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31.01.2007	1.0.0	AUTOSAR Administration	Initial release

Release Notes

Errata and known deficiencies

All modifications planned in the scope of Release 2.1 for the incorporation into this document are completed. The document, however, has not yet undergone the necessary finalization.

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Table of Contents

Table of figures

1 Introduction

The goal of this document is to define the process by which the successive releases of the AUTOSAR standard are managed. The Release Management Process is part of the maintenance process of the standard.

Many successive releases will be issued during the AUTOSAR standard lifetime (see [2] section 1.2). The release management is fundamental to ensure the standard usability and acceptance.

The main target of the Release Management is to take properly into account the changes handled by the maintenance process, as to secure the required flexibility for improvement, while keeping the consistency of the standard and judiciously introducing the new releases to the AUTOSAR users.

1.1 Scope of this document

This document defines the release management policy (strategy), which is the basis for the release process, including the related roles and responsibilities. It also defines the basis for the communication policy.

1.2 Basic remarks

Notes:

- In this document the term product is used to denote all items of AUTOSAR that are subject to maintenance, like documents (requirements, process definitions, specifications, test specifications etc.), templates, prototype implementations, etc.
- This document refers to releases as either *valid* or *obsolete*. *Valid* releases relate to releases that are under maintenance from AUTOSAR, whereas *obsolete* releases are not.
- Changes of AUTOSAR products refer to RfCs as described in the Change Management Process ([1]).

Furthermore:

- The Release Policy ensures and controls improvements for the standard.
- The Release Management Process is held consistently with the Change Management Process. ([1])
- The Release Management Process is a continuous process and shall be put in place with the first release for the purpose of commercial exploitation.
- The Release Management Process implements the release policy.

1.3 Links to Related Documents

[1] Definition of Change Management Process
https://svn.autosar.org/repos/10Releases/
AUTOSAR_DS_ChangeManagementProcess.pdf

[2] Requirements on Standard Maintenance
https://svn.autosar.org/repos/10Releases/
AUTOSAR_RS_StandardMaintenance.pdf

[3] AUTOSAR Glossary
https://svn.autosar.org/repos/10Releases/
AUTOSAR_Glossary.pdf

[4] Definition of Change Management Process
https://svn.autosar.org/repos/10Releases/
AUTOSAR_DS_ChangeManagementProcess.pdf

2 AUTOSAR Release Policy

The main goal of the Release Management Policy is to balance between innovation/improvement and stability of the standard.

The release and compatibility policies have to be determined by the AUTOSAR members and stakeholders. This has to be done on a regular basis to ensure the overall release planning and considered as strategic guidance.

2.1 Major objectives

The AUTOSAR standard shall be kept reliable for each of the successive releases. Therefore it is required that each new version is sufficiently validated before being released, e.g. by experts reviewing major changes in the concepts, this including all newly integrated concepts and functions (error corrections excluded).

This shall be combined with the related update of the Conformance Test Specifications. Consequently, in consideration of risk mitigation, both release and change management shall stay closely connected to the ongoing implementation.

The AUTOSAR release policy is established in order to ensure the stability and consistency of the standard itself. It is important to avoid side impacts to existing functionalities by newly introduced concepts and functions. The Standard Specifications and the Conformance Test Specifications have to handle this appropriately. Therefore the modification of existing Conformance Test Specification parts for unchanged standard functions can be necessary.

A standard without sufficient user's acceptance is worthless. The release policy has to consider this. The above mentioned reliability, stability and consistency increase the trust in the standard as well as the transparency about the future changes and concepts. The planned conceptual changes and extensions within the standard shall be announced right in time. In combination with a given release schedule, the users can appropriately take into account the future functionalities.

Conformance Test Specifications are part of a release and therefore shall be kept up-to-date with the other specifications.

2.2 General rules

In general, an AUTOSAR release is a collection of specification documents, each one being in a specific version (baseline). A new release originates from the previous one, extending, improving and modifying it.

Two levels of release shall be considered:

- **Minor Release (Update) :** update of a given release, no new major features introduced. An update will mainly introduce corrections, improvements and patches for severe errors. An update must stay compatible to the previous release from a functional & interface point of view.
- **Major Release (Upgrade) :** scheduled and announced long before, an upgrade release is assumed to contain substantial enhancements like new major features. An upgrade may introduce functional & interface changes.

Each release must also be provided with :

- **Release Note**: This note contains useful information regarding the included changes and new modified features. It also contains a statement mentioning the product areas for which Conformance Test specifications are available as part of this release. A link to the errata sheet is also provided.
- **Errata Sheet:** This sheet (preferably online document) is updated timely with relevant information from issues coming from the Change Management:
  - issue description (including a link to the relevant RfC)
  - workarounds
  - impacts, severity and probability of occurrence
  - effect on the conformance testing

  The issues listed in the errata sheet are normally intended to be fixed within the next update/upgrade release.

A release frequency must be defined for both upgrades and updates.

In order to keep the standard as stable as possible, a release frequency of approximately once a year is suggested for upgrades. This is to be understood as a maximum frequency, which however could be subject to further adjustment when the Release Process is running[1].

Extraordinary releases are allowed in discussion with Change Management (e.g. if the severity of an RfC makes this necessary).

Updates can occur at a higher frequency of 2 to 4 times a year.

[1] The need of OEMs and suppliers for reasonably frequent opportunities to add, modify or correct products must be considered.

Figure 1 – Standard lifecycle

The update/upgrade frequencies can vary over time: assumed to be higher at the beginning, then decreasing over time.

The release planning shall consider effort estimation, impacts to the standard, and dependencies to other products as well as RfCs waiting for implementation.

The release communication process is intended to provide the users of the standard with relevant information about future releases and updates. This includes the announcement of all scheduled releases and updates and detailed information about the changes introduced (see chapter 5).

As the release and the change management process depend on each other, they need to be coordinated.

2.3 Compatibility Policy

Major objectives:

- backward compatibility shall not be hindered without need.
- new functions and interfaces should be conformant to the existing standard
- break of compatibility is limited to upgrade releases

Supporting prerequisites (delivered by the Change Management) [1]:

- if a modification (RfC) causes incompatibility to the existing standard, this must be reasoned explicitly by the CCB (technical rationale)
- each accepted RfC must include compatibility information (by the CM or CCB)
- each break of compatibility must be accompanied with a migration support for all affected parts.
- the additional efforts for the required modifications due to an introduced incompatibility should be estimated case-by-case (a job of the change management) and globally per release (a job of the release management).

3 Release Management – Roles and Responsibilities

It is important for the success of AUTOSAR that the release management is kept understandable by the standard's users. This is to ensure the long term acceptance of the AUTOSAR standard.

Therefore, the roles and responsibilities of the Release Management Process are to be set up so that they define an efficient working procedure. Accordingly, a lean organizational structure will be helpful especially for consensus finding for unscheduled releases.

It is very important:

- to find the right balance between release frequency and living changes within the AUTOSAR standard.
- that the compatibility with former and future releases (update or upgrade) is properly dealt with.
- that the communication and rationale of new releases (and also the underlying release strategy) is broadly accepted
- that future releases, including their new features, are planned ahead in time.

3.1 Description of Roles and Responsibilities

The following sections describe the responsibilities for the different roles involved in the Release Management Process.

3.1.1 Release Manager

The Release Manager makes the release policy live. He is involved in the decision process regarding the features to be included in the next releases, supported by Change Management (technical issues) [1].

The major responsibilities and tasks of the Release Manager are:

- supplying relevant information for all releases (to the users, to the accredited companies for the purpose of synchronization of CTS).
- keeping the communication policy
- owning the release management process
- managing the compatibility issues
- handling all administrative and logistic tasks for the next releases
- managing the long term release strategy
- deciding about obsolescence of releases (with CCB)
- listing products which in full or partly are marked as deprecated or "not supported in future releases", within the release note, for example to enable migration processes within companies. This has to be decided by the Release Manager together with the CCB due to strategic planning

The Release Manager and Change Manager shall be different persons.

An interface to the Change Management is assumed implicitly (with the Release Manager being a member of the CCB).

3.1.2 Change Manager

The Change Manager is fully involved in the release management. He gives important input for changes or new features. He also provides important technical information about feasibility, compatibility and other technical risks.

