

Logging and Serviceability Improvements in SailFin 2.0

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1. Introduction

1.1. Project/Component Working Name:

Logging and Serviceability Improvements

1.2. Name(s) and e-mail address of Document Author(s)/Supplier:

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1.3. Date of This Document:

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2. Project Summary

2.1. Project Description:

This one pager lists some of the proposed enhancements in the logging and serviceability area for SailFin 2.0. Enhancements are broadly in the following areas:

- 1) Enhancements to the logging infrastructure
- 2) Auditing of the logging data in the SIP stack and optionally in web module. Reclassifying the the FINE level logging to help traceability.
- 3) Improvements to monitoring and tracing (addressed in different one pagers, links are provided in the references section)

2.2. Risks and Assumptions:

Getting admin GUI log viewer working for this proposal is a risk. In the worst case, when this feature is used log viewer might not be usable.

3. Problem Summary

3.1. Problem Area:

At present enabling logging at a FINE or at a greater debug level is not feasible in production environment. Most of the debug information is written at FINE level and in some cases same information is written multiple times and this makes lot of data being written to the disk and disk becomes bottleneck.

3.2. Justification:

Supporting system in service is very important.

4. Technical Description:

4.1. Details:

Default log handler will continue to be FileAndSysLogHandler as in the previous releases and asynchronous memory log handler needs to be explicitly configured. Asynchronous logging can be enabled by setting "org.glassfish.logging.async" system property to true in the java-config element of the domain.xml.

Asynchronous Memory Log handler: Support to configure Asynchronous memory handler as the default log handler.

Application -> Logger -> Asynchronous Memory Handler - > FileAndSysLogHandler -> Logging.

Asynchronous memory handler would keep the configured number of log records in memory, after which it would push the records in the memory to the FileAndSysLogHandler (default log handler in the GlassFish) from a different thread. Time interval also can be configured, at which log records in memory will be pushed to the FileAndSysLogHandler. With in the time interval, if the memory handler's queue is full, then records will be pushed. While records are pushed to the FileAndSysLogHandler, while the queue is full, another memory handler of the same size will act as a buffer.

Following properties under log-service element can be used to configure the queue length and time interval:

max-buffered-messages (default value : 8 K)
push-interval-in-seconds (default value : 3 minutes)

Configurable log format :Present log record format is fixed and can not configured or changed by the user. All the data written into the log file may not be of interest to every user and ability to log part of the data also addresses

the performance concerns.

Present format is:

```
[#|Time Stamp|Level|Product Id|Logger Name|ThreadId;  
ThreadName;Classname;MethodName;NameValuePairs|Raw Message|#]  
Class Name and Method name are part of the log, only if the log level FINE,  
FINER or FINEST.
```

This can be configured as:

```
"time-stamp,product-id,logger-name,thread-info,name-value-pairs,raw-  
message"
```

"format" property under log-service can be used to set the configure the log format. Comma is a separator and they may appear in any order and some of them may be omitted.

Improvements to SIP Message Inspection and Access Logging : Addressed as part of separate one pagers. [\[1\]](#) and [\[2\]](#) in the reference document section addresses these requirements.

Auditing of the logging data:

There is a lot of logging done at FINE level and in general all the Engineers ask for logs at FINE level if there is any issue faced by the user. Logging at the FINE level should be done judiciously, which will help in tracing. Following data, which is number of log statements at each level in GlassFish and SailFin suggests that bulk of logging is done at FINE level and not much logging is done at FINER and FINEST levels.

GlassFish log stats:

```
FINE : 4973 FINER: 331 FINEST: 1449 INFO : 1403 SEVERE: 1406  
WARNING: 2296
```

SailFin log stats:

```
FINE : 1354 FINER: 18 FINEST: 199 INFO : 143 SEVERE: 265 WARNING:  
299
```

Auditing of the logging done and appropriately reclassifying the logging data into various log levels will help the objectives. This should be done for SIP stack and new code is written. This should also be targeted for web container. Any new code written should keep this in mind and code reviews should take this into account also.

Log Filtering: GlassFish has support to add user's own log filter, with the help of log-filter attribute in the log-service element. It is expected that user would write his own log filter.

Dynamic configuration impact:

No dynamic reconfiguration support is planned for this feature.

4.2. Bug/RFE Number(s):

4.2.1 Bug/RFE Numbers from Issue Tracker

4.2.2 Requirement Ids that are being addressed as a part of this proposal.

3427: It should be possible to enable logging for a short period of time (10 to 20 secs) at a reduced throughput 100 TPS

3430: It shall be possible to support trouble shooting activities on a system with normal load at customer site

3426: Logging Best practices

3425: Asynchronous Logging

4.3. In Scope:

4.4. Out of Scope:

4.5. Interfaces:

4.5.1 Exported Interfaces

Following properties under log service would be exposed.

format : default "%timestamp% %product.id% %logger.name%
%thread.info% %name-value-pairs% %raw-message%"

max-buffered-messages : default 8192

push-interval-in-seconds : default 60 secs

4.5.2 Imported interfaces

4.5.3 Other interfaces (Optional)

4.6. Doc Impact:

Documentation needs to explain how to enable asynchronous logging and what each property means and how to configure them.

4.7. Admin/Config Impact:

4.7.1 Configuration changes needed

As defined in the Exported interfaces section.

4.7.2 CLI / GUI impact if any

For log viewer in the GUI to work properly, AMX API needs to be changed.

4.8. HA Impact:

4.9. I18N/L10N Impact:

4.10. Packaging & Delivery:

4.10.1 Binaries in which the code is delivered

4.11. Security Impact:

4.12. Compatibility Impact

4.12. Compatibility Impact

4.13. Dependencies:

4.13.1 Changes required in GlassFish

4.13.2 Third Party APIs

4.14 Miscellaneous

Will this component work with Ipv6 addresses
Will this component work with JDK 64bit
Will this component require configuration using a sun-specific deployment descriptor. If yes, please specify below that configuration elements needed

5. Open Issues

Issue No	Description	Comments	Resolution
1	AMX changes	As of now Lloyd mentioned, changes are doable and he can help	

6. Reference Documents:

- [1] [Enhancements to SMI and access logging](#)
- [2] [Sip Message Inspection Adapter One Pager](#)

7. Schedule:

7.1. Projected Availability: