Apama 5.3.0.0 Readme
Version 5.3.0.0
Ports: All
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For installation information, see "Installing Apama" (installing_apama.pdf in
the downloaded package). Adobe Acrobat Reader version 8.0 or greater is
required to view the included PDF documentation.

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1. Release Notes for 5.3.0.0
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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-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-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 - Full support for ODBC. Not supported for JDBC.
Oracle - Full support for JDBC. Partial support for ODBC: only storing of NaN
values is supported by ADBC, retrieval is not supported.

b. Adapters

PAM-25317 : Xpath over Xpath does not work for DOM Nodes (since 5.1.1)
==
Applying XPath over an XPath is now possible on the XML content in mapping
action rules. There is no option to apply this via the UI.

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.

PAM-15643 : Soap Body Binding parameter in the mapping page for web service
does not work for fault messages (since 5.0)
==
Soap Body Binding parameter for Web Services Client adapter will not work when
the web service has returned a SOAP fault in the response SOAP envelope. In
this case, the output mapping rule that contains the Soap Body Binding
parameter will not be able to execute successfully and
"javax.el.PropertyNotFoundException" will be logged.

PAM-15641 : Web Service fails for a WSDL having Soapheader with namespace

other than target namespace (since 5.0)
==
Mapping does not provide namespace support for soap.header expressions. This
causes the Web Service to fail for WSDLs that try to use SoapHeader with
namespaces other than the WSDL's target namespace. The error is logged as "No
mapping found for Soap message header".

c. Apama Studio

PAM-21494 : Behavior change in event mapping (since 5.3.0.0)
==
Behaviour of escaping in mapping literal expression in Correlator-JMS and
WebServices 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-15706 : Adapter Mapper UI Treat as XML : Using a large schema freezes UI
(since 5.0)
==
When using the Studio Adapter mapper UI, selecting a large schema for "treat as
XML" feature can take a long time to process and cause the UI to hang.

PAM-13191 : Adapter configuration editors fall back to using generic adapter
editor if XInclude elements are used (since 5.0)
==
The ADBC adapter configuration editor falls back to using the generic
configuration editor when the IAF configuration file uses XInclude elements in
the transport and Java sections. By default, ADBC configuration files do not
use XInclude elements.

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-14320 : Checkboxes displayed at Preferences > Apama > Scenarios page,
when Apama is launched in Japanese language (since 4.3.4)
==
Apama Studio 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
<apama installation>\studio\eclipse\eclipse.ini 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 Apama
Studio 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 Apama Studio using the "-clean" option. For example:
"C:\Program Files\SoftwareAG\Apama 5.1\studio\eclipse\eclipse.exe" -clean

This only needs to be done once.

PAM-7123 : Renaming a block in Apama Studio (since 4.2)
==
Block renaming in Apama Studio is not fully supported. If you rename a block
in Apama Studio, 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 .qry
file and using debugging can affect when a query starts processing events. It
is not recommended to use debugging in production systems.

PAM-22442 : getSourceTime action on events is reserved (since 5.3.0.0)
==
Event types should not define a getSourceTime() action as that is reserved for
future use.

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_GPFAULTERRORBOX environment variable.

PAM-15684 : 32-bit Correlator Java support on 64-bit Windows (since 5.0.1)
==
Attempting to start a 32-bit correlator with Java support on a 64-bit Windows
machine with a large amount of free memory (> 4gigabytes) may result in an
error message stating 'Could not reserve enough space for object heap'. This is
due to the system trying to allocate an invalid amount of memory to a 32-bit
JVM. The correlator therefore needs to be started with an additional command
line parameter:

-J -Xmx256m

Where you can modify the '256m' to be your choice of heap size (in the example,
it's 256 megabytes).

This can be set either on the command line, or in Apama Studio by adding the
above to the Extra command line arguments field in the Correlator Configuration
dialog.

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 behaviour 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.

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.

f. Dashboards

PAM-21690 : New HTML5 trend chart does not export to pdf (since 5.3.0.0)
==
Export to PDF does not show the trend chart if webChartFlag (html5) property is
checked in the dashboard builder. If export feature is required, use a regular
trend object by disabling the webChartFlag property in the dashboard builder.

