround**: Perform a clean operation.
RSBT-231	**Summary**: While adding a binding, when the pass through mode is enabled, a note or warning indicating that any existing WSDL on the component reference is replaced by the pass through WSDL is not displayed. **Workaround**: None
RSBT-230	**Summary**: The **HTTP Client** textbox is not cleaned up after the resource template is deleted from the **Resource Templates** folder. **Workaround**: None
RSBT-58	**Summary**: If you upload a DAA that includes a REST binding, ActiveMatrix Administrator does not check whether HTTP connector resource instances exist for HTTP connectors defined for the REST binding. Later, when you attempt to deploy this DAA, the deployment fails because of the missing resource instance. **Workaround**: Create an HTTP connector resource instance in the ActiveMatrix Administrator GUI. While configuring the REST binding in TIBCO Business Studio, the name of the resource instance must match the user-specified HTTP connector name.
SDS-7799	**Summary**: While generating a CLI script, if you add a new server, a `Null Pointer Exception` is thrown. **Workaround**: After adding a new server, click on the **Refresh** button.
SDS-7796	**Summary**: When an application with a SSL-enabled HTTP connector tries to connect to a deployment server, the connection fails. **Workaround**: None

Key	Summary
SDS-7781	**Summary**: After you successfully migrate SOA projects from ActiveMatrix 2.x to ActiveMatrix 3.4.0 in TIBCO Business Studio, WS_Samples of 2.x result in implementation errors. **Workaround**: None
SDS-7780	**Summary**: After you successfully migrate SOA projects from ActiveMatrix 2.x to ActiveMatrix 3.4.0 in TIBCO Business Studio, DAA generation fails for the `EmployeeVacation (2.x) Sample` project. **Workaround**: None
SDS-7779	**Summary**: After you successfully migrate SOA projects from ActiveMatrix 2.x to ActiveMatrix 3.4.0 in TIBCO Business Studio, SoapException 2.x sample project results in implementation errors. **Workaround**: None

SDS-7776	**Summary:** After importing a 3.1.5 or 3.2.0 Java sample project in 3.4.0 TIBCO Business Studio, the following error is displayed:
	
	`JAR file incompatible with JRE/JDK 1.7 due to containing entries with the empty name.`
	
	Workaround:
	
	1. Open the **Problems** view.
	2. Look for instances of the following error message:
	
	`JAR file incompatible with JRE/JDK 1.7 due to containing entries with empty name.`
	
	One such message is generated for each offending JAR file.
	
	3. Right-click all these messages and select a quick fix to apply.

SDS-7763	**Summary**: When you launch TIBCO Business Studio in a new workspace and click **Help** > **Search** for the first time, a NullPointer exception is returned. **Workaround**: None

SDS-7729	**Summary:** While running Ant files in TIBCO Business Studio, the following error is returned :
	
	`Launching <projectName><ant.deployment-build.xml' has encountered a problem,`
	`Launch configuration <projectName><ant.deployment-build.xml`
	`references non-existing project <projectName>`
	
	This is because of a bug in the Eclipse platform 4.7.1a (https://bugs.eclipse.org/bugs/show_bug.cgi?id=522581).
	
	Workaround: Run the Ant file using the **Run in the same JRE as the workspace** option in the Create, manage, and run configurations dialog box. Alternatively, change the project containing the `build.xml` to a Java project by adding `<nature>org.eclipse.jdt.core.javanature</nature>` to the list of `<natures>` in the `.project` file and then restart Eclipse.

