Apama 9.10.0.4 Readme

August 2016

This file contains important information you must read before using Apama 9.10. You can find system requirements, user documentation, and installation and upgrade instructions on the [Documentation website](#) or the [TECHcommunity website](#). At those locations, you can also find suite-related security and globalization information.

Included in this file is information about functionality that has been added, removed, deprecated, or changed for this product. Deprecated functionality continues to work and is supported by Software AG, but may be removed in a future release. Software AG recommends against using deprecated functionality in new projects.

1.0   Critical Information

This section lists any critical issues for the current release that were known when this readme was published. For critical information found later, go to the Knowledge Center on the [Empower website](#).

For installation information, see *Installing Apama* (installing_apama.pdf in the downloaded package or on the [Documentation website](#)). Adobe Reader version 8.0 or greater is required to view the included PDF documentation.

2.0   Known Issues

This section lists any issues for the current release that were known when this readme was published. For known issues found later, go to the Knowledge Center on the [Empower website](#).

▪ WF-5508
  Designer does not start after install if UAC is turned on (since 9.9.0).
  If this issue is encountered, see the section "Managing Designer User Configuration" in *Working with Software AG Designer*, which can be found in the "Guides for Tools Shared by Software AG Products" section of the [Documentation website](#).

▪ PAM-24162
  Adding `select` projection changes window semantics (since 9.10).
  The following three constructs should be identical:

```
from a in <query>: local { ... }

stream<TYPE> sA := from a in <query>;
from sA: local { ... }

from a in sA select a: local { ... }
```

  However, there is a defect where updates to aggregates that are only caused by events leaving a timed window, rather than new events arriving, do not always appear. The first of these constructs is definitely correct and should be used if any issues are observed using the others.

3.0   Usage Notes

This section provides any additional information you need to work with the current release of this product.

ADBC

▪ PAM-23265
  Occasional connection errors with some JDBC drivers. It is not recommended to use multiple correlators against a single IAF, as the message IDs might not be unique and therefore could result

in failures.

- PAM-10573
Some supported databases store empty strings as NULL (since 5.3.0.0).
Some databases such as Oracle are known to store empty strings as NULL values, which can lead to confusion when executing queries where a field is compared to the empty string. For example, the following would not match rows where the field was null for such databases:
```
select * from table where field = ""
```
To ensure the desired results are returned when running queries against databases that store empty strings as null, we recommend queries to be written to check for NULL instead of empty string literals.

- PAM-3876
Support for NaN in Apama ADBC Adapter (since 5.0).
Support for storing and retrieving a NaN value is not supported with all databases. The following databases have been tested:
- MS SQL Server and MySQL - No support. Database does not support NaN values.
- DB2 - Not supported for JDBC.
- Oracle - Full support for JDBC.

Adapters

- PAM-15644
Unicode variable names in mapping rules cannot be resolved (since 5.0).
Mapping in Web Services Client adapter and correlator-integrated messaging adapter for JMS does not support internationalization for variable names. That is, only English characters are allowed in complex mapping template variable names.

Software AG Designer

- PAM-21494
Behavior change in event mapping (since 5.3.0.0).
Behavior of escaping in mapping literal expression in correlator JMS and Web Services Client adapter has been changed.
Previously, literal expressions in mapping were evaluated as is without any escaping. Now a slash (\) is used as escape character. Now a double quote (") is escaped as \", a single quote (') is escaped as \' and a slash (\) is escaped as \\. Quotes only need to be escaped if a string value is enclosed in the same type of quote.
So the literal expression "a quote \' is string" was previously evaluated as "a quote \' is string", but it is now evaluated as "a quote ' is string".

- PAM-21618
Pre-existing JDBC/ODBC projects do not start after Ant export (since 5.3.0.0).
Existing JDBC adapter projects (5.2 and older) will require manual updating when used with Apama 5.3 and older to address a problem with Ant Export project referencing incorrect location for the adapters folder. To perform this update, you need to follow the steps below:

- In the Project Explorer, right-click the project and select **Properties**.
- Navigate to **Apama > MonitorScript Build Path** and select the **Bundles** tab.
- Select the **JDBC Adapter:\ADBC-JDBC.bnd [Adapter catalog]** node.
- Click the **Update** button.
- A **Bundle instance** warning box will be shown to ask you for whether to back up existing files.
- Choose **Yes**.
- Your instance file should be updated to address this Ant Export issue.

▪ PAM-21378
Creating duplicate launch configuration does not honor previous launch values (since 5.2.0.0).
Duplicating the Apama launch configuration whose mode is set as "shared" will not duplicate the deploy configuration. When the "Duplicate" action of the launch configuration dialog is invoked on selecting an Apama launch configuration which is in "shared mode", an error dialog appears, saying that deploy configuration does not exist and it then reverts to the default settings. To complete the duplication of the launch, go to the folder where the launch configuration exists and copy the contents of its deploy file at the same location and name as launch. Paste the contents to the new deploy file (which shares the name of the new launch configuration) and save the file. This extra manual step will complete the "Duplicate" action.