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 Apama Studio 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. Installer

PAM-21483 : Installer does not automatically stop the Apama 5.1 Sentinel Agent
Windows service if running (since 5.2.0.0)
==
It is possible to install Apama 5.2 side-by-side with the earlier 5.1 release on
the same machine. On Windows, the 5.2 installer does not currently attempt to
stop any 5.1 services (such as Sentinel Agent) that may be running on the
machine. Because the 5.1 services try to use the same ports as the 5.2 services,
the 5.2 services might fail to start and there might be problems later on with

the 5.1 services after a machine restart. Therefore, users who wish to run 5.1 a
5.2 side by side are recommended to manually disable the 5.1 services using the
Windows Services Control Panel applet before beginning installation of 5.2.

PAM-12536 : UNIX silent mode installer requires X server to be running
(since 4.3)
==
When doing an install of the product using silent mode on UNIX, if your
environment has a DISPLAY variable defined but no valid X server running, the
installer will abort. To avoid this, start an X server or temporarily unset the
DISPLAY variable.

PAM-7998 : Uninstaller hangs if any files referenced in the post_uninstall
script are in use (since 4.0)
==
Be sure to close all Apama processes and command prompts before attempting to
uninstall the product. There is a known issue that can cause the uninstall
process to hang if files are in use when the uninstaller tries to delete them.

PAM-7847 : Configuring Apama Studio for multiple users sharing a workspace on
Windows (since 4.0)
==
The default location of the apama-work directory may not be suitable if
multiple users share a single PC. This is because the default apama-work
directory is "C:\Documents and Settings\[USER]\apama-work". Therefore, all
users will share the apama-work directory of the user who installed Apama. If
you plan to share a single installation, it is recommended that you set the
apama-work directory to C:\Documents and Settings\All Users.

h. 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 behaviour 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 behaviour 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 Redhat 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 behaviour 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 behaviour:
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.


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----------------------------------------------------------
2.  Customer Reported Defects Fixed in 5.3.0.0 and higher
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a. Correlator

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.

b. Apama Studio

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.

c. Dashboards

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.

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.

d. Documentation

PAM-16310 : Add description on how OOB event component name is created
(since 5.2.0.0)
===
A section has been added to the documentation describing how OOB event component
names are created.

e. Installer

PAM-15601 : Exceptions in log file (Apama_ia_output.txt) after installing Apama
on UNIX (since 5.2.0.0)
===
'java.lang.IllegalThreadStateException: process hasn't exited' would happen at
the start of installation when the installer tried to execute java code to
determine the user (root user/other users). This issue has been fixed.

f. Other

PAM-13336 : Deadlocks caused by cyclical lock orderings between
EngineClientBean, EventService and ScenarioService layers (since 5.2.0.0)
==
Several changes have been made to the internals of the EngineClient,
EventService and ScenarioService layers to make it easier to use event and
property change listeners safely without risking thread deadlock situations.

The main behavioural change is that the EngineClient and EventService layers now
fire all property change listeners asynchronously, meaning that listeners will
be executed on a dedicated thread shortly after the change that caused them to
fire; this does represent a slight change in behaviour that application authors
should be aware of. There is a new EngineClient.flushListeners() method which
blocks until pending property change listeners have all completed. Event
listeners continue to behave as before, i.e. asynchronous in the EventService
layer and configurable in the addConsumer() method call in the EngineClient
layer. Any application that needs to call back into the EngineClient from within
an event listener, or that needs to acquire application-defined locks from
within that listener that might also be held when calling other EngineClient
methods from outside the listener should be careful to ensure that an
asynchronous consumer is being used (or alternatively, just switch to using the
EventService instead). Also note that synchronizing on the EngineClient or
EventService objects will no longer affect the internal behaviour of those
classes as it did in 5.1 (this behaviour was not documented or officially
supported, but some customers may have made use of it); also note that
synchronizing on the ScenarioService object may affect behaviour but is not
officially supported.

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3. Other Defects Fixed in 5.3.0.0
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a. ADBC

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.

b. Correlator Plug-ins

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)".

c. Other

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.

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4. Copyright Notices

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5.  Support
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