

expEDlum Medical Billing

v4.0.0

Release Notes

Table of Contents

Release Notes	2
1) [Ticket# 7182] Migration of expEDlum to WildFly on JDK8.....	2
2) [Ticket# 2611] Perf Log Format Change – WildFly.....	3
3) [Ticket# 7276] App Logging Enhancement, and other tools for monitoring	4
Bugzilla List of tickets available in this release.....	5

RESTRICTED USE

Release Notes

1) [Ticket# 7182] Migration of expEDlum to WildFly on JDK8

expEDlum is migrated to a new technology platform in this version. The following changes are implemented in the application and the platform as part of this project.

- 1) The application server platform is migrated from JBoss v4.0.3 SP1 to WildFly 11.0.0.Final.
- 2) The development environment is migrated from JDK5 to JDK8.
- 3) The enterprise technology is migrated to a newer version for JDK8 compatibility – This includes J2EE1.4 to Java EE7, EJB 2.1 to EJB3.2, Support for SOAP v1.2, Backward compatible SOAP Web Services using EJB 3.2 and Apache CXF, JMS persistence from JBoss MQ to Artemis Active MQ.
- 4) Deployment changes - From individual java components to one single EAR file
- 5) Application specific JBoss Configurations are migrated to corresponding WildFly configurations and new WildFly configurations.
- 6) SSLv3 and TLS v1.0 is deprecated and direct support for TLS v1.1 and v1.2. Earlier this support was provided through an intermediary expEDlum Router application that would convert TLS v1.0 request to TLS v1.1 and vice versa.

The platform migration project includes migration of source code to new technologies and new technology versions, migration of various application and application server configurations. We performed unit/integration testing on the new development environment, full round regression testing of the product, and several rounds of script-based performance testing to calibrate the various performance parameters. The issues found during regression testing were fixed and retested in iterative cycles. The issues found during performance testing were categorized and resolved by tuning the JVM Heap for JDK8, further tuning of WildFly11 parameters, programmatically tuning the parameters of various EJB Components, and further tuning of

database parameters. We expect the overall performance of eMB v4.0 to be equally good (compared to eMB v3.6.8 or earlier versions) or even better in certain areas.

The migration will be done in different phases across multiple installations in a staged manner. Some of the production servers are selected for early upgrade and will be monitored closely for two to three weeks before the remaining production servers are upgraded to the new platform.

Note: We continue to use PostgreSQL 9.3; however, the PostgreSQL JDBC Driver is upgraded to the latest JDK8 compatible driver. We shall look at migrating to a later version of PostgreSQL in the future and for any compelling reasons such as improved performance or any specific new DBMS features.

Please note from the features perspective, eMB v4.0 has the same set of features as in eMB v3.6.8 (that is running on JBoss v4.0). Moving forward, please note the new releases would happen on this v4.0 source trunk and would have release #s such as v4.0.X or v4.X.

As a contingency, we are keeping eMB v3.6.8 or v3.6.7 (some installations have eMB v3.6.8 installed and some still have v3.6.7) release directories available on each installation server and on a need basis we can revert to the old software from eMB v4.0. This would take about two hours or less during contingency. However, please note we are NOT expecting this to happen and is just a "contingency".

2) [Ticket# 2611] Perf Log Format Change – WildFly

The performance log format is changed in expEDlum from v3.6.7 onwards. This module is enhanced and migrated to the components in eMB v4.0 as well. Please note there is no new logs added and only the source is migrated, and backward compatibility is ensured. This performance log is irrelevant for end users and is used for internal analysis and performance calibration purposes.

Instead of plain text logs, a comma separated format is introduced. This format will help the person who analyzes logs to open it in Microsoft Excel and analyze the execution time of various modules and functionalities.

The various columns/fields in the performance log CSV are –

#	Field
1	Component/Action
2	Sub-Component-1/Sub-Action-1
3	Sub-Component-1/Sub-Action-2
4	Sub-Component-1/Sub-Action-3
5	Login Module ID
6	Account ID
7	Operator ID
8	Session ID
9	Time in Seconds
10	Database Action
11	Search Criteria

3) [Ticket# 7276] App Logging Enhancement, and other tools for monitoring

The log changes, and new logs were introduced for better monitoring in expEDlum v3.6.7 – these changes are migrated and are available in in eMB v4.0 too as part of Ticket #2611. On top of these log-based monitoring, additional external tools which are supported by JDK8 are also introduced as part of more pro-active production support. Our Support Team would be using / observing these tools daily to determine & pre-empt some issues before they happen.

- 1) Glow Root application performance monitoring tool on servers where New Relic is not used.
- 2) JConsole and JVisualGC for Java Performance Monitoring
- 3) WildFly Management Console for monitoring the Message queues.

Bugzilla List of tickets available in this release

#	iTech Ticket#	Client	Client Ticket #	Summary	Version
1	7182			Migration of expEDlum to WildFly on JDK8	V4.0.0
2	2611			Perf Log Format Change – WildFly	V4.0.0
3	7276			App Logging Enhancement and tools for monitoring	V4.0.0

*** END OF DOCUMENT ***