▪ PAM-7143
Convert project from native codepage to UTF-8 invalidates I18N chars in monitorscripts (since 5.0).
Changing the file encoding to and from UTF-8 might cause file corruption in comments and string literals. The workaround for this is to ensure that the desired encoding is set before adding content to the file.

▪ PAM-7123
Renaming a block in Software AG Designer (since 4.2).
Block renaming in Software AG Designer is not fully supported. If you rename a block, you must manually edit the block's .bdf file to synchronize between the filename and the block metadata.

Correlator

▪ PAM-22402
Race in use of `&TIME` events with queries (since 5.3.0.0).
When using external clocking to test query execution of queries that use the `wait` operator at the end of the pattern, avoid using `&TIME` ticks with gaps between `&TIME` ticks larger than the smallest input `within` duration. If large gaps are used, then the query runtime may expire events before a `wait` operator has had a chance to fire. This results in unreliable results, where queries sometimes fire against the pattern and sometimes do not. Write your event files to have a number of `&TIME` events incrementing time by some amount less than the `within` duration of any query input window.

▪ PAM-22167
Correlator JMS does not work with WebSphere AppServer 8.5.5.0 out of the box (since 5.3.0.0).
The client libraries for WebSphere Application Server (WAS) 8.5.5.0 do not work with Oracle JRE 8, which is used by Apama's correlator. IBM has released the Liberty 8.5.5.8 update for JMS client

libraries that work with Oracle JRE 8.

To work around the issue with earlier WAS versions, obtain a new set of ORB jars that are compatible with Oracle JRE 8:

- Install the Linux version of standalone IBM SDK, Java Technology Edition, Version 7. Get the ibmorb.jar and ibmorbapi.jar from the *IBM_JAVA7*/jre/lib directory. These ORB jars can be used on both Linux and Windows platform.

- Use the IBM installation manager on the machine where WAS is installed to install "IBM WebSphere SDK Java Technology Edition v7". Get the ibmorb.jar and ibmorbapi.jar from the *WAS_INSTALL_DIR*/java_1.7/jre/lib directory.

Once new ORB jars are obtained, do one of the following:

- Copy the jars to the *WAS_INSTALL_DIR*/java_1.7/jre/lib directory on the machine that is running the correlator.

- Update the classpath that the correlator uses for WAS to point to the correct location of new ORB files.

▪ PAM-21747

Apama queries do not appropriately map line numbers when reporting exceptions (since 5.3.0.0). While compile-time errors are reported with the correct line number for Apama queries, runtime exceptions are not. If a runtime exception is thrown, then the stack trace of the exception (whether uncaught and reported by the correlator, or inspected by a catch statement in EPL) will show some details of the queries runtime system, and the line numbers will not correspond to lines in the query source file.

▪ PAM-21414

BigMemory default consistency changed to eventual (since 5.3.0.0).

In 5.3, the default consistency mode for BigMemory configurations is `EVENTUAL` (the BigMemory default) rather than `STRONG`, and `synchronousWrites` has been disabled. Existing configurations will not be updated automatically, and users are still able to enable `STRONG` consistency if needed, but due to its superior performance, `EVENTUAL` is recommended when using Apama with the latest BigMemory release.

▪ PAM-21516

Universal Messaging channel subscriptions can throw an exception during creation (since 5.2.0.0). Occasionally, when a UM session fails over from one broker to another while a channel is being subscribed to or emitted to which has not been recently used, the correlator or IAF may throw an exception instead of re-trying if the session loses its connection to the broker. This may result in the subscribe or emit throwing an exception, which may terminate the EPL monitor if not caught.

▪ PAM-7910

Time going backwards/virtual machines (since 5.0).

The correlator requires that the system's clock never goes backwards and flows reasonably evenly (less than 1 second of jitter). However, some virtual machine environments can exhibit considerable jitter. The behavior of EPL timers is undefined in this case, and in extreme cases, time jumping may trigger timeouts on communication channels, resulting in components being disconnected from clients. We recommend the use of NTP on UNIX.

Correlator plug-ins

▪ PAM-22345
Correlator JMS throughput with HornetQ 2.4 is reduced (since 5.3.0.0).
Throughput of JMS message receiving is significantly reduced using the 2.4 version of HornetQ that is supported by the 5.3.0 Apama release, compared to the 2.3 HornetQ supported in previous releases. This is caused by the HornetQ library taking a lot longer to acknowledge large batches of messages than it used to. The recommended workaround is to edit the `maxBatchSize` property of `JMSReceiverSettings` (see documentation for details), to a low value such as 30.

Dashboards

▪ PAM-21512
Dashboard client is showing exception in log when dashboard server is stopped (since 5.2.0.0).
The following error message will be logged to the dashboard client log file(s) when shutting down the connected dashboard server process(es):
```
ERROR [GmsClientReceiverThread-<host>:<port>] - error receiving message:
java.net.SocketException: Connection reseterror receiving message:
java.net.SocketException: Connection reset (<host>:<port>)
```
This message merely indicates the disconnection between the dashboard components and the server. Despite being logged as `ERROR`, these messages are informational only.

