
Apama 9.9.0.0 Readme
Version 9.9.0
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1. Critical Information

Important: The Software AG Update Manager allows you to individually select which fix packages you wish to install. However, to ensure that all dependencies between the Apama fix packages are met, it is essential that you always select, and thus install, all Apama fix packages - do not try to install fixes for a subset of the Apama components you have installed.

For installation information, see "Installing Apama" (installing_apama.pdf in the downloaded package or on empower.softwareag.com). Adobe Reader version 8.0 or greater is required to view the included PDF documentation.

2. Known Issues

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 the document "Working with Software AG Designer" which can be found under the "Guides for Shared Tools" section of the on-line documentation.

PAM-23177 : Renaming a query does not work as expected (since 9.9.0)

=====

For renaming a query file, close the query editor opened for that file then perform the file rename.

PAM-23226 : The Linux install allows APAMA_WORK directory to contain a space (since 9.9.0)

=====

On Linux, the APAMA_WORK directory must not contain a space character or the Apama environment will not function properly. The use of a space in the path is not specifically prevented by the installer, users encountering this issue should re-install to a path without spaces.

PAM-23278 : Error in Internet Explorer 9 (IE9) console for display server dashboard (since 9.9.0)

=====

When viewing display server dashboard on IE9 browser, the following javascript error may appear in the IE console:

```
SCRIPT1028: Expected identifier, string or number
rtvhs.js, line 129 character 3
```

To work around this issue, make sure the "IE9 Compatibility View" is enabled.

PAM-22879 : Ctrl+C terminates background processes on Windows when using Ant (since 9.9.0)

=====

Customers using Ant for deployment or testing on Windows should be aware that when using Ant to launch 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-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-14320 : Checkboxes displayed at Preferences > Software AG > Apama > Scenarios page, when Software AG Designer is launched in Japanese language (since 4.3.4)

=====

Software AG Designer will select the correct user interface font when run on a system that uses non-English characters by default. However, non-English characters may not be displayed correctly on English-language installations even if more appropriate fonts are installed on the system. In this case, the font selection can be overridden by specifying the following Java system property:

```
-DPlastic.controlFont=""
```

This option can be specified in the
<SAG installation>\Designer\eclipse\eclipse.ini file.

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 not yet released an update for JMS client libraries that work with Oracle JRE 8. There are two workarounds to 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.

3. Usage Notes

a. ADBC

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:

```
select * from table where field = ""
```

Would not match rows where the field was null for such databases.

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.

However, despite this limitation in the underlying database, the supplied ODBC driver for Oracle includes special logic to allow queries to use empty strings (though this does not apply to the supplied JDBC driver, or to most other 3rd party Oracle drivers).

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.

b. Adapters

PAM-15644 : Unicode variable names in mapping rules cannot be resolved (since 5.0)

=====

Mapping in WebServices 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.

c. 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 WebServices Client adapter has been changed.

Previously literal expressions in mapping were evaluated as it is without any escaping. Now "\" is used as escape character. Now double quotes - " is escaped as \", single quotes - ' is escaped as \' and \ is escaped as \\. Quotes only need to be escaped if a string value is enclosed in the same type of quote.

So literal expression "a quote \' is string" was previously getting evaluated to "a quote \' is string" but it is now getting evaluated to "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 on 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 config doesn't 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 launch configuration dialog is invoked on selecting an Apama launch configuration which is in 'shared mode' an error dialog pops out saying that deploy configuration doesn't exist and it then reverts to default settings. To complete the duplication of 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-14206 : Apama Windows 7+ virtual store cache issue (since 4.3)

=====
Upgrading on Windows 7 and 2008 R2 and higher Windows versions might cause Software AG Designer to fail when launched. This occurs when Virtual Store is enabled in Windows. Virtual Store is enabled by default on these platforms. The workaround is to start Software AG Designer using the "-clean" option. For

example:

```
"C:\SoftwareAG\Designer\eclipse\eclipse.exe" -clean
```

This only needs to be done once.

