

Life Cycle Management 101

An introduction to the LCM process
within the Catena-X data space

Released October 9, 2023
Released Version: 1.0



Why Life Cycle Management?

Effective management of versions and changes for Catena-X standards, KITS, and open source reference implementations is crucial to guarantee compatibility, interoperability and security especially in a decentralized data space. The Catena-X lifecycle management coordinates quarterly releases, including one major release and three minor releases per year.



Benefits

Quality Assurance through Consistency

The objective of life cycle management is to provide and maintain a consistent and compatible bundle of standards and corresponding open-source reference implementations for our stakeholders. This allows them to take advantage of new standardized features and regular security updates, serving aspects such as faster time-to-market and risk mitigation, quality-assured compatibility and dependency management, and better predictability for the adaptation and certification phase.

FUN FACT: The UNIX operating system was created in 1969 by Ken Thompson and Dennis Ritchie. UNIX was designed as a multiuser operating system and is regarded as the first experience of shared code.





Context

Standards & OSS Implementation

The life cycle management processes supported by the Catena-X Association facilitate the coordination, planning, scheduling, and control of two main artifacts as depicted in **Figure 1**:

- **Standards** and other **normative documents** in the Catena-X Association

- The Catena-X operating system (cxOS) including **open-source reference implementations** and **KITs** in the Eclipse Tractus-X project.

This approach ensures the applicability and compatibility of the Catena-X data space governance and operating system for all data space participants.