▪ PAM-13819
Dashboard user names cannot exceed 1000 characters (since 4.3).
In web deployments, the user name is passed as an encrypted parameter in URLs. The length of encrypted user names is greater than unencrypted user names. Given limits on the length of URLs in browser `GET` requests the effective limit on the length of user names in dashboards is approximately 1000 characters.

▪ PAM-12975
Panels deployments can save header when disconnected from webserver (since 4.3).
If panels.ini is used for display server dashboard, then an invalid http session (for example, re-start tomcat) will result in a sessionExpired page inside the main frame of the dashboard. Clicking on the login link on that page to re-login will *not* clear the previously displaying tabs/trees. Refresh the web browser or re-visit the dashboard URL to fix the problem.

▪ PAM-12699
Filters containing quotes are broken when running with enhanced query mode (since 4.3).
Attachments where the filter value is a string containing a quote do not work in enhanced query mode. In enhanced query mode, attachment filters are turned into SQL WHERE clauses. When using enhanced query mode and having the need to filter by values containing quotes, you need to escape each quote with a quote. Double quotes do not need to be escaped.

▪ PAM-11994
Re-deploy of dashboard does not delete cached files (since 4.2.2).
If dashboard files were removed between two display server deployments (that is, deploy foo.rtv,

then delete foo.rtv from project and re-deploy), the deleted dashboard files will still be available for the re-deployed client. To work around this, delete the reference directory, *APAMA_WORK*/dashboards/*deployed_dashboard*, manually before re-deploying.

▪ PAM-11830
Improperly defined JDBC connection causes CPU spike in SQL server when using Dashboard Builder (since 4.2.2).
Dashboards using the SQL datasource with invalid JDBC connection parameters can sometimes cause high CPU usage due to numerous failed JDBC connection attempts to the SQL Server. This issue can occur if an invalid JDBC password is specified and the Dashboard Builder SQL option **Get Tables and Columns** is enabled.

▪ PAM-11716
Custom window title from Dashboard Builder options is not supported (since 4.2.2).
Setting window titles in the Dashboard Builder using **Custom Window Title** in **Tools > Options > General** tab is not supported. Window titles can be set on the command line used to invoke the dashboard viewer.

▪ PAM-11551
Apama commands in display server with large amounts of string data may fail (since 4.2).
Executing Apama commands in display server deployments with large amounts of string data may fail if the resulting HTTP GET request exceeds the maximum allowed string length.

▪ PAM-10722
Dashboard deployment wizard does not re-sign already signed jars (since 4.2).
The dashboard deployment utility in Software AG Designer will not re-sign jar files that are already signed. If you add jar files to your dashboard deployment that are already signed, you may see errors when accessing the deployed dashboards. When using the dashboard deployment utility, you can sign all jars, or none of them (in this case, they would all need to be signed already), or (if you have a mix of signed and unsigned jars) sign with the same certificate that was used for the jars that have already been signed. If you'd like the deployment utility to sign jars that have been previously signed, you will have to first remove their signatures.

▪ PAM-5474
Display server dashboards clearing edited text field on update (since 3.0.2).
Input controls when displayed via the dashboard server may clear any edits when the display is updated. This makes it very difficult to use input forms with the display server. The problem occurs with input controls that are attached to either an Apama scenario, DataView, or dashboard function. When creating input forms in dashboards that will be deployed via the display server, you can follow one of the following techniques:
- Do not attach the value property of input controls to Apama scenarios, DataViews, or functions. This is fine if the current value of the attachment does not need to be displayed in the control.
- Attach the value property of input controls to variables set as the result of a drilldown. This will allow the initial value to be set to the value of the variable. The deficiency here is that if the value changes externally, it is not reflected in the control unless a new drilldown is performed.

- PAM-4405

  Delete All with many instances blocks UI (since 3.0).

  Using the Dashboard Builder's **Delete All** command to delete large numbers of scenario instances can make the dashboard user interface appear blocked. This is because control is not returned to the user interface until the **Delete All** operation has completed.

- PAM-3423

  Dashboard truncates paths to the first space (since 2.4).

  When using the XML data source, the Dashboard Builder incorrectly truncates the path name of XML files containing spaces. If using XML data source do not use absolute path names containing spaces.

Other

- PAM-16211

  .NET client performance improvements (since 5.3.0.0).

  Several performance improvements have been made to the `Parse()` and Text (formatting) implementation of the .NET event parser. This has resulted in a small change of behavior in `Event.FieldsMap`, which previously returned a `SortedDictionary` with a deterministic key iteration order (based on the natural ordering of the keys) but now returns an unordered dictionary with non-deterministic iteration order. For rare cases where deterministic ordering is required, users should wrap the `FieldsMap` result in a new `SortedDictionary` instance before iterating over it.

- PAM-21466

  Bundled Oracle JDBC driver can incorrectly report Oracle Advanced Security errors (since 5.2.0.0).

