

CN4J Report

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Chapter 1. Introduction

This document contains a dependency analysis showing the current state and target for Cloud Native for Java (CN4J) platforms like [Jakarta EE](#) and [MicroProfile](#). The analysis tool to generate the actual state analysis is [jQAssistant](#) (see [this repository](#)), where the to-be analysis is derived from manually.



This document uses PlantUML diagrams, that are converted to SVG images - so text based search can be used in source and target files.

Chapter 2. Jakarta EE

<https://jakarta.ee>

2.1. Jakarta Umbrella Specifications

2.1.1. Jakarta Platform

Project: <https://projects.eclipse.org/projects/ee4j.jakartaee-platform>

Source:

- <https://github.com/jakartaee/jakartaee-platform> (specification)
- <https://github.com/jakartaee/jakartaee-api> (API)
- <https://github.com/jakartaee/platform-tck> (TCK)

10.0.0

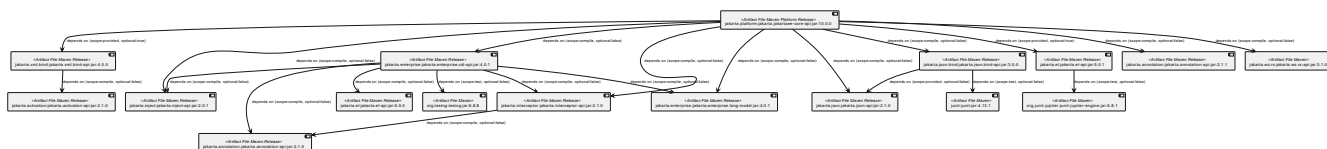


Figure 1. Jakarta Core Profile API 10.0.0 actual

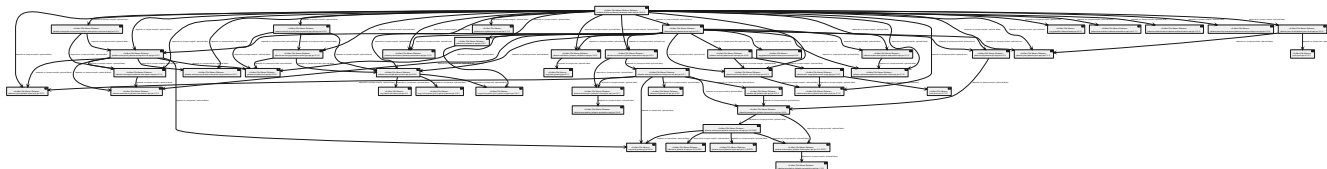


Figure 2. Jakarta Web Profile API 10.0.0 actual

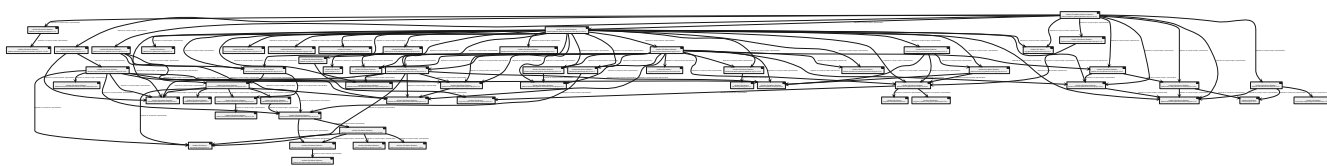


Figure 3. Jakarta Platform API 10.0.0 actual

10.0.1

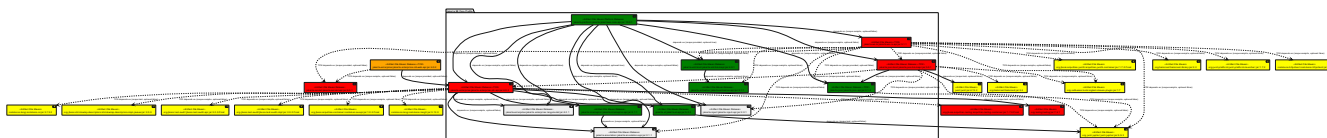


Figure 4. Jakarta Core Profile API 10.0.1 target including TCK dependencies

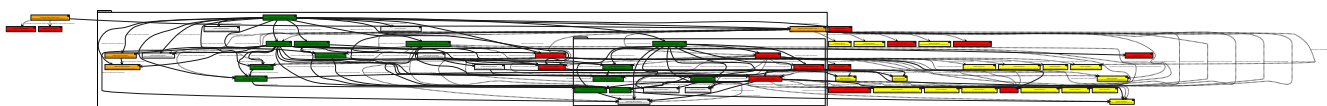


Figure 5. Jakarta Web Profile API 10.0.1 target including TCK dependencies

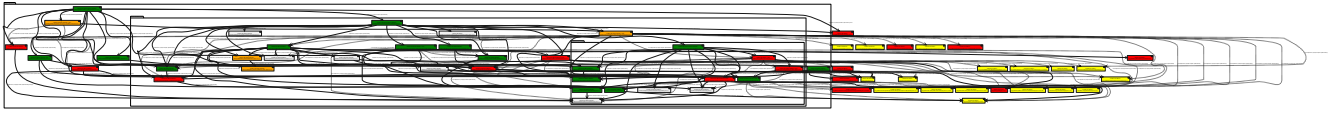


Figure 6. Jakarta Platform API 10.0.1 target with including TCK dependencies



The so called **waves** for the release order of the component specifications can be derived from this graph directly ([see here](#))!

Issues:

- Patch Release
 - <https://github.com/jakartaee/jakartaee-api/issues/138>
 - <https://github.com/jakartaee/jakartaee-api/pull/139>

11.0.0

TBD

2.1.2. Jakarta Platform TCK

The (old) combined TCK to test compatibility. The refactoring (splitting it up to the several component specs) is pending for improving maintainability.

Source: <https://github.com/jakartaee/platform-tck>

2.2. Jakarta Component Specifications

2.2.1. Separated TCKs

Jakarta component specs with separated TCK already:

- [Jakarta Activation](#) (script based)
- [Jakarta Annotation\(s\)](#) (TBD, TCK creation planed for Jakarta Annotations 3.0.0)
- [Jakarta Batch](#)
- [Jakarta CDI](#) (split into CDI Core and CDI web is planed later, a CDI Platform might be required too)
- [Jakarta Concurrent](#)
- Jakarta Data (stand-alone)
- [Jakarta JSON](#)
- [Jakarta JSON Bind](#)
- Jakarta MVC (stand-alone)
- [Jakarta REST](#)
- [Jakarta Validation](#) (TCK renaming planed soon)



The remaining specifications still have their TCK included in the (old) [Jakarta Platform TCK](#).