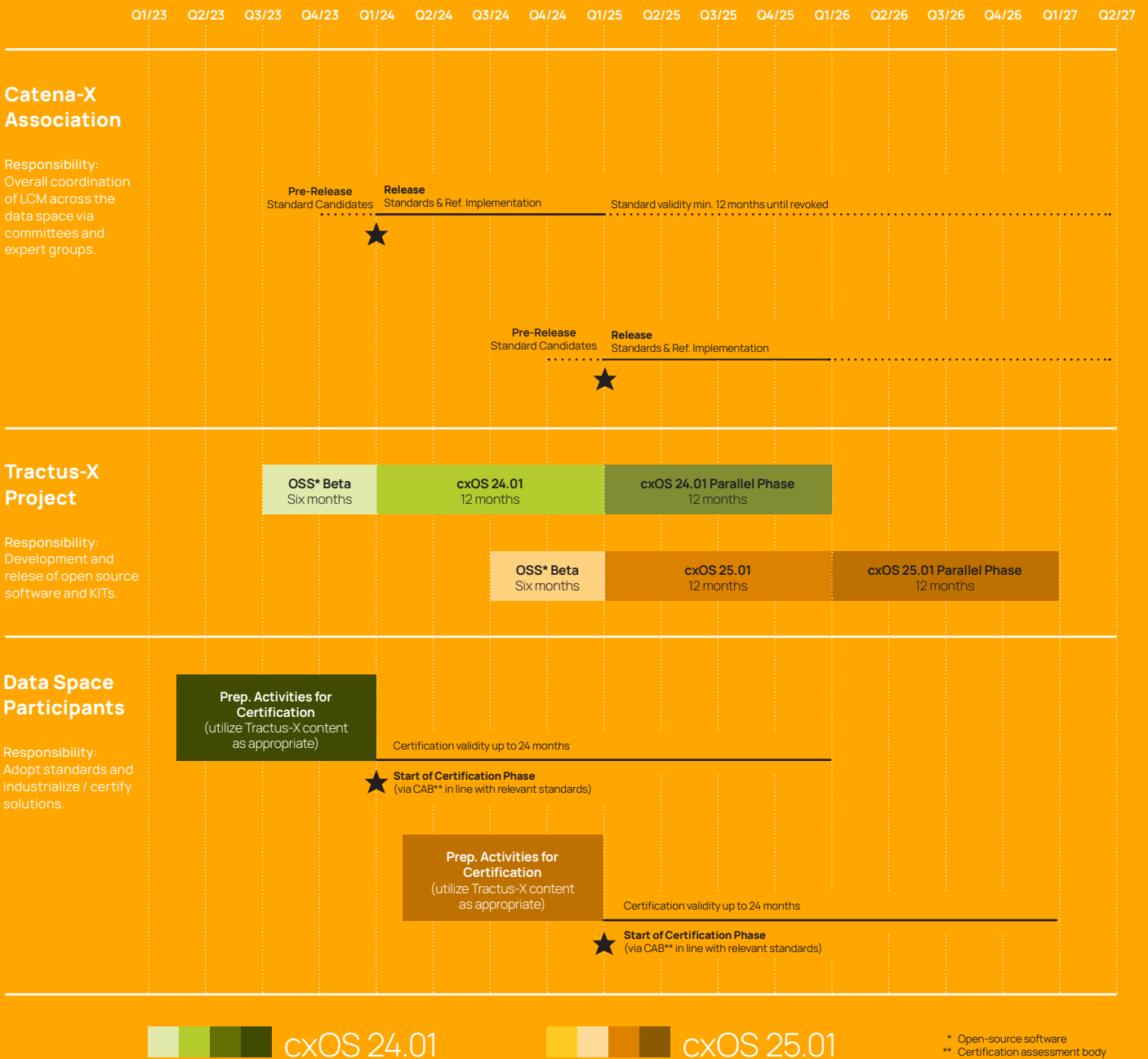


Figure 1 Exemplary Life Cycle Management Timeline.



Key Components

Certification & Releases

Catena-X standards including Certification Assessment Criteria (CAC) build the foundation for the certification of any component actively operating in the Catena-X data space. For basic functionalities, the **standards** are published at the same time as corresponding open-source reference implementations. Standard candidates will be published approximately three months in advance. For new and innovative functionality, **retrograde standardization** will also be possible. These standards are the binding reference to obtain a valid certificate.

To ease the adoption of the latest Catena-X standards, open-source reference implementations are provided via the Tractus-X project. The overarching Catena-X release cycle will consist of an annual major release and quarterly minor releases, following a calendar versioning scheme. A software release contains the operating system including core, enablement services, and KITs.

A **major release** may contain **critical breaking changes** that have a major impact on data space participants, such as changes to enablement services. A **minor release** contains backward compatible functionality. In addition, patch versions provide backward compatible bug and security fixes. The Tractus-X project has an overarching qualification process that all official quarterly Tractus-X releases adhere to. This process applies E2E activities

for testing and security (relevant release candidates in compound) that stakeholders can build on. Each component can be released on demand on a higher cadence.

There are also plans to provide a preview and beta version for open-source reference implementations 12 and six months in advance, respectively. Stakeholders can take note of beta release schedules throughout the year to review each version and prepare for any improvements.

Whenever new Catena-X standards are published or existing standards face a major up-revision, an adaptation phase for all affected software components is required by operating companies, solution providers, and data providers. The duration of the adaptation phase varies depending on the organization and component. Adaptation can be accelerated by utilizing the open-source reference implementations and KITs in Tractus-X, but this is not mandatory.

Certification validity starts with the official grant of the certificate, which is provided upon application via a Conformity Assessment Body (CAB) as shown in **Figure 1**. The CAB confirms compliance with all relevant Catena-X standards in the latest published version.

The Catena-X data space aims to support a parallel phase of two major versions (in this example 24.01 and 25.01) of 12 months to ensure a smooth upgrade process.

**Certification
validity
can be up to
24 months**





Roadmap

Upcoming Milestones

The Catena-X Association is responsible for the implementation of life cycle management in cooperation with the Eclipse Tractus-X project. Current releases are managed by the Catena-X Consortium.

Q3/2023

First pilot(s) testing the release process in Eclipse Tractus-X

Q3/2023

Establishment of support organization in the Catena-X Association

Q4/2023

Establishment of a special interest group for Release Management in Eclipse Tractus-X

Additional Resources

[CalVer](#) ↗

How to reference the past while upgrading to the future.

[Keep a Change Log](#) ↗

Find out what a change log is, who needs one, and how to make one.

[Eclipse Tractus-X](#) ↗

The official open-source project in the Catena-X ecosystem.

Catena-X Automotive Network e.V.
Reinhardtstr. 58, 10117 Berlin
Germany

Tel: +49. 030.5360.7799

E-Mail: info[[@](mailto:info@catena-x.net)]catena-x[.]net

Register of associations at the district court Berlin
(Charlottenburg) Nr D1537

Authorized representatives of the board:

Oliver Ganser (Chairman)

Prof Dr. Boris Otto (Vice Chairman)

Claus Cremers (Treasurer)