

Release and Deployment Management

1. Purpose

This document describes the release and deployment management process at ECHA.

2. Scope

A release in this context refers to an approved set of changes that can require changes to existing or creation of new virtual assets, software, training, manuals, guidance documents and services. The scope of this document is to address how to plan, build, test and deploy a release.

The process starts by receiving an authorised change from change management process (see PRO-0024) or project management process (see PRO-0026 and PRO-0027) to plan, build, test and deploy a production-ready release package. The process ends after the release is supported in production, old services have been retired and assets decommissioned.

The process is dependent on the change management process or project management process for the approval at specific steps:

- Authorise the planning of a release
- Authorise the build and test of a release
- Authorise the deployment of a release to production
- Authorise the closure of the release and deployment management process

During the course of release and deployment management at least the following steps will take place:

- Identifying the affected services and configuration items and analysing the impact on them
- Defining when the process is finalised, who are the authorising parties for finalisation and what are the success criteria
- Scheduling release and deployment plans with business units
- Creating release packages for test and production
- Deploying the release packages
- Transferring knowledge to service operation and end users
- Keeping log of deviations and risks and managing them
- Retiring services and decommissioning assets

Linkage to ECHA Process System

L1. Activity:	15. Information and Communication Technology
L2. Process:	15.01 ICT Governance
L3. Sub-process:	N/A

3. Description

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ECHA's release and deployment management is based on good practices (ITIL v3). The process begins with a receipt of an authorised change from change management process or project management process for an initial release scope. In the first phase of the process the scope is analysed for feasibility, cost and impact to arrive to the final scope to be built. Releases are driven from business (PdM) and service needs (SM) and possibly restricted by implementation resources (development, ADSM, testing, operations) and budget. The final scope as well as the steps to deploy it into production have to be authorised by the initiating process.

The authorising entity will also nominate a Release Manager (RM) that will be in charge of the release. The required skill level as well as availability should be taken into account when nominating the RM. The default nomination is the SM of the service that is mostly affected by the release.

3.1. Release definition

A release is a set of changes approved by the project or change management process and typically divided into several release units forming a single release package. A release unit can be:

- Physical assets such as servers and network equipment
- Virtual assets such as virtual servers and appliances
- Applications and software
- Training for end users and IT staff
- Manuals and guidance documentation for end users
- Services

The figure 1 below describes the suggested approach for release units.

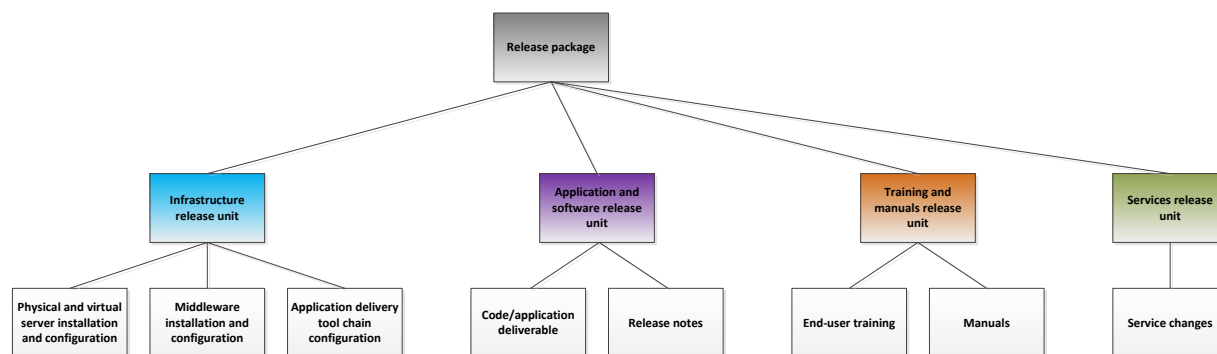


Figure 1: Release package

Whenever possible, the release units should be independent so that a release can take place even if some of the release units were dropped out or postponed during the process. Not all release packages have each of the proposed release units.

3.1.1. Infrastructure release unit

An infrastructure release unit contains at least one of the following:

- Setup and / or configuration of a physical or virtual server or virtual appliance with the proposed capacity (memory and virtual CPUs) and with the target operating system

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- Setup and / or configuration of a middleware component (web server, application server, database etc.)
- Configuration of the application delivery tool chain

If there are multiple services or products in the release scope, it is suggested to create a separate infrastructure release unit for each.

3.1.2. Application and software release unit

An application and software release unit contains one of the following (including the release notes):

- **Hotfix:** a hotfix typically fixes a single emergency issue, and is released as fast as possible after all necessary phases have been completed (for example, sufficient testing to prevent further problems and after industry communication has happened in case of visible downtime)
- **Patch:** patches typically fix a number of issues. Patches accumulate small changes over a period of time and are deployed periodically according to a predefined schedule.
- **Minor or major release:** minor or major releases typically introduce minor and / or major new functionality, functional improvements and fix existing issues.

If there are multiple products in the release scope, it is suggested to create a separate application and software release unit for each. Hotfixes or patches that do not require any other release units (changes to infrastructure etc.), can be handled as part of the change management process.

3.1.3. Training and manuals release unit

The training and manuals release unit contains at least one of the following:

- Training and manuals for end-users on how to use the application or service
- Training and manuals for support organisation on how to support the application or service

If there are multiple services or products in the release scope, it is suggested to create a separate training and manuals release unit for each.

3.1.4. Services release unit

The services release unit contains at least one of the following:

- Changes and updates to the service portfolio
- Changes and updates to the service cards and technical descriptions
- Changes and updates to PROs
- Configuration of the helpdesk tools

If there are multiple services in the release scope, it is suggested to create a separate services release unit for each.

3.2. Rolling application release unit plan

In order to facilitate planning, the PM or SM controls and maintains a detailed 18 month rolling release plan for application release units approved by the corresponding CAB or PB,

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showing always the releases that have been planned and / or committed for the next 18 months. The preliminary dates are communicated in the project release calendar for projects and service release calendar for maintenance releases. The approved release dates are added to the change management calendar. All of the above can be seen in a single dashboard (see ref 1).

In addition, the CAB or PB maintains a long-term release road map for the foreseen release needs beyond 18 months. The release needs in the road map will be clarified, planned and / or committed once they move to the 18 month rolling release plan. The release needs submitted to CAB or PB for the long-term release road map will have an advantage over conflicting release requirements of similar priority that were submitted later.

The target number of releases can vary from continuous delivery (several small incremental releases with short testing periods) to a single major release per year (with an extended testing period). The basic guideline is that the releases should take place in a predictable manner and at a frequency conciliating the need of the business and the resource constraints and efficiency of the process (e.g. quarterly).

3.3. Phases

Release and deployment management process is divided into four phases:

- release and deployment planning
- release build and test
- deployment
- review and close

At the end of each phase authorisation to move to the next phase is requested from the entity that authorised the release.

3.3.1. Release and deployment planning

This phase starts with the receipt of an authorised change to plan a release. The target scope of the release can be partially open at this stage and only after cost, impact and effort estimation the final scope is agreed. The target for the first phase can be e.g. to clearly investigate the impact of the release, to define the scope based on available budget, to define the scope based on available resources or to define the scope based on time boxed deliveries. In case of a partially open scope the changes should be adequately prioritised in the initial plan to form the final scope.

The planning phase should take into account all the criteria for the successful completion of the release. The main purpose is to provide a solid plan for the subsequent phases by identifying all necessary actors, required resources, costs and affected services. Identifying the pass/fail criteria for the final deployment should already be defined at this stage.

The first step is to analyse the impact of the release. The following four angles should be taken into account:

- Identifying the affected business services, stakeholders and end users
- Identifying the affected technical services
- Identifying the changes to application architectures
- Identifying the changes to technology architecture

The RM will identify the PMs, SMs and PdMs that need to be involved in the planning to evaluate the impact on services, stakeholders and end users. ADSMs will be involved for

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impact on the application architectures and the technology architecture and will consult the CTO when required. Capacity needs will be communicated to the capacity management process by the ADSM. If there is any technical impact on business continuity, resilience or availability levels, the ADSM shall trigger the IT-BCP Advisory Service. In case the business continuity requirements have changed the product manager shall trigger the IT-BCP Advisory Service.

Once the impact has been identified the release package will be defined containing the required release units.

The direct costs should be estimated by the RM by e.g. quoting the FTE-days required from external contractors, or direct fees resulting from resource requirements (capacity, licenses, etc.) for any of the phases. For release units involving external parties this planning is typically done together with the external party. ADSMs will provide the cost estimation regarding hosting services.