2.2.2. Jakarta Activation

Project: <https://projects.eclipse.org/projects/ee4j.jaf>

Source:

- <https://github.com/jakartaee/jaf-api> (specification and API)
- <https://github.com/jakartaee/jaf-tck> (TCK)

2.1.0



Figure 7. Jakarta Activation API 2.1.0 actual

Issues:

- CVEs https://bugs.eclipse.org/bugs/show_bug.cgi?id=581580
- script based TCK

2.1.2



Figure 8. Jakarta Activation API 2.1.2 actual

Issues:

- CVEs https://bugs.eclipse.org/bugs/show_bug.cgi?id=581580
- script based TCK

2.2.3. Jakarta Annotation(s)

Project: <https://projects.eclipse.org/projects/ee4j.ca>

Source:

- <https://github.com/jakartaee/common-annotations-api> (specification and API)
- <https://github.com/jakartaee/platform-tck> (TCK)

2.1.1



Figure 9. Jakarta Annotation API 2.1.1 actual

Issues:

- CVEs https://bugs.eclipse.org/bugs/show_bug.cgi?id=581580
- depends on [Jakarta Platform TCK](#)

2.1.2

Issues:

- Patch Release [Issue #177](#)
 - Patch CVEs

3.0.0

Issues:

- Major Release (Plan Review)
 - @ManagedBean removal
 - Java SE 11
- Additional changes
 - Extract TCK from [Jakarta Platform TCK](#) (by moving [existing signature test](#))
 - Multi-module Maven setup
 - Consistent naming

2.2.4. Jakarta Batch

Project: <https://projects.eclipse.org/projects/ee4j.batch>

Source:

- <https://github.com/eclipse-ee4j/batch-api> (specification and API)
- <https://github.com/eclipse-ee4j/batch-tck> (TCK)

2.1.1

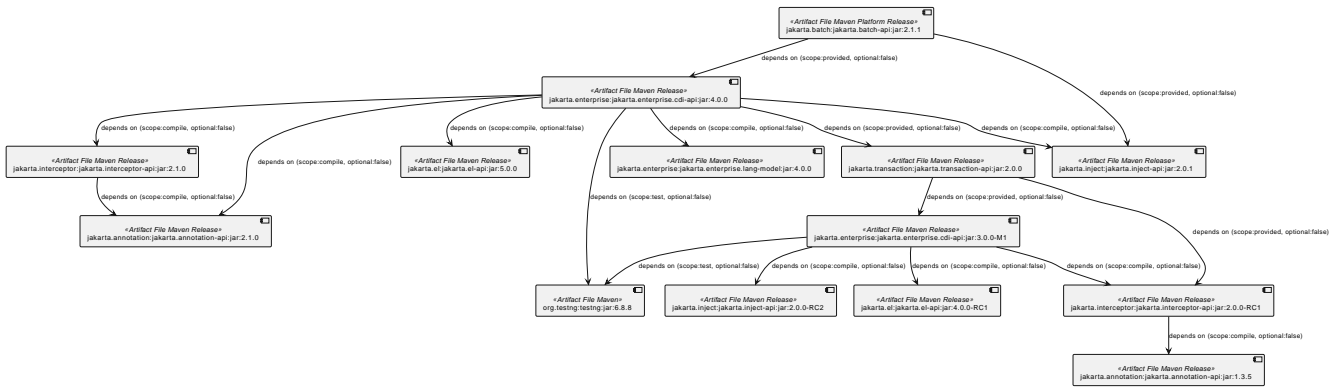


Figure 10. Jakarta Batch API 2.1.1 actual

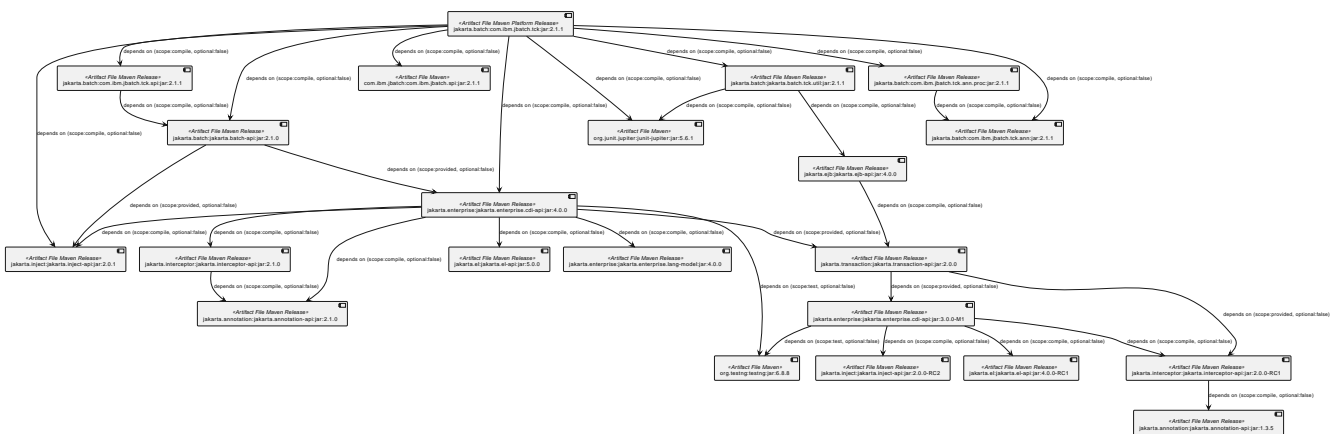


Figure 11. Jakarta IBM JBatch TCK 2.1.1 actual

2.2.5. Jakarta CDI

Project: <https://projects.eclipse.org/projects/ee4j.cdi>

Source:

- <https://github.com/jakartaee/cdi> (specification and API)
- <https://github.com/jakartaee/cdi-tck> (TCK)