The major responsibilities and tasks of the Change Manager in the Release Management (according to the Change Management Process Definition[1]) are:

- checking and ensuring feasibility issues
- providing requirements and suggestions for future releases to the Release Manager
- supporting the Release Manager on all topics regarding the compatibility issues for the new release

3.1.3 Change Control Board

The major responsibilities and tasks of the CCB regarding the Release Management Process are:

- assigning accepted RfCs to releases
  - managing the release content (choice of included RfCs)
  - ensuring that a release version is decided for each accepted RfC
- providing the Release Manager with all accepted RfCs (status “reviewed”) (for further details refer to [1]) and information about dependencies between RfCs

More details for the CCB can be found in [1].

Note: If the release in preparation is postponed, this may also result in a delaying of the following releases, including all their new features.

3.2 Possible Organization diagram

Refer to the following figure for a possible organization diagram within the release management process.

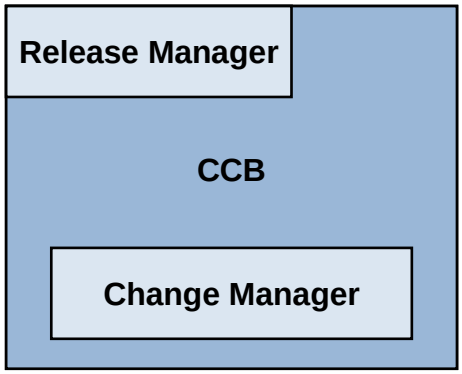

Figure 2 – Relationship of the Release Manager to the CCB

The Release Manager, although being part of the CCB, is also independent to the Change Manager.

4 Release Management – Process

This chapter gives guidelines for an efficient release management process. They are intended to help the involved parties dealing with the possible scenarios and conditions which give reason for actions (decision for unplanned release, drop or delay scheduled releases). These guidelines are defined in the following sections.

The standard is meant to mature over time (with each release): it is expected that the amount of changes will settle after several cycles. Consequently the process is expected to be flexible enough to cover all maintenance phases.

General objectives of the release management process are:

- to provide valid and updated releases
- to control the frequency and diversity of releases
- to control and document differences of releases
- to support efficiently standard improvements
- to control and handle obsolete releases
- to provide information for release communication

The following figure shows the Release Management in the context of the overall information flow.

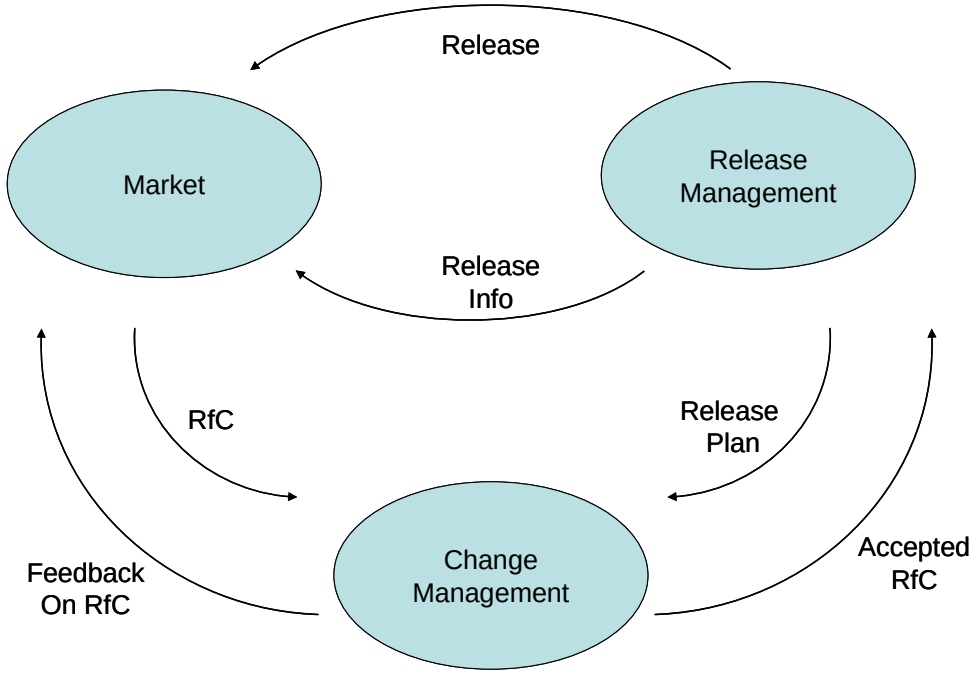

Figure 3 – Context of the Release Management and information flow

4.1 Release handling

A release numbering system shall be implemented, it must provide further information about major (upgrade) and minor (update) level.

4.1.1 Numbering scheme

The numbering scheme shall be applied according to AUTOSAR definitions (2 digits for the release itself, 3 digits for components: see [4]).

An AUTOSAR release is issued with a global release number. This release contains a set of AUTOSAR products (specifications, tests, ...), each with its individual release number. A release is only complete together with the latest version of errata sheet for that release.

AUTOSAR Release Number	***1.0***	***2.0***	***2.1***
OS Version Number	1.1.1	2.0.0	2.0.0
COM Version Number	1.7.2	2.0.0	2.2.1
RTE Version Number	1.4.1	2.0.0	2.1.0

Major release number is incremented from an initial value of 1 for each upgrade of the standard, while Minor release number is incremented for each update of the standard, according to the definitions of upgrade and update given chapter 2.2. The minor release number is reset to 0 each time the major one is incremented.

Notes:

- The first digit of the version number of the individual documents shall correspond to the first digit of the release number of an AUTOSAR release.
- On the minor level, the AUTOSAR release number and the version numbers of the products are not necessarily incremented at the same rate.
- If changes to all SW products occur at minor level only, the AUTOSAR release number shall only change in the minor level, too. The same rule applies to the major release number.
- The errata sheet is identified by an incremental number and a date in format yyyyy-mm-dd (e.g. *errata-17-2005-09-28*)

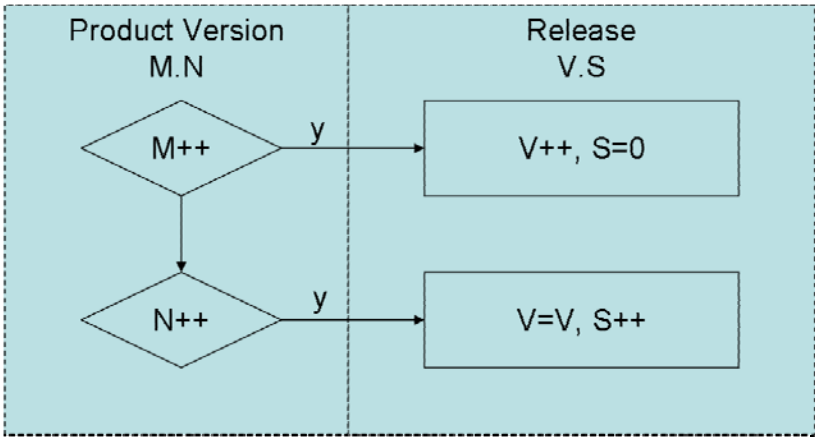

Figure 4 – Release numbering algorithm

(M.N and V.S are placeholders for major.minor version number)

4.1.2 Release validity

4.1.2.1 Release states

During the standard lifetime, the AUTOSAR organization will produce a sequence of releases.

Every new specification release is intrinsically valid, which means it is suitable for proper implementation. By the emerge of new major releases or hot-fix updates, former releases may become obsolete after a delay to be defined by the Release Manager, that should not be less than one year. Therefore the Release Manager shall provide and maintain a list of valid and obsolete AUTOSAR releases.

The lifecycle of a release is covered by three successive steps, according to the following attributes:

- **CURRENT**: the latest release. The *current* release is always valid
- **VALID**: the former releases under maintenance, with support (RfCs)
- **OBSOLETE**: the former releases for which no more maintenance is provided

Notes:

- Former releases do not automatically become obsolete when a new release is issued (e.g. release of version 3.0 as a direct successor of version 2.7 does not make version 2.7 obsolete). Therefore, several valid AUTOSAR standards in parallel are allowed.
- It is possible, that the validity of an AUTOSAR release is constrained either when the release is presented or during its lifetime.
- There is no *invalid* attribute used for the releases (i.e. former releases never become invalid).

- The CCB (with approval of the Management Board for major releases) decides when a release becomes obsolete.
- In order to limit the amount of releases to be maintained, the number of valid AUTOSAR releases shall be restrained.
- If a release has to be withdrawn due to major flaws, the release will be set to *obsolete*. Information will be provided according to 5.1.1.

4.1.2.2 Release obsolescence

A release under maintenance (i.e. not obsolete) can be modified through RfCs according to the change management process. An obsolete release will not be further maintained.

Releases become obsolete to reduce the maintenance load. Obsolescence can be decided according to either major flaws (requiring to use a newer one) or lack of demand (old release).

4.1.3 Release distribution control

Releases will be made available electronically so that authorized users of the AUTOSAR standard can download any release.

Currently there is no release distribution control or usage tracking within AUTOSAR (although there may be in future).

4.1.4 Releases archiving

In order to allow the AUTOSAR users to recover old versions of documents, the old releases shall be archived and be available.

This is up to the release manager to ensure the correct archiving of the former releases.

4.2 Release Planning

Releases have to be scheduled according to section 2.2. Releases can also occur with regards to the current RfC situation / load. The release planning must take into account the number of RfCs accepted for integration and their priority.

All releases (upcoming changes) have to be communicated in advance. This is reasoned by:

- the communication policy (schedule and content) enables the AUTOSAR users to prepare (refer to chapter 5 for details)
- the provided vision of further development (at minimum the next two release steps should be announced in advance → roadmap)

In order to balance pre-release information and improvement process, there is a need for a deadline regarding the inclusion of RfCs in status “implemented”, or beyond, to a release. This deadline prior to the release date shall be defined by the release manager (typically 3 months). RfCs that are accepted after this deadline are not considered for the release. Critical issues inclusion may however be decided by the release management board after this deadline.

4.3 Deviations

Generally, AUTOSAR development is focused on improving the current release and thus preparing the next release.

Outside the AUTOSAR development process, the need for proprietary deviations from a standard release may occur (for example for migration scenarios agreed by the AUTOSAR partnership). It could be of some interest to consider the integration of such deviations within the standard. Such a case shall be processed through the standard Change Management Process [1] (using RfCs).

Notes:

- a deviation is not an official AUTOSAR release
- an implementation of a deviation will not get the AUTOSAR trademark

4.4 Differentiation of Change- and Release Management

Major points:

- The Change Management (CM) is mainly focused on individual RfC level, the Release Management (RM) considers the global view including the scheduling at release level (rounding it up) [1]
- CM and RM work closely together, the CCB is assisting
- The Change Management (Change Manager and CCB) provides a list of ACCEPTED RfCs (which are to be implemented), including impact analysis information. The RM proposes an RfC assignment to releases in discussion with the CM

5 Communication Policy

The Release Manager is in charge of the communication policy.

The communication policy considers two groups of stakeholders:

- The AUTOSAR community
- The general public

The communication policy mainly focuses on the AUTOSAR community. It also targets the general public to attract new users and raise awareness of AUTOSAR existence.

The communication policy is defined to ensure that all users of AUTOSAR have access to all relevant information regarding the planning of releases of the standard. The information shall cover pending and announced releases, dates for change windows and planned dates for coming standard releases.

The intention of the AUTOSAR communication policy is to provide information to all members on the one hand and to provide a platform for feedback at the same time. This also covers a list of known bugs and descriptions for workarounds.

The fact that AUTOSAR is an open standard requires that members shall have the opportunity to have access to pre-release information enabling them to review, check and comment on all items subject to future releases.

All information is based on changes handled as RfCs. The release naming scheme shall support the connection between RfCs and certain releases (so each release can be connected to all RfCs contained therein).

5.1 Communication to the AUTOSAR Community

The general principles of the communication policy are:

- The communication shall keep the AUTOSAR members well informed in time and at all time.
- The AUTOSAR communication is an offer (the user has to subscribe to a list, in order to receive release information)
- All release information is for broadcast distribution and not tailored for individual purpose.