  Even when Oracle Advanced Security is not turned on for the server, the following error can occur during connect:

  ```
  [Oracle JDBC Driver]The connect attempt failed because the server
  requires Oracle Advanced Security. To enable the driver to use OAS,
  please use the "dataIntegrityLevel" and/or "encryptionLevel" connect
  options.
  ```

  To work around the issue, set the connection URL option `randomNumberGenerationOptions` to one of the following values:

  "1" - The driver uses Secure Random Numbers for handshake. The driver generates Secure Random numbers before the start of handshake, thus preventing this issue to occur due to the amount of time the connection needs to be made.

  "2" - The driver uses random numbers instead of secure random numbers for handshake. This is less secure but provides a faster connection to occur.

  DataDirect recommends setting this to the value of "1" and then re-testing. If the issue still occurs, then please try the value of "2".

- PAM-16229

  DataView implementation should not have its own log level implementation (since 5.2.0.0).

  The EPL LogLevel implementation has been removed from the DataView EPL files.

- PAM-20481

  Issues running Python on SUSE Linux Enterprise Server 11 64-bit (since 5.1)

  The Apama platform is compatible with the OpenSSL shipped on Red Hat platforms. SUSE systems have a different layout of files and so by default some errors may appear while trying to run Python or PySys from an Apama installation. The following workaround will fix the issue.

  As the root user, run the following commands:

  ```
  ln -sf /usr/lib64/libssl.so.0.9.8 /usr/lib64/libssl.so.6
  ln -sf /usr/lib64/libcrypto.so.0.9.8 /usr/lib64/libcrypto.so.6
  ```

  As an alternative to creating links using the root account, the user installing Apama can create links in the $APAMA_HOME/lib directory by navigating to the $APAMA_HOME/lib directory and running the following commands:

  ```
  ln -sf /usr/lib64/libssl.so.0.9.8 libssl.so.6
  ln -sf /usr/lib64/libcrypto.so.0.9.8 libcrypto.so.6
  ```

- PAM-15919

  Ant macro `javaOpt` now disallows spaces and quotes (since 5.0.1).

  The behavior of the `javaOpt` parameter in the Apama Ant macros `start-correlator` and `run-correlator` has been clarified and changed such that `javaOpt` is now interpreted as a list of separate JVM arguments delimited by spaces, and not as a single argument. Consequently, it is no longer possible to use `javaOpt` to specify a single JVM argument that contains spaces. Such options should be specified by using `extraArgs` with appropriate quoting, for example: `extraArgs="... --javaopt "-Dmyproperty=c:/foo bar" ..."`. The `extraArgs` option is the only way to specify arguments that contain spaces and avoid potential confusion. Attempts to specify a `javaOpt` value that contains quote characters now results in an explicit build failure when `start-correlator` or `run-correlator` is invoked.

- PAM-13659

  Increased virtual memory usage of correlator and other executables on RHEL6 (since 5.0.1).

  With regard to Red Hat Enterprise Linux 6 virtual memory usage, RHEL6's `glibc` is built with a different memory allocator configuration. This affects the virtual memory usage of all processes (including non-Software AG), in particular heavily multi-threaded processes such as the correlator. The virtual memory usage does not reflect the actual memory in use; it is a measure of the address space that the process has reserved for potential use. On 64-bit Linux platforms, having many GB of virtual address space used will not have an adverse effect on other processes, and can improve scalability of multi- threaded programs. If `ulimit` is used to restrict virtual memory usage, then any such limit should take this behavior into account, especially if migrating to RHEL6.

  For more details, see the RHEL6 documentation at http://docs.redhat.com/docs/en-US/Red_Hat_Enterprise_Linux/6/html/Release_Notes/compiler.html#id1722962 and a discussion of the impact of this allocator behavior at http://sourceware.org/bugzilla/show_bug.cgi?id=11261.

  The environment variable `MALLOC_ARENA_MAX` can be set to 2 to reduce virtual memory usage, but this is not recommended, and should not be necessary.

4.0   Fixes Included in Each Release

This section lists the latest fix level that has been included in each release for each product component. A release is listed in this section only if changes occurred in that release. Go to the Knowledge Center on the [Empower website](#) for detailed information about fixes.

Release 9.10

- PAM_9.10.0_Fix3

Release 9.9

- PAM_9.9.0_Fix4

Release 5.3

- PAM_5.3.0_Fix6

Release 5.2

- PAM_5.2.0_Fix6

Release 5.1

- PAM_5.1.1_Fix3

5.0   Other Resolved Issues

This section lists the issues that were resolved in each release but were not part of the fixes listed in the previous section. A release is listed in this section only if changes occurred in that release.

Release 9.10.0

ADBC

- PAM-22738
  ADBC event mapper does not work with empty namespace. (5.3.0.1)
  An issue has been fixed where the ADBC event mapper GUI would not display the mapper objects when an event with no package was selected to be mapped.

Queries Runtime

- PAM-23131
  Definitive time moves backwards. (9.10.0)
  In cases where multiple events are processed in a short amount of time, the correlator may have logged the definitive time of an event as being earlier than previous events, which should not happen. This has been corrected. This only affects query diagnostic logging, not the behavior, which was correct previously anyway.

- PAM-22873
  Queries performance is heavily affected when using external clocking. (5.3.0.3)
  The issue causing performance to be affected when external clocking is used with queries has been fixed.

- BF-3573
  Queries documentation updated. (5.3.0.3)
  The Apama queries documentation has been updated to include more detailed information, especially regarding tooling.

- PAM-22821
  Query runtime leaks on every aggregate evaluation. (5.3.0.2)
  The issue causing a listener and stream to be leaked on aggregate evaluations has been fixed.

- PAM-22806
  A query with multiple `having` clauses with no `select` clause generates invalid EPL. (5.3.0.2)
  The issue, of queries with multiple `having` clauses and no `select` clause to generate invalid EPL, has been fixed.

Dashboards

- PAM-24816
  Dashboard Builder can clear properties without the customer knowing. (9.10.0.4)
  When starting the Dashboard Builder with a dashboard file containing a composite object, the local variable property values were erroneously cleared. This issue has been solved in this release.

- PAM-24227
  `IDashboardContext`'s `getSubstitutionValue()` should clarify the expected behavior and avoid returning null. (9.10.0.2)
  The `getSubstitutionValue()` API in the `IDashboardContext` interface will now return an empty string instead of null and the corresponding Javadoc has been changed to say that explicitly.

- PAM-24049
  Queries do not show up in the Apama attach and command dialogs of the Dashboard Builder. (9.10.0)
  The issue with queries not showing up in the attach and command dialogs of the Dashboard Builder has been resolved.

- PAM-23442

  Data server does not disconnect cleanly. Socket for management port left in `TIME_WAIT` for several seconds. (9.10.0)

  After shutting down dashboard/display server processes on Linux, the management port was held open by the operating system until the socket timed out. As a result, the subsequent restarting of the dashboard/display server processes would fail until the port was released by the operating system. This issue has been solved in this release.

- PAM-23044

  Deployed dashboards can throw `NullPointerException` in Init Local Var function. (9.9.0)

  Under certain circumstances, "Init Local Var" and other Apama-provided dashboard functions could throw a `NullPointerException`. This issue has been solved in this release.

- PAM-22993

  XSS Security vulnerability in dashboard display server. (5.3.0.3)

  A vulnerability issue was found in the display server client. This issue has been solved with this release.

- PAM-22484

  Dashboard `SQLDataException` with `--enhancedQuery` mode. (5.3.0.1)

  When `--enhancedQuery` is being used and DataView/scenario contains a long string value, a `SQLDataException` may be seen in dashboard log files. This issue has been solved in this release.

- PAM-22142

  Dashboard class cast exception may be raised when using `enhancedQuery` option. (since 5.3.0.0)

  When `--enhancedQuery` option is used, the following `ClassCastException` may be found in dashboard log files:
  ```
  java.lang.ClassCastException: java.lang.Integer cannot be cast to
  java.lang.Long
  at
  com.apama.sl.data.scenario.ScenarioCurrentTable.setCellValue(ScenarioCurr
  entTable.java:1474)
  at
  com.apama.sl.data.scenario.ScenarioCurrentTable.getSqlResultsTable(Scenar
  ioCurrentTable.java:1229)
  ```
  This issue has been fixed in this release.

- PAM-22032

  Dashboard processes are unable to use shipped JDBC drivers. (5.2.0.2)

  The issue affecting the JDBC jars, shipped with Apama, which previously prevented them from being used by Dashboard processes, has been resolved.

Designer

- PAM-24638

  Stopping a correlator launch in Software AG Designer takes longer than it used to. (9.10.0.4)
  Correlator shutdown from Software AG Designer takes a longer time. This issue was observed in a project where the Dashboard Viewer and the IAF plug-in are used. There is a race which causes the termination of all processes to wait (an example of such a process would be the IAF process) , which again causes the termination of the correlator to lag. This issue has now been fixed. When a shutdown is initiated, it terminates all the processes (IAF etc.), which results in a proper correlator shutdown.

- PAM-24254

  Variables in assign template are not adding as nodes in correlator-JMS adapter. (9.10.0.2)
  When configuring correlator-JMS send mapping rules using the **Assign Template** dialog, mappings may not be added as expected, with error messages related to "Velocity" in the Designer log file. This issue has been resolved.

- PAM-24170

  Editing connectivity plug-in configuration in Designer can contaminate it with tabs. (9.10.0.1)
  When using the "Connectivity Plug-ins" adapter in Designer, you can edit the configuration file for connectivity plug-ins by double-clicking the **Connectivity** instance under the adapter node. The configuration is formatted using the YAML markup language, which forbids use of tab characters for indentation. So in order to prevent the YAML file going into an invalid state, Designer provides a simple YAML editor which will take care of converting a tab into 4 spaces and on saving, the file will be still in valid state. Please note that 4 spaces is not configurable.

- PAM-23742

  EPL color coding is lost when opening Designer with .mon file open. (9.10.0)
  Activation of plug-in preferences after loading a monitorscript file would cause color coding to be lost on the file. This issue has been fixed.

