



## Release and Deployment Strategy (D4.1)

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# Introduction

This document describes the release and deployment strategy for Zenodo as part of the HORIZON-ZEN project. The main purpose is to ensure involvement of all relevant stakeholders, ensure the quality of the releases/deployments and manage associated risks.

See *D1.1 Project plan and monitoring framework*<sup>1</sup> for how features are planned and developed.

## Release process

Overall, the strategy is to release new features on Zenodo early and often in small incremental steps as well as using staged deployments, if possible, while ensuring all relevant stakeholders have been involved.

### Overview

Overall, the development of new features is conducted in three overlapping phases:

- Planning – requirements gathering and design of new features.
- Implementation – development and testing of the new features.
- Release – transition of the new features for use by stakeholders and users

Stakeholder and user feedback is integrated into every part of the process. See *D1.1 Project plan and monitoring framework* for the overall process. This document focuses solely on the last phase, i.e. the release of new features which have already been planned and implemented based on user feedback and according to quality criteria in the planning and implementation phase.

### Coordination and signoff

The HORIZON-ZEN **project coordination board** is responsible for coordinating releases between CERN and the EC.

Through the planning and implementation phases, the EC has been involved in the planning and implementation of the features (e.g., through demos/reviews/pilots) which follows the agreed upon project plan. Hence, the coordination for the releases focuses mainly as a final checkpoint to ensure all stakeholders are ready for the release.

The project coordination board meets monthly where the project manager presents a list of ready and larger features that CERN intends to deploy in production over a 2 months-horizon. Larger features will be deployed according to the release milestones in the project plan.

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<sup>1</sup> <https://doi.org/10.5281/zenodo.8099189>

### Post-Release support

All larger deployed features will have a 2-week *early life support* period, which may be extended if deemed necessary. *Early life* support involves closer monitoring of the operational systems, the support line and feedback from users. This ensures undetected issues can be addressed quickly if needed.

### Release criteria

New features are considered complete and ready to deploy when they've passed the following checklist:

- Impact assessment on users/stakeholders (required effort, training, availability, capacity).
- Reviewed for performance, security, data privacy.
- Documentation for users, supporters, and operators.
- Training of staff, stakeholders, and users if necessary.
- Dissemination plan for 1) announcement of intervention and 2) announcement of new feature.
- Rollback plan.
- Intervention schedule.

The utility of the new features must already have been determined through the initial planning and implementation phases through e.g. pilots, demonstrations, and user testing.

### Release scheduling

Interventions (e.g., deployments) are announced in advance depending on their estimated duration (based on tests performed on the QA system):

- <10 min: 1 week in advance.
- <30 min: 2 week in advance.
- >=30 min: 1 month in advance.

Interventions are performed early in the week (Mon-Wed) and during mornings (CET) to ensure availability of staff in case of incidents during the intervention. Exceptionally, interventions are performed outside normal working hours, if deemed necessary to minimize impact on users.

Announcements are posted as banners on Zenodo.org, broadcasted globally via Twitter, and sent via the HORIZON-ZEN project mailing list for the duration of the project.

# Deployment

## Systems

From a helicopter view, features and bug fixes go through the following systems:

- **Test** – Contains all developments merged to the main-branch and is for internal use only.
- **Quality assurance (sandbox)** – contains all developments merged to qa-branch (subset of main-branch) and is for external use (e.g. demos, API integration testing, training, etc).
- **Production** – contains all developments merged to prod-branch (subset of qa-branch) and is the live system behind zenodo.org.

The QA and production systems are normally identical except for the moments when new feature/bug fixes are deployed.

## Deployment types

Two types of deployments are performed on Zenodo.

- **Regular** – Regular deployments usually happen as part of a development iteration, and latest as part of the last iteration in the release. Regular deployments can be either:
  - **Incremental** – a full feature is deployed in small independent parts to the full set of Zenodo-users. The incremental feature is first deployed in test, then quality assurance, then production systems. Pilots with test users can be performed on both the test and quality assurance systems.
  - **Staged** – staged deployments are like incremental deployments, except that the feature is only enabled for a specific subset of Zenodo-users. This allows running pilots in the production system.
- **Emergency fix** – Emergency fixes to the code base (e.g., bugs, urgent security updates, etc.) may deployed immediately after all CI tests passes. Emergency fixes are normally applied first to the quality assurance system, and very exceptionally directly to the production system.

## Intervention types

Deployments are performed as part of an intervention. During an intervention, other operations may also be performed such as changes in the underlying infrastructure (e.g., database/system upgrades, VM migrations, security updates, etc.).

The following types of interventions exists:

- **Major intervention** (user visible): An intervention requiring downtime of zenodo.org or which deploys major changes or new features to end users.

- **Minor intervention** (user invisible): An intervention which is transparent to users.
- **Emergency intervention**: Any unscheduled and exceptional intervention to fix an urgent incident.

#### Deprecations/Breaking changes

All removal of features is subject to an independent impact assessment on users. We strive for backward compatible changes with an associated migration period of minimum 1 year.

#### InvenioRDM integration and release

All code, openly available in GitHub<sup>2</sup>, is by default integrated into InvenioRDM, unless the feature is highly Zenodo specific. Integrated code is released as regularly as alpha and beta releases of InvenioRDM. Final releases of InvenioRDM happens roughly once a year and is subject to the InvenioRDM release plan.

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<sup>2</sup><https://github.com/inveniosoftware>