The plan for build and test phase should contain:

- The testing cycle of each release unit and dependencies between release units
- The environments that will be required to validate the release units
- Necessary configurations for support tools and application delivery tool chain
- The resources needed for providing the environments and necessary technical preparations for receiving the release, especially when infrastructure release units are included
- Capacity requirements for build and test phase
- The resources needed for service validation or quality assurance of the release package
- The timeline for each of the actions taking into account lead times and logistics

The plan for deployment should contain:

- The release cycle of each release unit and dependencies between release units taking into account ECHA internal deadlines, external commitments and legal deadlines
- Communication plan, documentation and training for end-users and IT staff
- Technical deployment actions
- Necessary configurations for support tools and application delivery tool chain
- Capacity requirements for production
- Rollback plan

The plan for review and close should contain:

- Organisation of the early support phase
- Criteria for closing the release process
- Retiring services and decommissioning assets

Finally RM will establish a risk list for the release and will maintain it throughout the phases. Optionally an existing risk list from the project can be updated and maintained.

Once the planning is completed the release and deployment plan is submitted to the project or change management process for approval before moving on to the next phase. In case the target of the first phase was also to finalise the scope this phase may be an iterative approach before the final scope and the related planning has been finalised. The plan is recorded as part of the PB or CAB meeting minutes.

3.3.2. Release build and test

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After receiving authorisation for build and test, this phase begins according to the plan from the previous phase.

The request for capacity needs to be an early step to prepare the testing and production environments in due time. When working with third parties, the contractor is typically providing the logical system architecture which can be used to build a plan for the required environments. In case of changes to application architecture or technology architecture, a system architecture review by the CTO is required before completing the build of environments. The ADSM will handle the capacity requests and CTO interaction.

In case of external software vendors a software delivery to ECHA will also take place in this phase. The software delivery also contains the deployment guides prepared according to ECHA guidelines (see ref 2) that will enable the installation and setup of the infrastructure and application and software release units. For external software deliveries the SM or PM will act as the contract manager handling the development project.

In case of an external hosting party, the ADSM will coordinate the necessary work with them.

All new environments, including production environments, will be built in this phase. Also the necessary configurations for the support tools and application delivery tool chain (see ref 3) are performed.

Once a release unit is available, it needs to go through service validation or quality assurance as specified in HAN-0014. Testing for each release unit is organised by either the PM or SM and handled by the Quality and Testing Manager (TM). Testing policy for each release unit defines the pass/fail criteria to conclude the testing. The service validation or quality assurance should also take into account the deployment readiness and quality of the release notes as well as integration testing. The PdM is actively involved and the SM has the final approval that the service is ready for production use.

In some cases a service rehearsal with stakeholders might be required before the deployment phase to verify the plans and catch any unexpected behaviour.

The project or change management process should be informed in case there are any deviations from the initial plan for this phase and the risk list should be kept continually up-to-date. If the release package has been successfully tested, the final step will be to request authorisation for deployment from the project or the change management process.

3.3.3. Deployment

The deployment phase is the transition of the release package to production. While the authorisation for the deployment has been received at this stage, the first step is to find a suitable slot for the go-live. The go-live scheduling is handled by the infra CAB and requested with an RFC (see ref 4). The infra CAB will make the decision on the go-live date balancing the requirements for all simultaneously requested deployment activities. The infra CAB will target to grant the requested go-live date whenever feasible.

Depending on the release the deployment can be a staged approach where release units are deployed at different times or a big bang approach where all the release units are released together. Pilot users can also be considered so that the release package or release unit is only made available to a small set of representative end-users before the final deployment to all end-users.

Before deployment is started the final checks will be made:

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- Reviewing the risk list from previous phases and possible additions due to unforeseen circumstances, late changes etc.
- Assessing that the necessary capacity and licenses have been requested and exist
- Reviewing that the service portfolio, ticketing system, business continuity plans and knowledge transfer activities are ready for the deployment
- Reviewing the communication plan and ensuring the stakeholders and end-users are informed of the upcoming change
- Reviewing the rollback plan
- Ensuring that the release package is stored in a definite media library or versioning system

Once everything is ready the deployment can start according to the agreed timeframe. In the deployment phase following the deployment plan:

- The necessary materials and processes are deployed and released (applications, documentation, ticketing system changes, communication etc.)
- The success of the deployment is tested and verified according to acceptance criteria
- Immediate feedback is gathered from main stakeholders

Some release units can be made available in a pull mode (e.g. desktop software installation) so that it is available to the end users, but they will decide when to actuate the change. For others the release will always be in push mode (e.g. new version of a web application) where the users cannot decide when the change will be effective.

After the deployment the infra CAB is informed of the outcome as well as the initial authorising body. For successful releases the final phase will now start with early life support of the release.

In case of issues the authorising body and the infra CAB are informed and the authorising body will decide whether to postpone or abandon the release. If authorisation for postponing the release is received, the reasons for failure are analysed, plans modified and another go-live date is requested from the infra CAB.