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 blocks .bdf file to synchronize between the
filename and the block metadata.
```

d. Correlator

PAM-22407 : Queries do not support debugging (since 5.3.0.0)

```
=====
It is not possible to debug Apama queries; you cannot set a breakpoint in a .gry
file and using debugging can affect when a query starts processing events. It
is not recommended to use debugging in production systems.
```

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-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 now
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-20290 : Crash dialog window disabled by default for correlator processes (since 5.2.0.0)

=====
The popup crash dialog is now disabled by default. This can be re-enabled setting the AP_ENABLE_GPFALTERRORBOX environment variable.

PAM-14543 : Windows correlator cannot handle command line option for JMS config file path that has i18n chars (since 5.0.1)

=====
Starting the correlator with a JMS configuration directory path that contains non-ASCII characters will fail to work under some circumstances. Be sure to use only ASCII characters for the path to the configuration directory.

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.

e. 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.

f. Dashboards

PAM-23326 : Display Server renders HTML5 trend chart as Flash object on browsers that do not support HTML5 (since 9.9.0)

=====
Documentation is incorrect about HTML5 trend charts displaying the swing objects on browsers that do not support HTML5. When viewing a display server dashboard on such browsers, HTML5 trend charts will be rendered as Flash objects. If Flash player is not installed, it will prompt the user to download.

To work around this issue, either:

1. Download the Flash Player as prompted
2. Use a browser that supports HTML5
3. Re-create the dashboard by using swing Trend charts

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-20497 : Applet and WebStart deployments display warning when using JRE 1.7_40+ (since 5.1)

=====
The following warnings are displayed when launching WebStart (JNLP) or applet deployments from a web browser unless the deployments are signed with a trusted certificate. Users will need to select the checkbox stating: "I accept the risk and want to run this application" and click "Run" despite the warnings.

Warnings:

Running applications by UNKNOWN publishers will be blocked in a future release because it is potentially unsafe and a security risk.
and

This application will be blocked in a future Java security update because the JAR file manifest does not contain the Permissions attribute. Please contact the Publisher for more information.

PAM-15606 : JRE 1.7 plug-in may hang browsers (since 5.1)

=====
When using JRE 1.7 plug-in to view dashboard applet, the plug-in starts a modal warning box without window. This hangs the browser and the Java process. To work around this error, go to Control Panel->Java Control Panel->Advanced Tab. Expand the "Mixed code (sandboxed vs. trusted) security verification" node and check "Enabled - hide warning and run with protections" option. Re-start the

browser after changing this setting.

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 usernames is greater than unencrypted usernames. Given limits on the length of URLs in browser GET requests the effective limit on the length of usernames 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-12520 : Dashboard SQL attachments cannot filter on IEEE specials values such as NaN (since 4.3)

=====

Dashboard Apama SQL attachments do not support filtering by NaN, Infinity, or -Infinity. For example the following queries are not supported:

```
SELECT "value" FROM "default.specialVals" WHERE "value" != 'NaN'  
SELECT "value" FROM "default.specialVals" WHERE "value" != '-Infinity'
```

PAM-11994 : Redeploy 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 workaround 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.

g. 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-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 install. The following work around 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 &quot;-Dmyproperty=c:/foo bar&quot; ...".
```

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:

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:

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. Fixes Included in Each Release

Release 9.9.0

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 addressed in this release.

Release 5.3.0.3

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-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 optimising out copies in code using methods where it is not safe to avoid the copy.

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-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 addressed with this release.

Release 5.3.0.2

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-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-22806 : A query with multiple having clauses with no select clause generates invalid EPL (5.3.0.2)

=====
Queries with multiple having clauses and no select clause now generate valid EPL.

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.

Release 5.3.0.1

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-22484 : Dashboard SQLException with --enhancedQuery mode (5.3.0.1)

=====
When --enhancedQuery is being used and DataView/Scenario contains a long string value, a SQLException may be seen in dashboard log files. This issue has been addressed in this release.

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.

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.

BF-2980 : Missing documentation on queries tooling (5.3.0.1)

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

Release 5.3.0

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-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-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(ScenarioCurrentT
at com.apama.sl.data.scenario.ScenarioCurrentTable.getSqlResultsTable(ScenarioCu
```

This issue has been fixed in this release.

Release 5.2.0.2

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.

Release 5.2.0.1

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.

Release 5.2.0

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.

5. Other Resolved Issues

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 plugin 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 message that results from a plugin 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 UM requires that the <subscriber> element is present in the <universal-messaging> element. This was previously incorrectly marked as optional.

6. Documentation Changes

7. Terminology Changes

Apama Studio no longer exists as a standalone development environment, The Apama development environment is now integrated into the Software AG Designer.

8. Added, Removed, Deprecated, or Changed APIs

See "Release Notes" section of the documentation.

9. Copyright Information

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