4.0.1/4.0.9

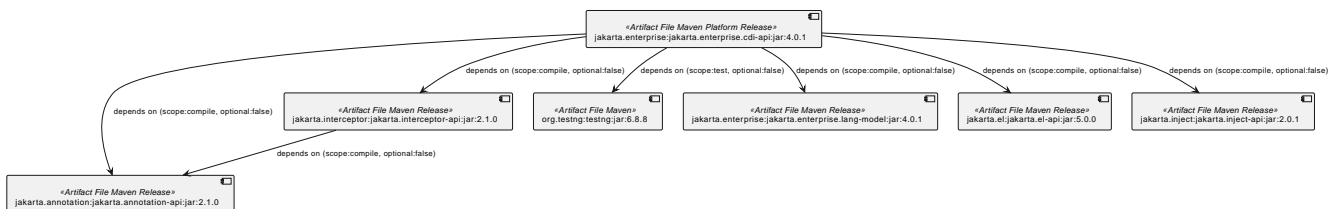


Figure 12. Jakarta CDI API 4.0.1 actual

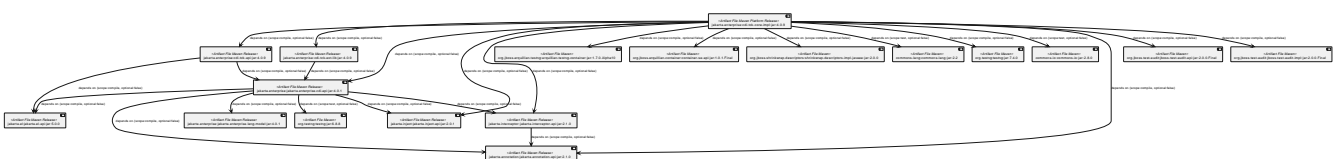


Figure 13. Jakarta CDI TCK Core Impl 4.0.9 actual

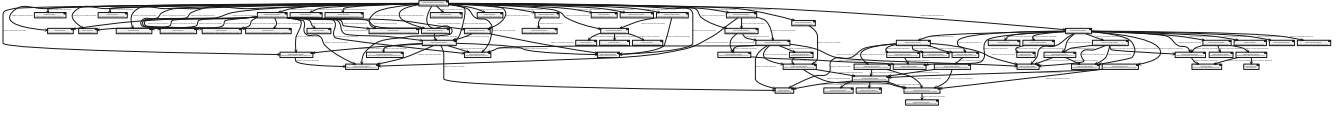


Figure 14. Jakarta CDI TCK Web Impl 4.0.9 actual



Figure 15. Jakarta CDI TCK Distribution 4.0.9 actual

Issues:

- Circular dependencies via TCK
 - <https://github.com/jakartaee/cdi/issues/687>

4.1.0

Issues:

- Plan Review

2.2.6. Jakarta Concurrent

Project: <https://projects.eclipse.org/projects/ee4j.cu>

Source: <https://github.com/jakartaee/concurrency> (specification, API and TCK)

3.0.2

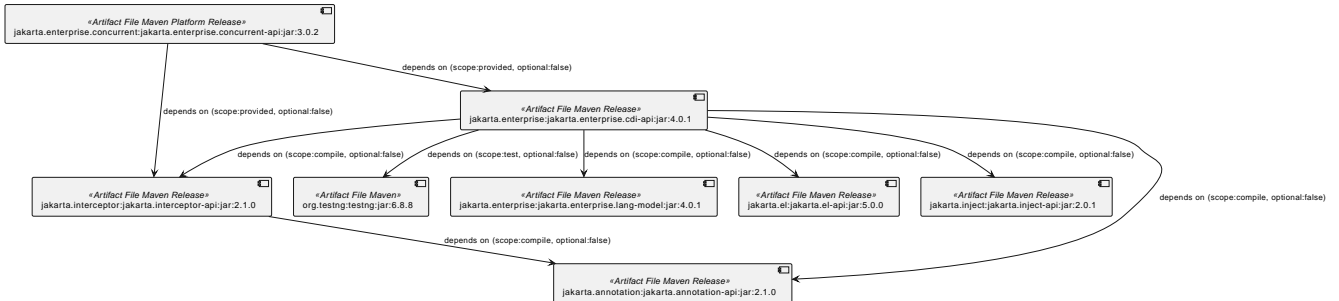


Figure 16. Jakarta Concurrent API 3.0.2 actual

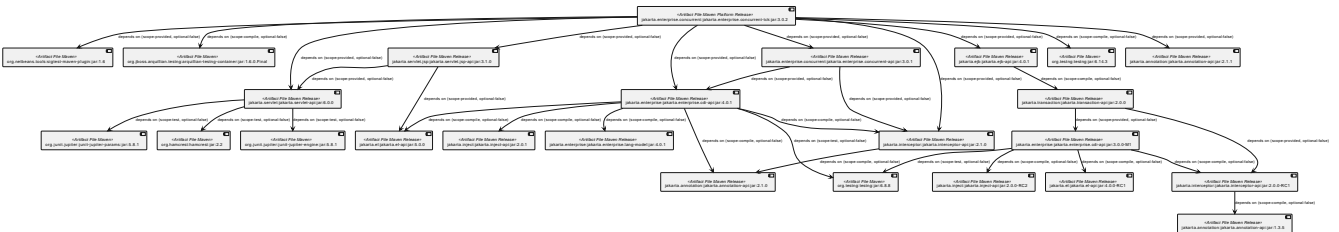


Figure 17. Jakarta Concurrent TCK 3.0.2 actual

Issues:

- Spec is not configured as module on root

2.2.7. Jakarta JSON

Project: <https://projects.eclipse.org/projects/ee4j.jsonp>

Source: <https://github.com/jakartaee/jsonp-api> (specification, API and TCK)

