**Abstract**

This BUC is to upgrade the Eclipse Equinox version from 4.16 to 4.19 in AIR node as a life cycle management activity. This BUC shall also upgrade the jetty version from 9.4.29 to 9.4.43 in AIR node as a life cycle management activity.

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# General Information

## Scope

The intent of this study is to explore any impact on AIR from Jetty version up gradation. Up gradation will be done from 9.4.29 to 9.4.43. The document includes a solution on how C221-59 shall be realized in AIR Node.

OSGi container version to be upgraded from 4.16 release to 4.19 release with Jetty version 9.4.37.

### Business Use Case Scenarios

Following scenarios are required to be supported

**BUC-C221-59-S001:** Upgrade Jetty version from 9.4.29 to 9.4.43.

**BUC-C221-59-S002:** Verify and ensure all the components are working as expected.

**BUC-C221-59-S003:** Upgrade equinox container to 4.19 and other dependencies to compatible versions (e.g. Jetty to 9.4.37)

**BUC-C221-59-S004:** Verify and Ensure no performance impact on any of the components

**BUC-C221-59-S005:** Add support for max number of requests per connection

## Input

BUC: [[EC\_LUVAIVR-166] AIR - C221-59 LCM ​Eclipse Equinox/Jetty - eTeamProject (ericsson.com)](https://eteamproject.internal.ericsson.com/browse/EC_LUVAIVR-166)

### DMP Impact analysis

None

## Function value Augmentation

Get update on latest security fixes.

## Out of Scope

None

## Patent Aspects

No, the solution does not include any patentable part.

## Terminology

|  |  |  |
| --- | --- | --- |
| Term/Concept | Abbreviation | Definition |
| OSGi | Open Services Gatewayinitiative | - |
| AIR | Account Information and Refill | - |
| BUC | Business Use case | - |
| LCM | Life cycle management | - |

# BUC Study Common Output

## Open Issues

None

## Decision Log

Though the latest Equinox version available at time of this LCM is 4.20 but it is dropped for this LCM as it is using jetty 10.0.5 version in dependencies. Jetty 10.0.5 posts a requirement to upgrade Java to Java 11x version. Java major version upgrade is out of scope of this BUC.

## Recommended further studies

NA

## Business Sub Use cases

NA

# Technical Solution

AIR is currently supporting Jetty version 9.4.29. Since the last update was done in June 2020, jetty’s latest version has come with some new features/ security updates.

Hence, it is recommended to go with the version 9.4.43. For detailed delta between 9.4.29 and 9.4.43, please use below mentioned release notes:

<https://github.com/eclipse/jetty.project/releases/tag/jetty-9.4.43.v20210629>

<https://github.com/eclipse/jetty.project/releases/tag/jetty-9.4.42.v20210604>

<https://github.com/eclipse/jetty.project/releases/tag/jetty-9.4.41.v20210516>

<https://github.com/eclipse/jetty.project/releases/tag/jetty-9.4.40.v20210413>

<https://github.com/eclipse/jetty.project/releases/tag/jetty-9.4.39.v20210325>

<https://github.com/eclipse/jetty.project/releases/tag/jetty-9.4.38.v20210224>

<https://github.com/eclipse/jetty.project/releases/tag/jetty-9.4.37.v20210219>

<https://github.com/eclipse/jetty.project/releases/tag/jetty-9.4.36.v20210114>

<https://github.com/eclipse/jetty.project/releases/tag/jetty-9.4.35.v20201120>

<https://github.com/eclipse/jetty.project/releases/tag/jetty-9.4.34.v20201102>

<https://github.com/eclipse/jetty.project/releases/tag/jetty-9.4.33.v20201020>

<https://github.com/eclipse/jetty.project/releases/tag/jetty-9.4.32.v20200930>

<https://github.com/eclipse/jetty.project/releases/tag/jetty-9.4.31.v20200723>

Jetty version 9.4.43 will be supported by AIR. All relative FDS and AUV references of Jetty shall be updated.

OSGi container equinox version to be upgraded from 4.16 release to 4.19 release with Jetty version 9.4.37.

## Solution overview

Below listed components will be impacted by Jetty version update:

* AUV
  + JWEBSERVER
* FSC
  + STATISTICADAPTER
  + CERTMANAGEMENT
  + WEBSERVER
* 3RD
  + JETTY

Below listed components will be impacted by Equinox version update:

* AUV
  + OSGi Container (Equinox)
  + Jetty web server and customizations
  + Servlet API
  + Apache Felix console

Jetty support max number of requests per connection in this version 9.4.37. This shall be tested and added for AIRIP requests.

Jetty supports Automatically hot-reload SSL certificates if keystore file changed. It should be analyzed to identify if custom monitoring of certificates can be removed in OSGi.

### Alternative solutions

NA

### Solution Limitations

NA

## Product requirements

### BUC requirement on <Product>

|  |  |
| --- | --- |
| **Req\_Id** | **Requirement Text** |
| **BUC-C221-59-S001** | Upgrade Jetty version from 9.4.29 to 9.4.43. |
| **BUC-C221-59-S002** | Verify and ensure all the components are working as expected. |
| **BUC-C221-59-S003** | Upgrade equinox container to 4.19 and other dependencies to compatible versions (e.g. Jetty to 9.4.37) |
| **BUC-C221-59-S004** | Verify and Ensure no performance impact on any of the components |
| **BUC-C221-59-S005** | Add support for max number of requests per connection |

### Impacts for PCs on Deprecated Functionality

NA

### BUC impact on <non-functional areas>

This LCM upgrades the equinox container and Jetty web server which may have the impact on connection states during the handshake and closure of the connection which need to be evaluated and ensure there is no change in the behavior.

There can be a potential chance of change in the performance numbers, verification needed to ensure no degradation.

#### Information Model

NA

#### Characteristics and performance

Traffic and Performance should be as it is.

#### User Experience

NA

#### Commercial Licenses & Product Packaging

NA

#### Statistics and Counters

AIR IP default statistics and port wise statistics need to be generated as is

#### Upgrade and Migration

NA

#### Public Interfaces

NA

#### 3pp and Open Source

The latest Jetty version 9.4.43 should be downloaded from

<https://github.com/eclipse/jetty.project/releases/tag/jetty-9.4.43.v20210629>

Equinox version shall be downloaded from

[Equinox Release Build: 4.19 | The Eclipse Foundation](https://download.eclipse.org/equinox/drops/R-4.19-202103031800/index.php)

#### Internal Specifications and Compound Document impacts

Verify and Ensure function and impact updated in NIR Document

#### Test and Verification

Following functionalities are expected to work as is, LCM need to verify the same

* BUC:C155-21 – Session and TPS control.
* PMR:1474 - Secure HTTP communication

#### Function Activation Sequence

NA

#### Pre-integration points

NA

#### Security

NA

#### Privacy

NA

#### GPR Analysis (General Product Requirements)

NA

### BUC Dependency

NA

# Glossary

## Terms & Concepts

# References

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# Revision Information

|  |  |  |  |
| --- | --- | --- | --- |
| Revision | Date | Signature | Comments |
|  |  |  |  |