Key	Summary
SDS-7725	**Summary**: If the 3.4.0 TIBCO Business Studio is used to load a workspace that was created using 3.3.0 TIBCO Business Studio, running RAD (Rapid Application Deployment) fails with the following error because the 3.3.0 workspace contains JRE 1.7 information: `Unsupported minor version` **Workaround**: Change the workspace JRE to Java 1.8.
SDS-7685	**Summary:** If a Java project uses the Java 8 specific syntax in the code, the DAA file cannot be generated with execution environment as JavaSE-1.8. However, Java 8 syntax and compilation is supported. **Workaround:** To generate the DAA file with Java 8 code, make sure the `RequiredExecutionEnvironment` field in the `Manifest.MF` file is empty. This allows you to create the DAA and deploy it at runtime. • For a newly created project, the `RequiredExecutionEnvironment` field in the `Manifest.MF` file is empty. • For an existing project, if Java 8 specific code is added, remove the `RequiredExecutionEnvironment` entry in the `Manifest.MF` file.
SDS-7680	**Summary:** For a Custom Mediation task, generation of the DAA fails. **Workaround:** While creating the Custom Mediation task, make sure the **RequiredExecutionEnvironment** field in the `Manifest.MF` file is empty. This allows you to create the DAA and deploy it at runtime.
SDS-7669	**Summary**: In the ActiveMatrix Administrator CLI, upgrading the existing application did not update the Contact and Description fields in DAA. **Workaround**: In the `SystemNode.tra` file, set the following property: `java.property.com.tibco.amx.admin.application.update.description.contact.during.upgrade=true`
SDS-7640	**Summary:** When an existing project is imported into a workspace and Java 8 code is added to it, the following error is returned while creating the DAA: `Exporting bundles failed` **Workaround:** To generate the DAA file with Java 8 code, make sure the `RequiredExecutionEnvironment` field in the `Manifest.MF` file is empty. This allows you to create the DAA and deploy it at runtime.

Key	Summary
SDS-6729, SDS-6992	**Summary**: ActiveMatrix projects created in versions prior to 3.2.0 that use Java, Spring or WebApp components encounter an Null Pointer Exception (NPE) dialog when imported into any ActiveMatrix version running on JRE 1.7 or later. This is caused by the incompatibility of JRE 1.7 with the JAR format of the DataBinding JARs generated by ActiveMatrix versions prior to 3.3.0. This may happen if you have upgraded to JRE 1.7 or installed an ActiveMatrix version that includes JRE 1.7, such as version 3.3.0. **Workaround**: 1. Open the **Problems** view. 2. Look for instances of the following error message: `JAR file incompatible with JRE/JDK 1.7 due to containing entries with empty name.` One such message is generated for each offending JAR file. 3. Right-click on one of these messages and select a quick fix to apply. There are three quick fixes available (all three back up old JARs): • Fix JAR for JRE/JDK 1.7 compatibility-This option fixes only the selected JAR (that is, the JAR you clicked to apply the quick fix). • Fix all library JARs in project for JRE/JDK 1.7 compatibility-This option fixes all of the offending JARs in the same project as the selected JAR (that is, the JAR you clicked to apply the quick fix). • Fix all library JARs in workspace for JRE/JDK 1.7 compatibility-This option fixes all of the offending JARs in the workspace. 4. After applying a quick fix, some errors related to the component class may still be seen. To clean up these errors, select the project that has the errors and select Project > Clean.
SDS-6264	**Summary**: If the Web Application component is added by right clicking on the composite, the Generate Servlet Implementation option is not available under the Quick Fixes option. **Workaround**: Select the Web Application component, right-click, and select Generate Servlet Implementation.
SDS-5866	**Summary**: When one of the nodes participating in a high availability configuration is stopped and an application is deployed via TIBCO Business Studio, the deployment never completes. **Workaround**: Deploy the application from ActiveMatrix Administrator. The application state is in a partially running state instead of running - which is the expected behavior.
SDS-3890	**Summary**: Sometimes, the following message is returned in the error log: `Unbanded EventLoop Exception` **Workaround**: None. Ignore the error.

Key	Summary
SVCP-84	**Summary**: The TIBCO ActiveMatrix Service Performance probe on the Administrator node does not receive self-shutdown notifications sent from TibcoHost. This occurs because the Service Performance Manager probe component on the Administrator node responsible for such communication shuts down before it can send the notification. **Workaround**: None
TAP-15885	**Summary**: Accessing ActiveMatrix Administrator Dashboards (**Dashboard > Infrastructure**) results in the following error: `Dashboard Bundle not Available. Please reload the browser.` `TypeError: Cannot read` `property 'Container' of undefined` **Workaround**: Access ActiveMatrix Administrator Dashboards using the procedure mentioned in "Accessing Administrator Dashboards" section of the *TIBCO ActiveMatrix Service Grid Administration* guide.