2.1.1

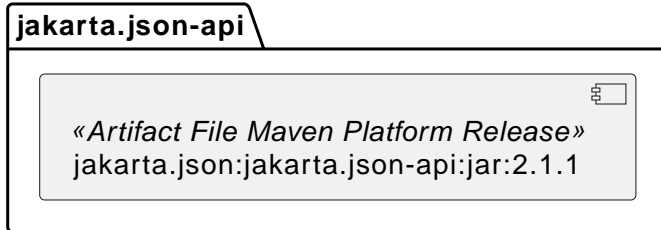


Figure 18. Jakarta JSON API 2.1.1 actual

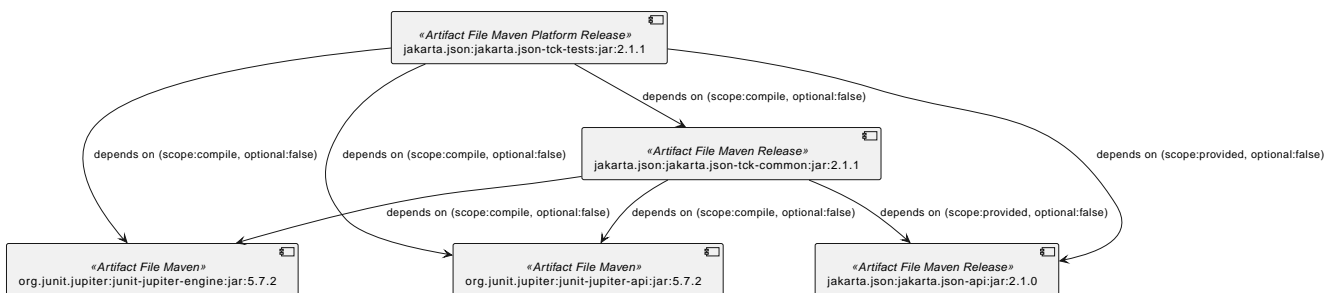


Figure 19. Jakarta JSON TCK Tests 2.1.1 actual

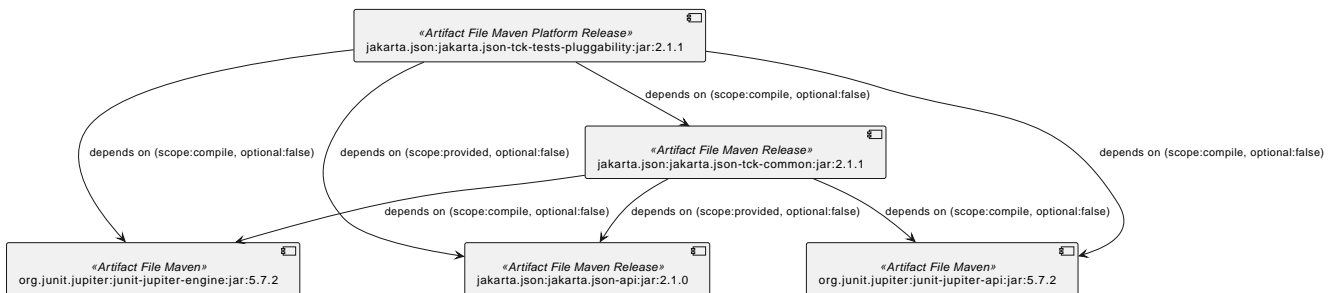


Figure 20. Jakarta JSON TCK Tests Pluggability 2.1.1 actual

Issues:

- Non-consistent naming
- No parent defined

2.2.8. Jakarta JSON Bind

Project: <https://projects.eclipse.org/projects/ee4j.jsonb>

Source: <https://github.com/jakartaee/jsonb-api> (specification, API and TCK)

3.0.0

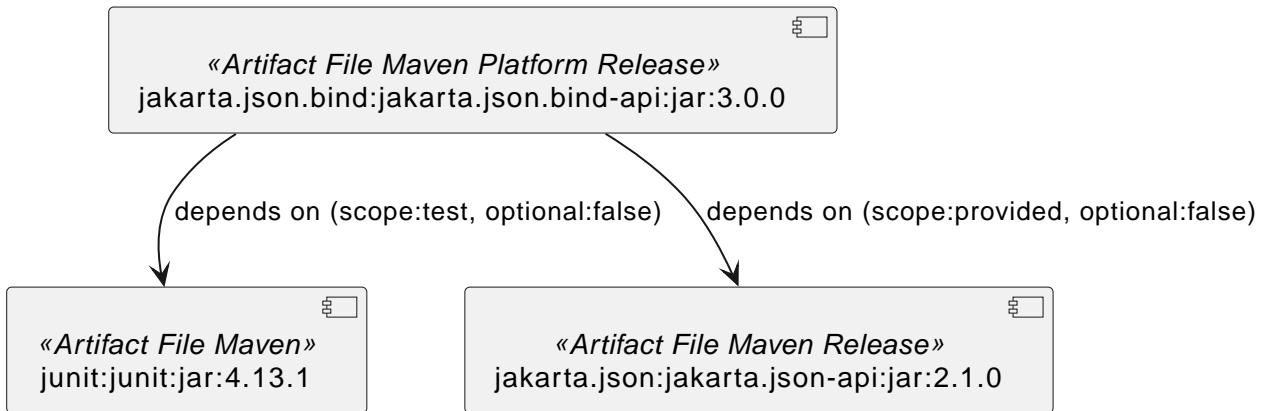


Figure 21. Jakarta JSON Bind API 3.0.0 actual

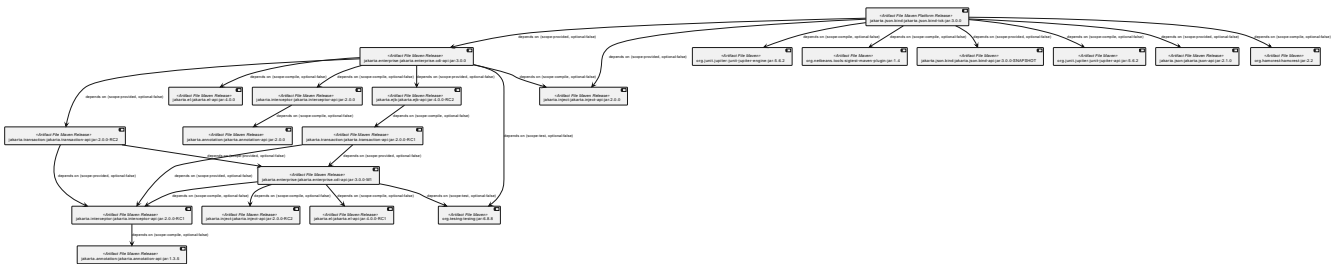


Figure 22. Jakarta JSON Bind TCK 3.0.0 actual

2.2.9. Jakarta REST

Project: <https://projects.eclipse.org/projects/ee4j.rest>

Source: <https://github.com/jakartaee/rest> (specification, API and TCK)