- PAM-23630

  FrameworkEvent ERROR on Unresolved requirement while starting Suite Designer session. (9.10.0)
  Bundle dependency resolution errors between com.apama.thirdparty and com.ctc.wstx plug-ins due to conflicting exported packages have been resolved.

- PAM-23618

  Correlator JMS mapper - constants in event definitions break mapping, should be ignored. (9.10.0)
  An issue, where constants defined in an event would cause errors in JMS mapping rules, has been resolved.

- PAM-23566

  Invalid thread access from `MSPluginActivator.start`. (9.10.0)
  Apama plug-in may occasionally fail with the error message `"An error occurred while automatically activating bundle com.apama.text"` ... `"Caused by: org.eclipse.swt.SWTException: Invalid thread access"` in the apama_designer.log

file. This issue has now been fixed.

- PAM-23394
  `BasicIndexOutOfBoundsException` and internal error dialog when manually adding `time from` clause in queries source editor. (9.10.0)
  In a query source tab, on adding the `time from` clause in the input section, an exception would be thrown. This has been fixed.

- PAM-23332
  Errors in **Edit Query Send Event Action** dialog for ImprobableWithdrawal.qry in ATM_Fraud_Sample sample. (9.10.0)
  In the ATM_Fraud_Sample, on opening "Send Fraud2_Alert event" in the Actions section of an ImprobableWithdrawal.qry file, errors are shown up in the dialog. This issue has been fixed.

- PAM-23327
  Added input events should not be listed in Event chooser dialog while editing query input. (9.10.0)
  For any query file in the design tab, when adding two input events and on editing either of the input events, the added inputs event should not be available on clicking **Choose**. This issue has been fixed.

- PAM-23324
  Error should not be flagged when the channel field is empty in Send Event action. (9.10.0)
  In a **Send Event Action** dialog, if the value of **Channel** is empty, then the dialog shows up an error. This issue has been fixed.

- PAM-23298
  Null pointer exception in queries editor when user deletes all code from source view and then tries to edit query in design tab. (9.10.0)
  An empty query file can no longer be injected into the correlator as it is considered invalid.

- PAM-23295
  Designer is logging GCMB "Lost connection to agent" after shutting down queries project. (9.10.0)
  On launching a queries project and terminating it, Software AG Designer would continually log the message
  `"AbstractGenericComponentManagementBean$ConnectionPollingThread.run() - Lost connection to agent."` This issue has been solved in this release.

- PAM-23177
  Renaming a query in Software AG Designer confuses Designer. (9.10.0)
  The issue with Software AG Designer becoming "confused" when renaming a query file, has been resolved. It is no longer necessary to close and re-open the editor when renaming a query file.

- PAM-22814
  Query editor goes into incorrect syntax state if aggregates are present and pattern is removed and re-added. (9.10.0)
  In a query file, having an aggregates clause if a find node is removed and added back again, then the query file goes into a syntax error state. This issue has been resolved.

- PAM-22942

  Excluded EPL files are getting added to launch configuration on editing them. (5.3.0.3)

  Monitor files which had been explicitly excluded from the injections list in the launch configuration of a Software AG Designer project were added back in if the excluded monitor was subsequently edited. Designer now behaves correctly, and respects the exclusion when making edits.

- PAM-22809

  Incorrect completion proposals in the queries editor. (5.3.0.2)

  In the queries editor, several issues that caused some invalid completion proposals to be offered, and also prevented other valid completion proposals from being suggested, have been resolved.

- PAM-22367

  Incorrectly flagged errors in Query Designer action panel and send event action dialog. (5.3.0.1)

  An issue has been fixed where valid hand-written code would be flagged as an error in the query designer and send event dialog.

- PAM-22369

  Pattern drag and drop does not always retain package relative values. (5.3.0.1)

  The issue is now fixed so pattern drag and drop and **Without Conditions** dialog will now retain package relative values.

- PAM-22474

  A blank query shows as an error in Query Designer. (5.3.0.1)

  An issue has been fixed where, under certain conditions, empty queries could be flagged as being in error in the Query Designer.

- PAM-22377

  Errors related to `every` keyword are not reported against aggregates in Query Designer. (5.3.0.1)

  Errors related to `every` keyword should be reported against aggregates in the Query Designer.

- BF-2980

  Missing documentation on queries tooling. (5.3.0.1)

  Several sections documenting various features of Query Designer tooling have been added.

- PAM-21873

  A default filter added to **Event Chooser** dialog. (since 5.3.0.0)

  A default filter with value "com.apama.*" has been added to the **Event Chooser** dialog to automatically remove events in the "com.apama" namespace from the event list.

- PAM-21016

  Ability to select multiple EDA events for mapping in both send and receive. (since 5.2.0.0)

  Multiple EDA events for mapping can now be selected in both send and receive.

Management

- PAM-23959
  `engine_management` dumps core when any `--<anything>` argument is passed after `-r`. (9.10.0)
  An `engine_management` crash has been fixed when invalid parameters were supplied, specifically when `-r` was not followed by a valid request.