TAP-15863	**Summary** : On Microsoft Windows, when HSQLDB is used and the Log Service is enabled, the following error is intermittently seen in the `CONFIG_HOME` `\tibcohost\<instance_name>\data_3.2.x\nodes\SystemNode\logs` `\SystemNode.log` of the ActiveMatrix enterprise:
	
	 `TIBCO-AMX-HPA-014016: Uncaught exception in thread Thread` `[LoggingThread,5,Job_Executor]` `java.lang.IllegalStateException: No uri`
	
	 After this error is seen, **Governance** > **Log Viewer** (logservice) does not work from the ActiveMatrix Administrator UI and the following error is returned:
	
	 `Loading log service list failed. You have no permission to visit` `logviewer or the log service admin plugin is not available.`
	
	 Workaround : None

TAP-15842	**Summary:** If you create an enterprise that uses a messaging bus and then create an environment that does not use the messaging bus, the **Configure enterprise without a messaging bus** check box on the **Admin Configuration** > **General** tab is disabled. **Workaround:** None
TAP-15834	**Summary**: When using the Microsoft Edge browser, when creating an Object Group of Policy Director Governance by specifying the search criteria to find the matched group members, if you click the **+** button to build the search criteria, the **attribute** and **operator** drop-downs are not populated with the correct values. **Workaround**: None
TAP-15833	**Summary**: When using the Microsoft Edge browser, when building the search criteria to find the matched group members, the **X** button does not clear the drop-down boxes used to specify the search criteria. **Workaround**: None

Key	Summary
TAP-15827	**Summary**: If you have upgraded to ActiveMatrix 3.4.0, and then created a new Host or Node, some default loggers are missing on the newly created Host or Node. **Workaround:** Before creating the new Host, copy the `DefaultLogConfiguration.properties` file on every TibcoHost instance on which the ActiveMatrix Administrator server is running. Copy the file from `<TIBCO_HOME>\administrator\3.4\templates\` and paste it into `<CONFIG_HOME>\admin\amxadmin\private\<instanceName>\`.
TAP-15822	**Summary**: You cannot deploy an ActiveMatrix 3.4.0 DAA on ActiveMatrix 3.3.1 Administrator, ActiveMatrix 3.3.0 Administrator or ActiveMatrix 3.3.0 Hotfix 23 Administrator that uses Java 8. **Workaround**: None
TAP-15817	**Summary**: When using the Microsoft Edge browser on Windows 10, the Metrics Collection Runtime dashboard is not displayed. **Workaround**: None
TAP-15664	**Summary:** On Solaris Sparc, **Get Admin Information** use test of Enterprise Deployment Health Check fails with the following error: `Couldn't obtain phys addr` **Workaround:** None
TAP-15645	**Summary:** When a TIBCO ActiveMatrix enterprise has customized system host and system node names (for example: SystemNode1, SystemNode2, or AdminNode) and the system node does not fully start in a TIBCO ActiveMatrix enterprise, the following error message is displayed on the TIBCO ActiveMatrix Administrator web page: `404 page not found` Prior to TIBCO ActiveMatrix 3.3.0 Hotfix 13, when a user tried to access a TIBCO ActiveMatrix Administrator web page while it is still loading or the user specified a wrong URL (correct with respect to IP address and port number), a "`404 page not found`" HTTP error response was returned. Starting with TIBCO ActiveMatrix 3.3.0 Hotfix 13, in the same situation, a new 404 page is displayed. This new 404 page automatically redirects the user to the login page once TIBCO ActiveMatrix Administrator is fully initialized and ready for service. However, this feature applies only to environments where the System Nodes use the default node names, that is, SystemNode and SystemNodeReplica. For System Nodes with customized node names, the old behavior ("`404 page not found`" error page) remains. **Workaround:** Periodically, refresh the ActiveMatrix Administrator web page to determine whether ActiveMatrix Administrator was completely initialized and is ready for service.