3.3.4. Review and close

This is the final phase before transitioning to normal service. Depending on the scope of the release this stage can vary from a few hours to a few weeks.

All the necessary documentation needs be finalised, transition activities need be closed, the known errors and workarounds need to be documented and accepted, old services need to be retired and assets decommissioned. Before closing the phase also feedback and lessons learned are collected and fed to the continual improvement process.

During early life support the affected systems are monitored more closely for incidents and unexpected behaviour by the SM liaising closely with the PdM and ADSM. Also more helpdesk tickets can be expected and should be addressed accordingly. Based on pre-defined criteria the closure can only be requested when the criteria is met (e.g. number of tickets has decreased to normal).

Concurrent to the early life support is the service retirement of old services and decommissioning of servers, application environments, applications, licenses etc. that are no longer needed.

Once the early support criteria are met and the service retirement and assets decommissioning are completed, the closure of the review and close phase is requested

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from the project or change management process. Once the request is accepted the release management process will end.

3.4. RACI matrix

The responsibilities in each phase are detailed as a RACI-matrix.

R = Responsible (responsible for executing the task)

A = Approval (give approval before task is executed)

C = Consult (two-way flow of information – iterative feedback)

I = Inform (one-way flow of information – no need for feedback)

SM should be interpreted as the business service manager and ADSM as ADSM or technical service manager.

Task	PM	SM	PdM	TM	RM	ADSM
Phase I						
Affected end-user services	C	C	C	I	R	I
Affected technical services				I	I	R
Changes to application architecture		C			I	R
Changes to technology architecture		I			I	R
Impact on capacity					I	R
Business impact on BCP	C	C	R		C	C
Technical impact on BCP	C	C	C		C	R
Infrastructure release unit definition					I	R
Application and software release unit definition					I	R
Training and manuals release unit definition	I	I	R		I	
Services release unit definition	R	R	I		I	
Cost estimation	C	C			R	C

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Task	PM	SM	PdM	TM	RM	ADSM
Plan phase II	C	C	C	C	R	C
Plan phase III	C	C	C		R	C
Plan phase IV	C	C	C		R	C
Establish risk list	C	C	C	C	R	C
Phase II						
Initiate system architecture review					I	R
Request planned capacity					I	R
Align software deliveries with ECHA guidelines	R	R			I	C
Development contract management	R	R			I	
Hosting services contract management		I			I	R
Support tools configuration		C			R	C
Application delivery tool chain configuration					I	R
Prepare environments				I	I	R
Service validation	I	A	C	R	I	I
Review risk list					R	
Phase III						
Prepare RFC		C			C	R
Review risk list					R	
Execute communication plan		I	R		C	I
Support tools configuration		C			R	C

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Task	PM	SM	PdM	TM	RM	ADSM
Infrastructure release unit deployment					I	R
Application and software release unit deployment					I	R
Training and manuals release unit deployment		I	R		I	
Services release unit deployment		R	I		I	
Service validation		R	C		I	C
Rollback		C	C		R	C
Phase IV						
Early life support		R	C		I	C
Retire services and decommission assets		C	C		R	C
Assess the closure criteria		C	I		R	C
Lessons learned	C	C	C	C	R	C