Correlator

- PAM-24857
  YAML configuration support for injection file list. (9.10.0.4)
  A correlator command line option, `--config`, has been added which can specify a YAML file that lists files to inject at startup. This is limited to .mon, .cdp, .jar and .evt files and the files must be listed in the correct injection order. This is provided as an alternative mechanism for initializing a correlator for Docker or environments where it is not practical to run Java such as the Apama macros. See *About deploying Apama applications with a YAML configuration file* in the Apama documentation.

- PAM-24788
  Correlator should only enforce persistent monitors limit when persistence is enabled. (9.10.0.4)
  When running the correlator without a license file, the limit on persistent monitors is not enforced if the correlator does not have persistence enabled.

- PAM-24713
  Emitting a string to a map connectivity chain crashes. (9.10.0.4)
  Emitting a string to a connectivity plug-in chain using the `eventMap` would crash the correlator. This is now reported as an error.

- PAM-24368
  Connection deadlock "Timeout... setSingletonControlConnection" - race of same client connecting/disconnecting. (9.10.0.2)
  Fixed a robustness issue where clients connecting to the correlator that were slow or unresponsive during the connection phase could affect other clients connecting, resulting in clients failing to connect with "Timeout after 10000ms while waiting for response for setSingletonControlConnection".

- PAM-24203
  Incorrect EPL that attempts to compare an untyped expression will crash the correlator/Designer. (9.10.0.1)
  Writing invalid EPL that uses an operator such as "<" to compare certain kinds of invalid expression could previously crash the correlator if you attempted to inject it, or caused a fatal error in a Designer project containing it. For example
  ```
  if(com.apama.aggregates.count > 0) then { ... }
  ```
  should have raised an EPL error from the correlator or Designer, as it is nonsensical, but caused a crash instead. This issue has been fixed.

- PAM-23703
Correlator crash during GC caused by bug in pile deletion
(`PersistentDictionary::preDelete`). (9.10.0)
An issue has been fixed where a correlator crash could occur with dictionaries in persistent
monitors that have string keys which are "garbage" on the first garbage collection run.

- PAM-23635
Latency regression - max latency is worse. (9.10.0)
A performance regression causing intermittent high latencies (over 1 millisecond at 99 percentile)
has been fixed.

- PAM-23519
Correlator crashes on Windows if the time zone has DST disabled. (9.10.0)
An error has been fixed in logging the time zone which could cause a crash at correlator startup on
Windows if the time zone does not use daylight savings time.

- PAM-23245
Parsing strings parallelism hit by `CorrelatorString.getInterned` read lock. (9.10.0)
A scalability issue which would reduce performance when multiple threads were parsing events
with a lot of interned strings has been fixed. Performance now scales well with the number of
threads sending events or calling `event.parse()`.

- PAM-22879
Ctrl+C or termination of parent command prompt kills background correlator process on Windows.
(9.10.0)
Customers using Ant for deployment or testing on Windows should be aware that when using Ant
launches a correlator, IAF or other background process from an interactive Command Prompt,
these processes will be automatically terminated when the Command Prompt window is closed, or
when Ctrl+C is pressed at any time within that Command Prompt. This is the result of a reported
bug in the Java Runtime Environment (since 1.7.0_60).
Until the underlying Java bug can be fixed, customers should be careful not to use an interactive
Command Prompt for launching any important server processes using Ant.

- PAM-22959
Crash caused by incorrect escape flags on dictionary methods. (5.3.0.3)
Some EPL methods were incorrectly considered by the correlator to not escape their parameters,
which when optimizations were enabled (the default) could in particular cases lead to the correlator
crashing. This has been fixed to avoid optimizing out copies in code using methods where it is not
safe to avoid the copy.

- PAM-22830
Status lines do not show in log file when the correlator is started through Software AG Designer.
(5.3.0.2)
Correlators started from Software AG Designer will no longer have the logging of "Status:" lines
automatically disabled if logging to a file.

- PAM-22774
  Race when disconnecting and connecting using `engine_connect` concurrently. (5.3.0.2)
  The use of multiple disconnecting and connecting `engine_connect` clients no longer results in a correlator crash.

- PAM-22621
  The correlator is not passing all UM SSL Cert options to UM. (5.3.0.1)
  An issue has been fixed where several of the documented UM configuration properties were not properly passed when configured for UM integration.

- PAM-22100
  Correlator input log does not contain the channel name. (5.3.0.0)
  The addition of channels in 5.2.0.0 was missing support for them in the input log. This has been corrected so that input log files of applications using channels can be used correctly for replay.

- PAM-21634
  Memory may not be returned when using `dictionary.clear()`. (5.2.0.1)
  The `clear()` method on the EPL `dictionary` type could previously cause a memory leak. Prior to the fix, if a monitor instance invoked this method on a dictionary in a certain set of circumstances, garbage collection would no longer run for EPL objects on the monitor instance. All current and future EPL objects on the instance would leak correlator memory, even if they were no longer in use.