Key	Summary
TAP-15563	**Summary:** After upgrading ActiveMatrix Administrator from 3.1.5 to 3.4.0, you can start or stop a host from the ActiveMatrix Administrator GUI. However, 3.1.5 hosts that are not upgraded yet, cannot be started or stopped from the ActiveMatrix Administrator GUI. **Workaround:** Start or stop the host by using the `tibcohost` command.
TAP-15523	**Summary**: TIBCO ActiveMatrix Administrator > **Infrastructure** > **Health Check** page does not open in Internet Explorer. However, it displays a link to open the page in a new tab. **Workaround**: Open `http://localhost:8120/amxadministrator/amxmonitor.jsp` in a new tab to view the Health Check page.
TAP-15503	**Summary**: In the Google Chrome browser, when creating an Object Group of Policy Director Governance by specifying the search criteria to find the matched group members, if you click the **+** button to build the criteria, the **attribute** drop-down box is not populated with the correct values. **Workaround**: None
TAP-15488	**Summary**: In TIBCO ActiveMatrix Administrator, some description fields do not work with Chrome 66.0.3359.139 or higher versions. **Workaround**: None
TAP-15420	**Summary**: In TIBCO ActiveMatrix Administrator, when you navigate to **Infrastructure** > **Enterprise Status** > **Application** tab and click **Download Logs**, the requested application logs are not downloaded and the following error is displayed: `Cause: java.util.concurrent.TimeoutException.` **Workaround**: None
TAP-15060	**Summary**: After successfully downgrading to a previous version, you must uninstall the higher version. **Workaround**: None
TAP-14874	**Summary:** After reconnecting to EMS, ActiveMatrix Administrator shows the correct status but the Action History continues to show "In Progress(n)". **Workaround:** None

TAP-14772	**Summary:** Even when the Notification transport update was completed successfully using the ActiveMatrix Administrator CLI, the following error message was displayed:
	
	`TIBCO-AMX-ADMIN-021085: Failed to update the notification transport!, Caused by:`
	`TIBCO-AMX-ADMIN-021281: The number of hosts in this enterprise is more than 10.`
	`Please use the Administrator Command Line Interface for updating the Notification Transport.`
	
	Workaround: None

Key	Summary
TAP-14766	**Summary**: Ideally, in TIBCO ActiveMatrix, you should update the Notification Transport for all TIBCOHosts in the enterprise. If a particular TIBCOHost has to be updated using the `hosts` option from ActiveMatrix Administrator CLI, you must update the SystemHost's Notification Transport first, and then proceed with updating the Notification Transport for other TIBCOHosts. If SystemHost is not updated first, while updating Remote TIBCOHosts, ActiveMatrix Administrator CLI might show the update as having been completed successfully, but the TIBCOHosts might not actually be updated. **Workaround**: Update the Notification Transport for the SystemHost first.
TAP-14699	**Summary**: When the Java property `java.property.com.tibco.amx.decouple.Manual.Nodes` is not set to `true` in the `tibcohost.tra` file, the status of a Manual Node is marked as Stopped even when it is Running (Node process remains in task manager). **Workaround**: None
TAP-14242	**Summary**: When you log in to ActiveMatrix Administrator server using SSL-enabled LDAP authentication realm, returns a non-fatal `ClassNotFoundException` in the SystemNode log. **Workaround**: None
TAP-14052	**Summary**: The uninstall action does not work as expected with a wildcard if the given feature versions have strict (1.0.0) and qualified strict (1.0.0.01) versions together. In a wildcard behavior, the following behavior is observed: If the user has two versions for the same featureId in the form of 1.0.0 (Strict version without qualifier) and 1.0.0.001 (Strict version with qualifier), precedence is given to 1.0.0.001 only and 1.0.0 is not uninstalled. **Workaround**: To uninstall 1.0.0 explicitly, perform the same action again.
TAP-13994	**Summary**: The Hostname in the Management URL of a TibcoHost instance gets replaced with the Hostname of its source TibcoHost, when TibcoHost Instance is installed successfully. **Workaround**: None
TAP-13942	**Summary**: On the **<Host> -> <ResourceInstance>** page and **Shared Objects -> Resource Templates -> Resource Instances** tab, environment or duplicate node information is not displayed. **Workaround**: On the **Details** pane of **<Host> -> <ResourceInstance>** page and **Shared Objects > Resource Templates > Resource Instances** tab, navigate to the tree view in the left side pane. This tree view provides the exact node name: `<Environment Name>_<node name>`.