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4. Flowchart

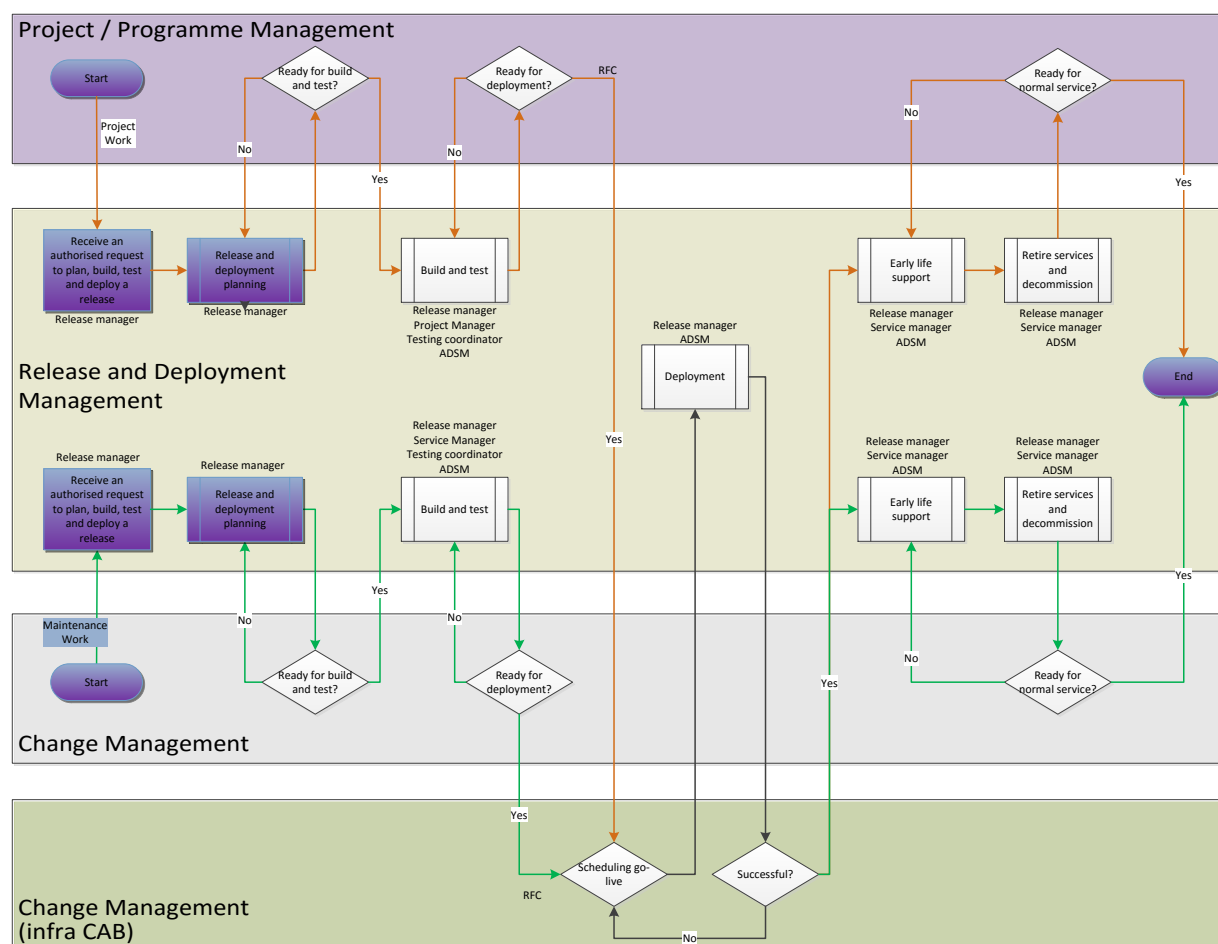


Figure 2: Release and deployment management process

5. Definitions

Term or abbreviation	Definition
ADSM	Application Delivery Service Manager
CAB	Change Advisory Board is a body that pre-approves standard changes and approves normal changes
CTO	Chief Technology Officer
ITIL	Information Technology Infrastructure Library
PB	Project Board
PdM	Product Manager

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Term or abbreviation	Definition
PM	Project Manager
RFC	Request For Change
RM	Release Manager
SM	Service Manager
TM	Quality and Testing Manager

6. References

Associated document code	Document name
Ref 1	Calendar dashboard
Ref 2	ECHA technical guidelines for contractors
Ref 3	Application delivery service model
Ref 4	Request for change

IQMS document code	Document name
HAN-0014	ICT Software Testing Handbook
PLA-0015	IT BCP - IT continuity Technical Preparedness Plan
PRO-0024	ICT Change Management
PRO-0026	ICT Governance bodies, roles and description
PRO-0027	ICT Governance and Process Description
PRO-0030	ICT Communication
PRO-0031	ICT Service Definition
PRO-0058	IT Product Management

7. Records

No	Record name
1	RFC (Request For Change)

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No	Record name
2	CAB or PB meeting minutes

No	Record owner	Storage location	Security level	Comments
1	CAB or PB	Service, Project or Product filing plan as appropriate	Internal	
2	CAB or PB	Service, Project or Product filing plan as appropriate	Internal	

8. Annexes

n/a

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9. Change history

Revision	Changed section	Change description	Date
1	-	Initial document	26/02/2015
2	All	Updated after first discussion	18/03/2015
3	All	Updated after service forum discussion	10/04/2015
4	All	Updated to address comments	14/04/2015
5	RACI matrix	Updated with outsourced application services	26/05/2015
6	All	Aligned the text with the RACI changes	28/05/2015
7	All	Updated after discussion with SharePoint and Dissemination	10/06/2015
8	RACI matrix	Modified RACI	11/06/2015
9	RFC	Added link to infra CAB RFC	12/06/2015
10	RACI matrix	Added release package definitions in the RACI	26/06/2015
11	All	Responded to comments	25/09/2015