- PAM-21516
  Correlator or IAF process sometimes log exceptions and unload monitors when using Universal Messaging integration during a cluster failover. (5.2.0.1)
  A defect, where a channel that is being looked up on a UM broker (as it has not been recently sent-to or subscribed-to) during failover of UM brokers could result in silently killing a monitor, has been fixed; the correlator will now re-try channel look-ups during failover until it can contact a UM broker.

- PAM-21579
  UM enabled correlator performance enhancement. (5.2.0.1)
  The correlator now publishes events in batches to Universal Messaging in lieu of individually publishing events. This change can improve throughput by as much as 4X the previous implementation.

Correlator Plug-ins

- PAM-24813
  BigMemory distmemstore provider does not remove rows in non-CAS mode. (9.10.0.4)
  The BigMemory driver has been updated to correctly remove rows when used with `useCompareAndSwap` set to `false`.

APIs

▪ PAM-24837
Strange/Inaccurate output of Apama built-in `stddev` aggregate function. (9.10.0.4)
The built-in standard deviation function did not account for the possibility of floating point rounding errors, causing attempts to calculate the square root of a negative number which resulted in some inappropriate values being returned. This issue has been resolved.

Release 9.9.0

▪ PAM-22168
Small leak in .NET client disconnect (9.9.0)
The .NET client library, under unusual circumstances, would leak a small amount of memory when it disconnected and reconnected. This issue has been resolved.

▪ PAM-1920
`TimeFormatPlugin` use of `TZ` environment variable (9.9.0)
The `TimeFormatPlugin` now honors the `TZ` environment variable on Windows as well as on UNIX. Note that the rest of the correlator processing will continue to use the system-configured time zone on Windows.

Release 5.3.0

▪ PAM-21911
ADBC transport reversed counts for TrEvRx and TrEvTx in log (since 5.3.0.0)
The ADBC adapter status log line previously had its events received (TrEvRx) and events transmitted (TrEvTx) reversed, this has been corrected.

▪ PAM-14809
Log message improvements when a plug-in call fails (since 5.3.0.0)
When a C++ EPL plug-in throws an exception, it is possible for an application to catch it in EPL, and to take action based on the type and message in the caught `com.apama.exceptions.Exception` object. A small change has been made to the format of the message that results from a plug-in method call error, which could potentially affect EPL logic that depends on the message string. The old message was `"Caught exception (%s) while executing plugin method %s"`, but from 5.3 onwards this has been simplified to `"%s (in plugin method %s)"`.

▪ PAM-13580
Simplify how to cleanly remove event .NET consumers/suppliers (since 5.3.0.0)
For users of the low-level `EngineManagement` layer in the .NET API, the rules for safely disposing of the `EngineManagement`, `EventSupplier` and `EventConsumer` have been changed to be more simple, more robust and better documented. Instead of calling various `Disconnect()` methods, all objects should be cleaned up by calling the `Dispose()` method, with any `EventSupplier` objects disposed before `EventConsumer` and `EngineManagement` objects.
An `INFO` level warning will now be written to the client logger (if enabled) during finalization of

the objects if `Dispose` was not called. The `Api.DisconnectFromEngine` and `EventSupplier.Disconnect` methods have been deprecated. For C# developers, the simplest way to ensure objects are disposed correctly is usually to construct them in a `using` clause (see C# language documentation for more information).

▪ PAM-21566
Subscriber element in "Configuring adapters to use UM" incorrectly written as optional (5.3.0.0)
The IAF configuration for Universal Messaging requires that the `<subscriber>` element is present in the `<universal-messaging>` element. This was previously incorrectly marked as optional.

6.0   Documentation Changes

This section describes significant changes to the documentation, such as the addition, relocation, or removal of product guides, online help, chapters, or other major content. A release is listed in this section only if changes occurred in that release.

Release 9.10

PDF documentation is no longer included in the installed product. It can be viewed and downloaded from the [Documentation website](#) if required.

▪ PAM-24662
Updated documentation for Community edition. (9.10.0.3)
Documentation has been updated to reflect new license terms and technical restrictions for Apama Community edition.

▪ PAM-24226
Link to Apama documentation on welcome page in designer leads to topic not found. (9.10.0.1)
Documentation link from Apama Welcome page did not contain a valid URL. This issue has been fixed.

7.0   Terminology Changes

A release is listed in this section only if changes occurred in that release.

Release 9.9

Old Term	New Term
Apama Studio	Software AG Designer

8.0   Added, Removed, Deprecated, or Changed Items

See *Release Notes* in the Apama documentation.

9.0   Added, Removed, Deprecated, or Changed Built-In Services

See *Release Notes* in the Apama documentation.

10.0   Added, Removed, Deprecated, or Changed Parameters

See *Release Notes* in the Apama documentation.

11.0   Added, Removed, Deprecated, or Changed APIs

See *Release Notes* in the Apama documentation.

12.0   Copyright Information

13.0 Support

Visit the [Empower website](#) to learn about support policies and critical alerts, read technical articles and papers, download products and fixes, submit feature/enhancement requests, and more.

Visit the [TECHcommunity website](#) to access additional articles, demos, and tutorials, technical information, samples, useful resources, online discussion forums, and more.

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