Key	Summary
TAP-13910	**Summary**: While exporting Logging Appenders, one logging appender `<CustomName>_Root` is exported when the following conditions are met: • host name of the replicated admin server is changed from the default SystemHostReplica to a custom name. • Include System Objects option is NOT selected. **Workaround**: None
TAP-13828	**Summary**: When installing or uninstalling a node, the most recent state of the node is displayed in the **Action History** column and not in the **Node State** column. For example, after uninstalling a node, the **Node State** is **Not Installed** while the action is in progress. This happens when there are incomplete tasks for an action but the node state has already changed. **Workaround** Refer to the most recent state displayed in the **Action History** column instead of the **Node State** column.
TAP-13777	**Summary**: If the TibcoHost name in the ActiveMatrix Administrator GUI and run time is different and the TibcoHost name from the ActiveMatrix Administrator GUI is specified in the CLI data, the install/start/uninstall actions fail. **Workaround**: None
TAP-13696	**Summary**: If a Management URL is unreachable and you try to unregister the TibcoHost, a warning message about the unreachable URL is not displayed. **Workaround**: None
TAP-12878	**Summary**: If you import a resource template into an upgraded user application that did not previously contain a resource template (that is, if no resource templates had previously been imported into the application), the scope of the imported resource template is automatically set to Global, rather than Application. This occurs even if you specify Application scope in the CLI. **Workaround**: After the resource template is imported (to Global scope), change its scope as required (to Application scope, for example) in the ActiveMatrix Administrator UI. To do this: 1. Go to **Shared Objects** > **Resource Templates**. 2. Select the imported resource template. 3. Click **Change Scope**, and change the scope to the Application or Environment level as required.