3.1.0/3.1.3



Figure 23. Jakarta REST API 3.1.0 actual

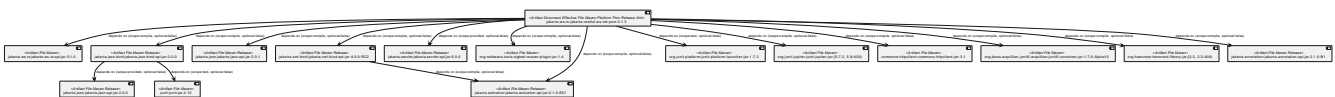


Figure 24. Jakarta REST TCK 3.1.3 actual on Staging

Issues:

- Spec is not configured as module on root
- TCK is not available on Maven Central
- Version ranges are used
- Out-dated versions in dependencies

4.0.0

Issues:

- Plan Review

2.2.10. Jakarta Validation

Project: <https://projects.eclipse.org/projects/ee4j.bean-validation>

Source:

- <https://github.com/jakartaee/validation-spec> (specification)
- <https://github.com/jakartaee/validation> (API)
- <https://github.com/jakartaee/validation-tck> (TCK)

3.0.2/3.0.1

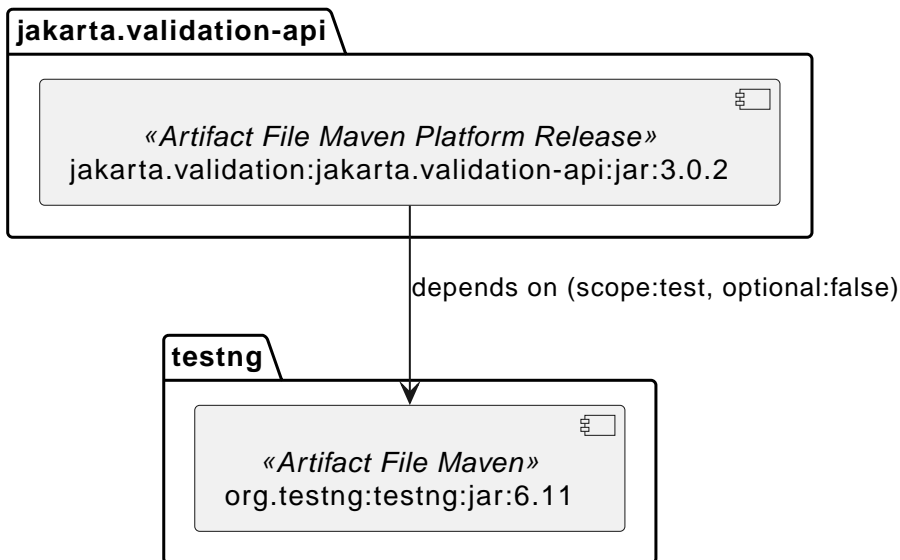


Figure 25. Jakarta Validation API 3.0.2 actual

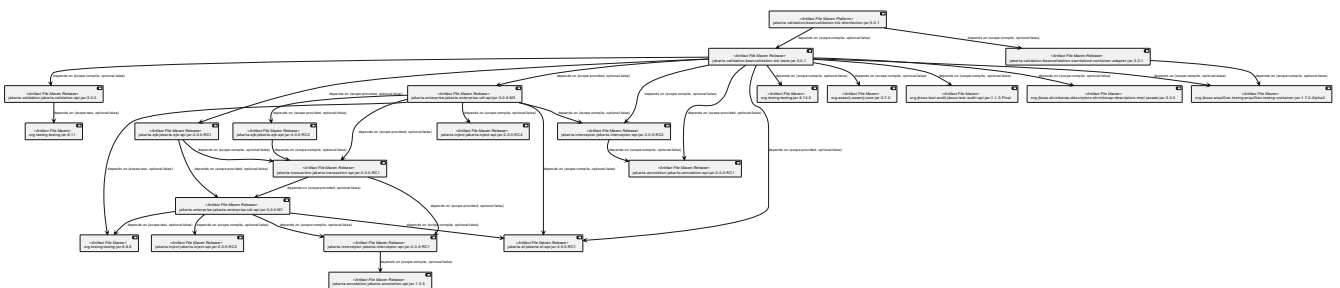


Figure 26. Jakarta Validation TCK Distribution 3.0.1 actual

Issues:

- TCK is out-dated

3.1.0

Issues:

- Plan Review

Chapter 3. MicroProfile

<https://microprofile.io>

Project: <https://projects.eclipse.org/projects/technology.microprofile>



MicroProfile is organized within one single Eclipse Foundation Project. The specifications using a Maven multi-module setup with a common parent as default.

3.1. MicroProfile Umbrella Specifications

3.1.1. MicroProfile (Platform)

Source: <https://github.com/eclipse/microprofile> (specification only)

6.0.0



Figure 27. MicroProfile POM 6.0.0 actual

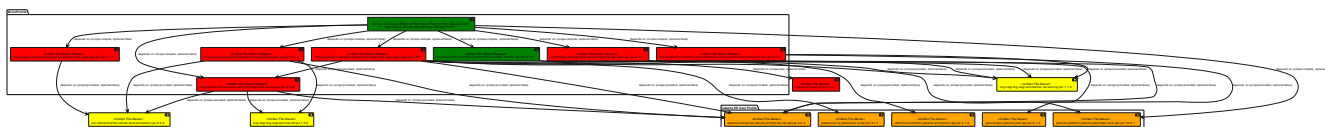


Figure 28. MicroProfile POM 6.0.1 target

TBD:

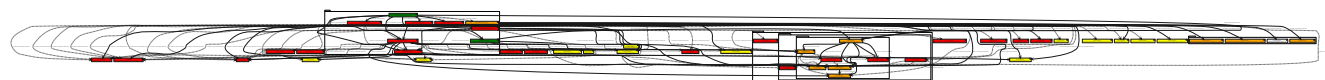


Figure 29. MicroProfile POM 6.0.1 target including TCK dependencies

3.2. MicroProfile Component Specifications

3.2.1. MicroProfile Config

Source: <https://github.com/eclipse/microprofile-config>

3.0.3

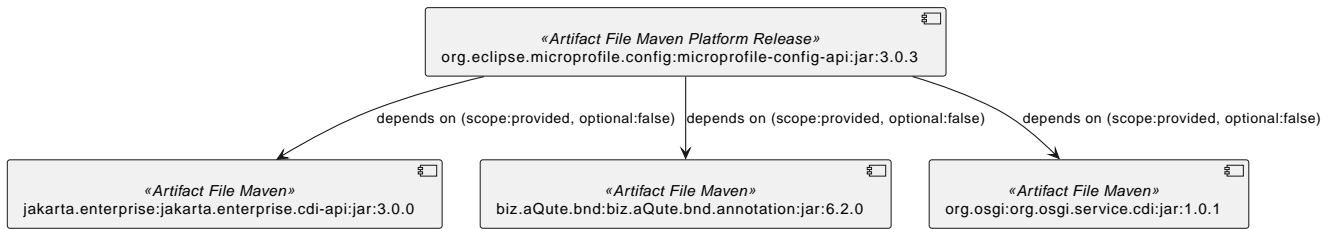


Figure 30. MicroProfile Config API 3.0.3 actual

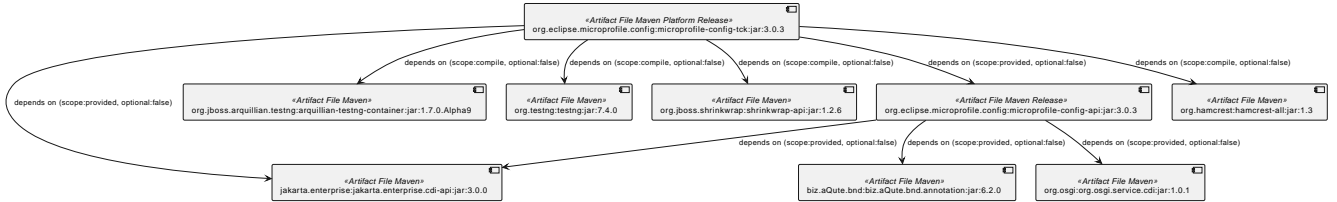


Figure 31. MicroProfile Config TCK 3.0.3 actual

Issues:

- TCK contains Jakarta CDI 3.0.0 (!) dependency to API additionally

3.2.2. MicroProfile Fault Tolerance

Source: <https://github.com/eclipse/microprofile-fault-tolerance>

4.0.2

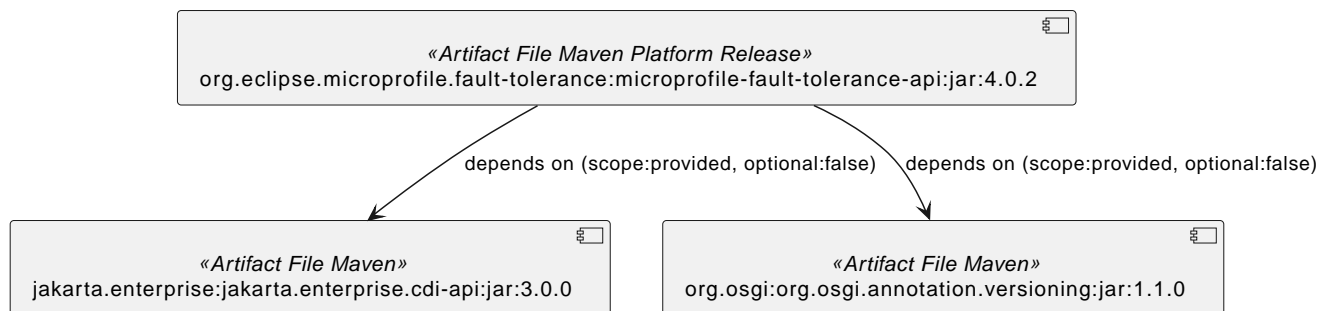


Figure 32. MicroProfile Fault Tolerance API 4.0.2 actual

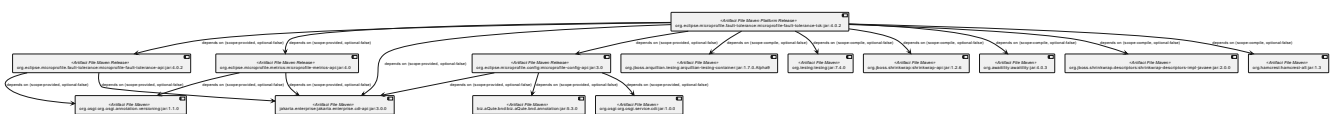


Figure 33. MicroProfile Fault Tolerance TCK 4.0.2 actual

Issues:

- API contains MP Config 3.0 (!) dependency
- TCK contains MP Config 3.0 (!) dependency
- TCK contains MP Metrics 4.0 (!) dependency
- TCK contains Jakarta CDI 3.0.0 (!) dependency to API additionally

3.2.3. MicroProfile Health

Source: <https://github.com/eclipse/microprofile-health>

4.0.1

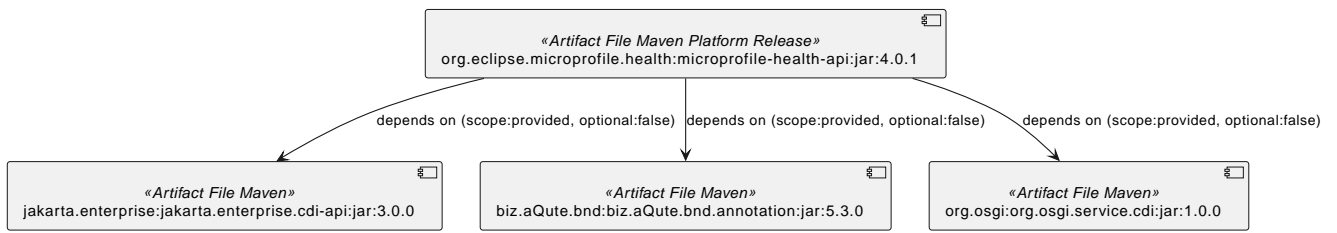


Figure 34. MicroProfile Health API 4.0.1 actual

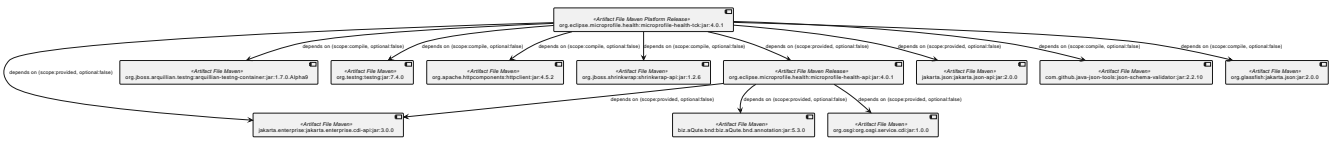


Figure 35. MicroProfile Health TCK 4.0.1 actual

Issues:

- TCK contains Jakarta CDI 3.0.0 (!) dependency to API additionally
- TCK contains Jakarta JSON 2.0.0 (!) dependency
- TCK contains Glasfish JSON implementation
- TCK contains outdated dependencies

3.2.4. MicroProfile JWT

Source: <https://github.com/eclipse/microprofile-jwt-auth>

2.1

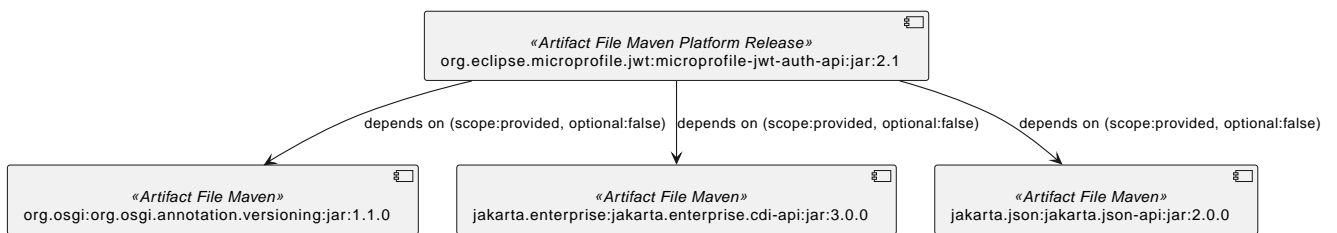


Figure 36. MicroProfile JWT API 2.1 actual

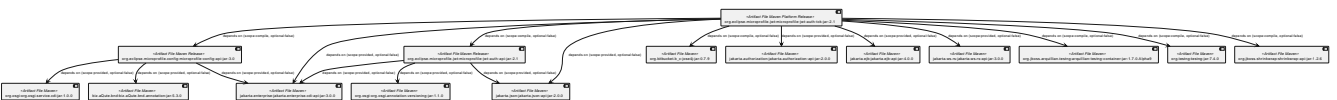


Figure 37. MicroProfile JWT TCK 2.1 actual

Issues:

- Spec needs name normalization
- TCK MP Config has compile dependency!

- TCK MP Config version is outdated
- TCK Jakarta EJB is not part of Jakarta Core Profile
- TCK Jakarta EJB version is outdated
- TCK contains Jakarta CDI 3.0.0 (!) dependency to API additionally
- TCK Jakarta REST version is outdated
- TCK contains Jakarta JSON 2.0.0 (!) dependency to API additionally
- TCK Jakarta REST version is outdated Non-semver versioning scheme

3.2.5. MicroProfile Metrics

Source: <https://github.com/eclipse/microprofile-metrics>

5.0.0

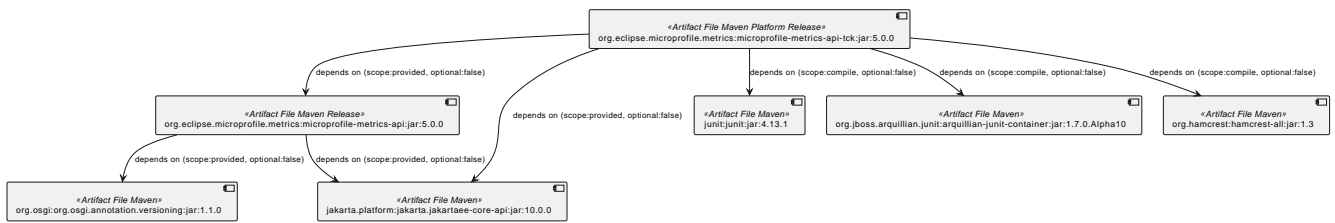


Figure 38. MicroProfile Metrics API 5.0.0 actual

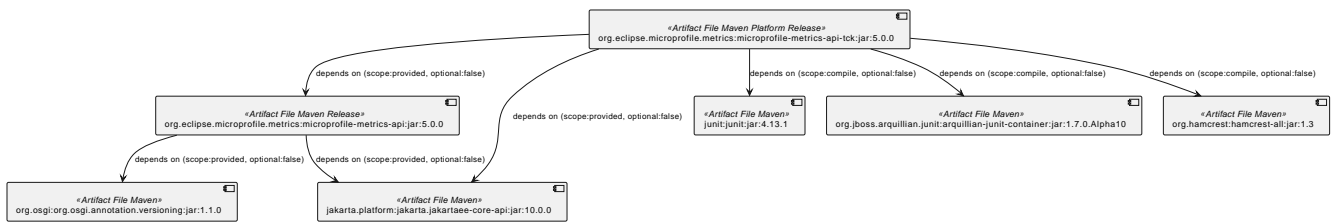


Figure 39. MicroProfile Metrics API TCK 5.0.0 actual

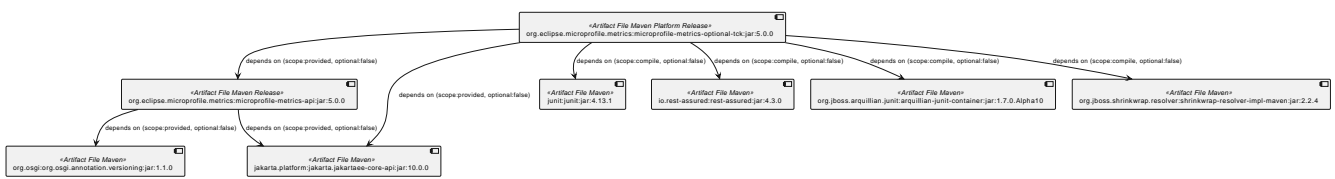


Figure 40. MicroProfile Metrics Optional TCK 5.0.0 actual

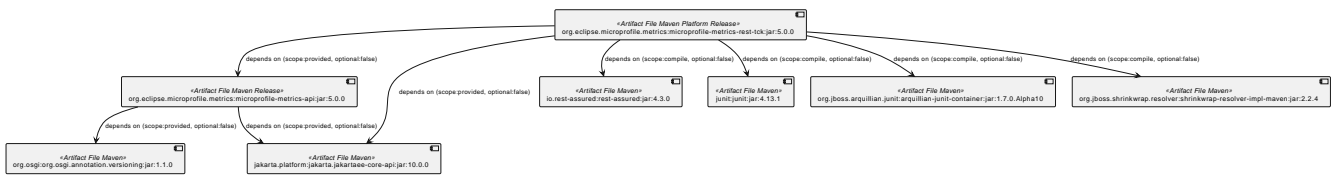


Figure 41. MicroProfile Metrics REST TCK 5.0.0 actual

Issues:

- API contains outdated dependency
- TCK contains Jakarta Core Profile 10.0.0 dependency to API additionally
- TCK contains outdated dependencies

3.2.6. MicroProfile REST Client

Source: <https://github.com/eclipse/microprofile-rest-client>

3.0.1

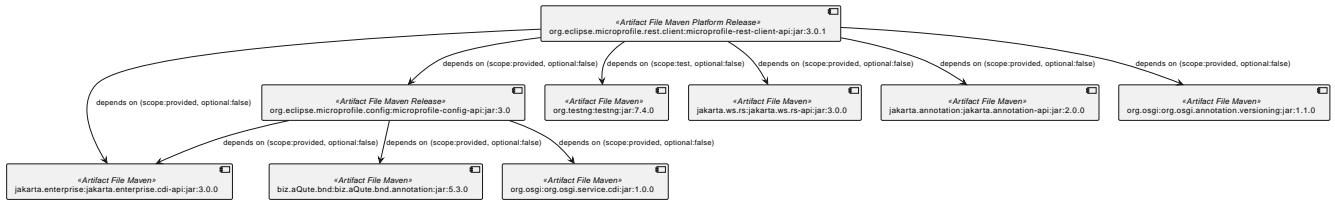


Figure 42. MicroProfile REST Client API 3.0.1 actual

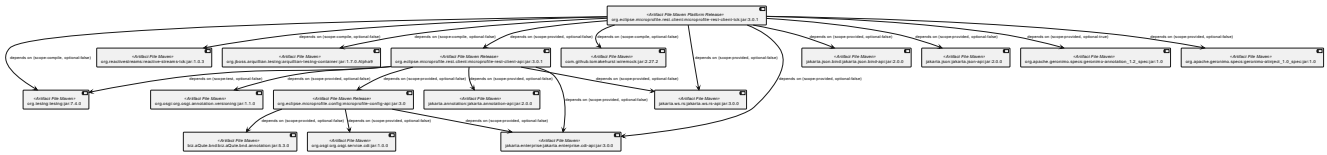


Figure 43. MicroProfile REST Client TCK 3.0.1 actual

Issues:

- API contains MP Config 3.0 (!) dependency
- API contains a lot of outdated dependencies
- TCK contains Jakarta CDI 3.0.0 (!) dependency to API additionally
- TCK contains Jakarta REST 3.0.0 (!) dependency to API additionally
- TCK contains Jakarta JSON Bind 2.0.0 (!) dependency
- TCK contains Jakarta JSON 2.0.0 (!) dependency
- TCK contains outdated implementation spec version Geronimo Annotation 1.2 additionally
- TCK contains outdated implementation spec version Geronimo AtInject 1.0 additionally

3.2.7. MicroProfile OpenAPI

Source: <https://github.com/eclipse/microprofile-open-api>

3.1

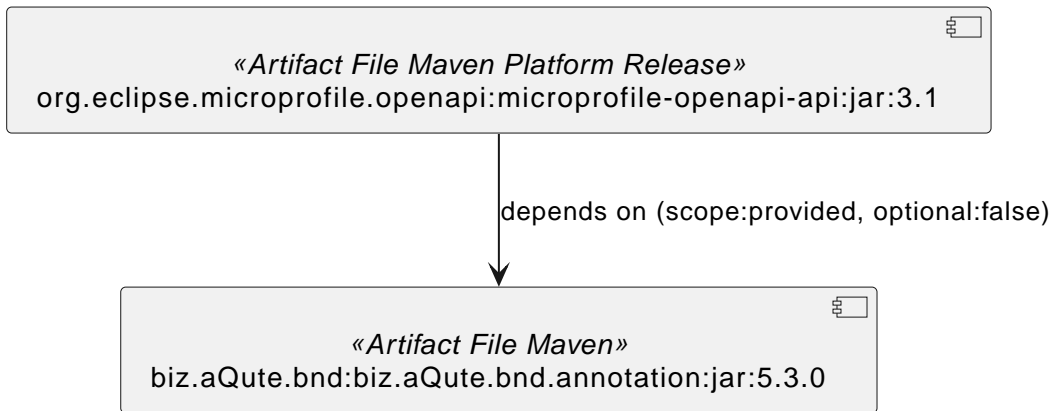


Figure 44. MicroProfile OpenAPI API 3.1 actual

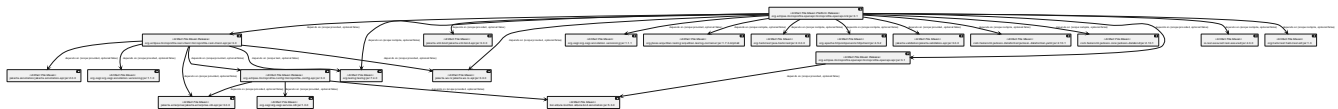


Figure 45. MicroProfile OpenAPI TCK 3.1 actual

Issues:

- TCK Java Hamcrest package must be replaced with it's successor Hamcrest
- TCK Jakarta Validation is not part of the Core Profile
- TCK Jakarta Validation version is outdated
- TCK Jakarta REST dependency version is outdated
- TCK MP REST Client version is outdated
- Jackson dependencies scope deviates
- TCK OSGi Annotation Versioning version is outdated
- TCK contains outdated dependencies

3.2.8. MicroProfile Telemetry (Tracing)

Source: <https://github.com/eclipse/microprofile-telemetry>

1.0.0



This specification has no API artifact (yet), as the API of OpenTelemetry is used directly.

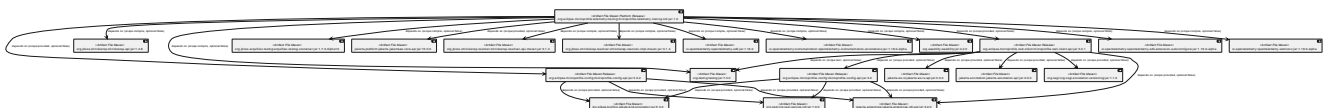


Figure 46. MicroProfile Telemetry Tracing TCK 1.0.0 actual

Issues:

- TCK contains compile dependencies to OpenTelemetry