Key	Summary
| TAP-12860 | **Summary**: If you have a main process and a subprocess application and one or more dependent main process applications deployed in ActiveMatrix version 3.1.5 (and any ActiveMatrix BPM version between 1.3.0 and 2.1.0), then upgrade the BPM platform version to ActiveMatrix BPM 2.2.0 (ActiveMatrix 3.3.0), and subsequently attempt to upgrade the subprocess, you will see a warning similar to the following example:<br><br>```
TIBCO-AMX-ADMIN-012430: Provided capability
'com.example.my.subprocess.pe.capability' provided by component
'MySubAppProcessFlow' cannot be removed. It is being used by the
following components:Component 'MyMainAppProcessFlow' from
application 'com.example.my.mainapp.process
```<br><br>This warning is issued erroneously and can be safely ignored. The subprocess is upgraded successfully and the main processes runs as expected, provided the subprocess maintains the same major version number as before.<br><br>**Workaround**: None |
| TAP-12858 | **Summary**: The logging configuration of a node, host, or application (which is stored in the node, host, or application's `log4j.xml`; for example, `node-log4j.xml`) might enter into an inconsistent state if the node, host, or application uses a JMS appender that is configured with an SSL-enabled EMS server. In this case, the logging configuration uses an HTTP URL to refer to a keystore that's hosted on the Administrator. This HTTP URL is the internal HTTP connector URL of the Administrator.

Changing the configuration of the internal HTTP connector (for example, to enable SSL or change the port number) causes the URL configured in the logging configuration (`log4j.xml`) to become invalid or out of synch. The logging configuration of each affected node, host, or application needs to be updated or it will fail to connect to EMS. Currently this is not done automatically.

Workaround: You must manually save and apply the logging configuration for each node, host, or application that uses a JMS appender. To do this:

1. In the ActiveMatrix Administrator UI, go to the logging configuration for the node, host, or application that is in the situation described above.

2. Change a value in the logging configuration that makes the node, host, or application go out of sync.

3. Click **Save**.

4. Click **Apply**. This pushes the new logging configuration, with a new HTTP URL, to the node, host, or application. |
| TAP-12738 | **Summary**: If you delete a binding using the ActiveMatrix Administrator UI, that binding is still visible in the SPM dashboard with a `Down` status. This occurs because the Delete notification for the ActiveMatrix binding component is not being emitted.

Workaround: None |

Key	Summary
TAP-12714	**Summary**: ActiveMatrix Administrator does not properly undeploy applications with missing feature dependencies. **Workaround**: To avoid this issue, go to **Node** > **Configuration** > **Features** and remove the feature with Marked for Install and a blank value for Type. You should be able to undeploy the application with no issues.
TAP-12702	**Summary**: If you use TIBCO Configuration Tool to edit the ActiveMatrix Administrator database settings, the following harmless error might appear in `SystemNode.log`: `Could not open Hibernate Session for transaction.` **Workaround**: None
TAP-12319	**Summary**: When deploying an application, ActiveMatrix Administrator automatically installs resource instances if there are resource templates with scope to the application. If the resource template installation fails, then application deployment also fails. For example, if the HTTP connector has a port conflict, it fails to start. **Workaround**: For HTTP connector port conflicts use substitution variables to assign different port numbers for each node to avoid port conflicts. Then, uninstall the application and redeploy it.
TAP-12087	**Summary**: Making changes to the configuration of a JDBC service resource template that is a dependency for a running application might cause that application to enter a Stopped state. **Workaround**: Manually restart the stopped application.
TAP-10830	**Summary**: When wiring a reference to a service in the same application that has a SOAP binding using an HTTP Connector that does not exist results in the following exception: `Error generating the WSDL for binding SOAPService_Binding1, Caused by: Could not find resource instance with name httpConnector when generating WSDL for binding SOAPService_Binding1 on service NewService` **Workaround**: Create the HTTP connector before creating the application.

Key	Summary
TAP-10800	**Summary**: When creating an Administrator server with an Oracle database the following error messages are seen in the SystemNode log files: ``` SystemNode 30 Jul 2012 16:42:48,287 [WAR-Deployer-Thread] [ERROR] org.hibernate.tool.hbm2ddl.SchemaUpdate - Unsuccessful: create index AdmnCnfig_sttsNtifictinTrnsprt on "ADMINCONFIG" ("NTFCTNTRNSPRT_STTSNTFCTNTRNS_D") SystemNode 30 Jul 2012 16:42:48,287 [WAR-Deployer-Thread] [ERROR] org.hibernate.tool.hbm2ddl.SchemaUpdate - ORA-00955: name is already used by an existing object SystemNode 30 Jul 2012 16:42:48,303 [WAR-Deployer-Thread] [ERROR] org.hibernate.tool.hbm2ddl.SchemaUpdate - Unsuccessful: create index AMXdminsrPrfrncs_prvisnvslctin on "AMXADMINUSERPREFERENCES" ("PRVISNVSLCTIN_PRVISNVSLCTIN_ID") SystemNode 30 Jul 2012 16:42:48,303 [WAR-Deployer-Thread] [ERROR] org.hibernate.tool.hbm2ddl.SchemaUpdate - ORA-00955: name is already used by an existing object SystemNode 30 Jul 2012 16:42:48,319 [WAR-Deployer-Thread] [ERROR] org.hibernate.tool.hbm2ddl.SchemaUpdate - Unsuccessful: create index ApplicationFolder_childFolders on "APPLICATIONFOLDER" ("APPLICATIONFOLDER_PARENT_E_ID") SystemNode 30 Jul 2012 16:42:48,319 [WAR-Deployer-Thread] [ERROR] org.hibernate.tool.hbm2ddl.SchemaUpdate - ORA-01408: such column list already indexed ``` **Workaround**: These errors can be safely ignored as the indexes are created.
TAP-10767	**Summary**: HTTP Connector resource instances that are referenced by properties whose names are not specific, such as HttpInboundConnectionConfig or httpConnector, are not recognized by Administrator as HTTP Connectors while displaying information. As a result these HTTP Connectors are not displayed in the Administrator UI as dependencies where expected. Also, you can delete any such HTTP Connector even when it has dependent applications. **Workaround**: Use property names such as HttpInboundConnectionConfig or httpConnect to refer to HTTP Connectors resource instances. Additionally when deleting a HTTP Connector resource instances manually check whether other applications are dependent on it.
TAP-10751	**Summary:** Executing the scripts generated by the DDL Script Generator for Microsoft SQL Server displays errors reporting a failure to create foreign key constraints. Also, even if the generated scripts are not used, error messages are seen in the SystemNode log file logged in `SystemNode.log` regarding failure to create foreign key constraints. **Workaround**: None. These errors can be ignored as a failure to create foreign key constraints does not impact product functionality.
TAP-10663	**Summary:** Heterogeneous environments with mixed JREs are not supported. Sun JRE is not compatible with IBM JRE when it comes to storing secret keys in a Java keystore. This causes a problem when the server running on Sun JRE stores a username and password in its global identity keystore and a host and node running on IBM JRE attempts to access that username and password. The reverse, Administrator JRE would have the same problem. **Workaround**: Ensure that, TibcoHost instances, and nodes are all using JREs provided by the same vendor.

Key	Summary
TAP-7644	**Summary**: You might see the following error message when undeploying an application: `[ERROR] com.tibco.amf.admin.server.axis2.RPCMessageReceiver - Error occurred in Administrator... about to throw AxisFault for this exception` **Workaround**: Refresh the browser. This error message can be safely ignored.
TAP-7571	**Summary**: Users who have permissions only to view an application and an environment but do not have permissions to view a node are not able to see the list of selected nodes when distributing an application. **Workaround:** Permissions to view the node have to be explicitly granted by a superuser.
TAP-7423	**Summary**: You might see errors in dashboard dialog box when using the Dashboard. **Workaround:** Click OK to proceed using the Dashboard. This error message can be safely ignored.
TAP-6584	**Summary**: When the extended monitoring is enabled the two new periodic windows (24 hours and 7 days) do not show on some Dashboard tabs. **Workaround**: Refresh the browser.
TAP-5653	**Summary**: Updating the value of a substitution variable for the Timeout property in a JMS or SOAP/JMS binding in a deployed application does not take effect after the application is redeployed. **Workaround**: Undeploy and deploy the application.
TAP-4890	**Summary**: In the dashboards, a text filter is ignored when you maximize or minimize a gadget. **Workaround:** Re-enter the text filter.
TAP-4645	**Summary**: On the **Dashboards** > **Infrastructure** screens, resource instances cannot be filtered by promoted reference or promoted service. **Workaround**: In the Application Screen, check properties of the reference or service bindings.
WSBT-1149	**Summary:** Web service reliable messaging does not work in TIBCO ActiveMatrix Service Grid 3.4.0. **Workaround:** None

Key	Summary
WSBT-1134	**Summary**: In case of SOAP bindings, context parameters of Type "`Message`" can be defined using "`Message/Part`" from the WSDL used by the binding. These message context parameters can be used for declared unbound SOAP headers. The body of a SOAP message is also defined using "`Message/Part`" configuration from the WSDL used by the binding. Using the same "`Message/Part`" configuration for the SOAP header and the SOAP body results in incorrect behavior while generating the SOAP message, that is, either the `<Header>` or the `<Body>` element might be empty. This applies to SOAP request, SOAP response and SOAP fault messages.
	For example, if the body of the SOAP response is configured with `Message="GetSOAPResponse"/Part = "param1"` in the WSDL and the context parameter of Type "`Message`" is defined with the same Message/Part Definition "`GetSOAPResponse/param1`", the generated SOAP response message might contain empty `<Header>` or `<Body>` element.
	Workaround: None However, if distinct "`Message/Part`" pair are used for SOAP header and body, this issue does not occur. For example, if the body of the SOAP response is configured with `Message="GetSOAPResponse"/Part = "param1"` in the WSDL and the context parameter of Type "`Message`" is defined with `Message/Part Definition "GetSOAPHeader/headerparam1"`, the generated SOAP response message contains both `<Header>` and `<Body>` elements.
WSBT-1112, WSBT-1117	**Summary**: For SOAP bindings containing all in-only operations, the **Enable Response Message Validation** field in ActiveMatrix Administrator and TIBCO Business Studio is not applicable.
	Workaround: At present, this field is not disabled for SOAP bindings containing all in-only operations and, if selected, does not have any effect.
WSBT-888	**Summary**: Substitution Variables are not available for all the fields in SOAP Service and Reference Bindings. On the Service side, Substitution Variables are supported for the following fields:
	• Enable Request Message Validation
	• Enable Response Message Validation
	• Sender Identified Expression
	On the Reference side, Substitution Variables are supported for the following fields:
	• Enable Request Message Validation
	• Enable Response Message Validation
	• Filespec of Endpoint URL
	Workaround: None
WSBT-881	**Summary**: Policies and policy sets cannot be added, edited, or deleted via the ActiveMatrix Administrator UI. Policy set properties can be viewed but not added, edited, or deleted.
	Workaround: Edit policy sets and properties in TIBCO Business Studio.

Key	Summary
XPD-5331	**Summary**: Deploying DAAs or applications with the following characteristics in ActiveMatrix BPM 2.2.0 runtime might result in a `No request message is found to add the username token` error at runtime: • The DAA or application was created in TIBCO Business Studio prior to version 3.6.0. • The DAA or application contains a Web Service invocation (that is, the application is a consumer) • The application has a UsernameToken policy type in its security **Workaround:** Open the project in TIBCO Business Studio 3.6.0, build the DAA, and upgrade the existing application.
XPD-1858	**Summary**: When opening a native file browse dialog on RedHat Linux for the first time, can crash. **Workaround:** Type the path to the file in the text control.