There are three possible ways of communication:

- The AUTOSAR website (for members only) providing information on everything concerning AUTOSAR. This website has to contain a section for release information.
- A system of several mailing lists to opt in:
    - Each member is responsible for subscription to the relevant lists for the individual demand[2].

[2] This bears the risk of an e-mail overload to the subscriber

    - a proper classification of product areas in distinct lists is necessary (e.g. BSW, tools, …).
- A platform for discussion (like “newsgroups”), supported and moderated by AUTOSAR.

The members will not be provided with any information about an RfC and its implementation within the next releases unless the RfC has been accepted.

The following three sections distinguish between released standards, the next release to come up and all further releases in the future.

5.1.1 Communication concerning Former and Current Releases

The communication is to:

- provide a list of known bugs and workaround descriptions to all valid releases.
- inform the AUTOSAR members about releases that become obsolete and related reasons (e.g. release outdated, major flaws, etc.).
- inform about follow-up releases for obsolete releases.

5.1.2 Communication concerning the Oncoming Release

At least a year before a release, the AUTOSAR community shall be informed of (major features, schedule, …).

At least three months prior to a release, a pre-release information is distributed to the AUTOSAR members, informing them about all incorporated changes. Thus giving the AUTOSAR members the possibility to plan future products and test implementations.

Four weeks before the release, an announcement officially introduces the release. This announcement is binding and gives information on what was changed and why it was changed. Together with the announcement, a release candidate may be provided to the AUTOSAR community (upon request and if available).

When a release is issued, a release notes is provided with, informing about:

- contents
    - which products are contained
    - covered functionality
- what was changed and why it was changed
- how it was changed
- compatibility issues and possible workarounds
- link to errata sheet
- a list of products which in full or partly are marked as deprecated

Refer to the following figure for an idea of the communication in the release process.

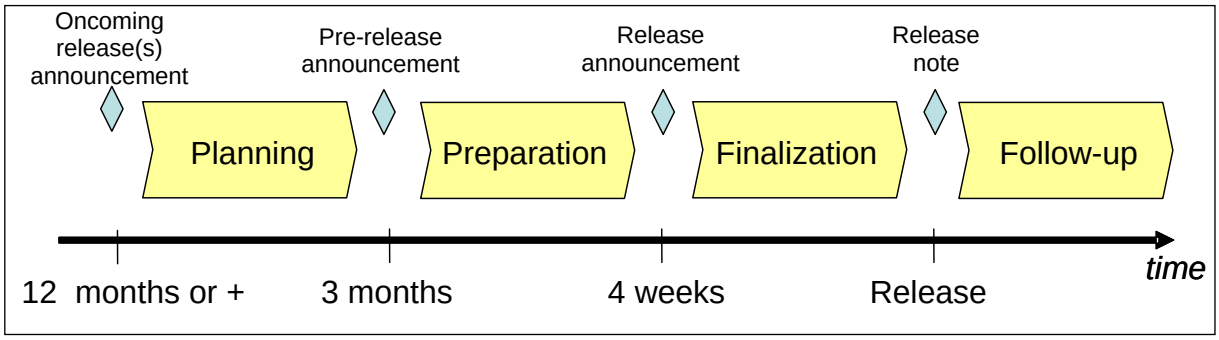

Figure 5 – Communication in the release process

5.1.3 Communication concerning Future Releases

The communication has to ensure that members are informed well ahead in time about general developments and tendencies as well as specific features of releases after the oncoming one.

The communication about future releases is not binding and announced features cannot be claimed to be implemented.

The communication is provided for the members in order to:

- prepare them for the future development.
- participate in the process of decision finding about new technologies and new features.

The communication to AUTOSAR members includes information on:

- release scheduling and planning
- new features
- new technologies
- technological direction
- strategic direction
- major bugs
- patches (including only products (e.g. documents) that were changed)
- etc.

Information about future releases shall be provided within the official release announcement.

5.2 Communication to the General Public

Communication to the general public has two major objectives: raising general awareness of AUTOSAR in the public and attracting new users to AUTOSAR.

To achieve this goal, a variety of communication channels are possible. Among them:

- Press releases
- Internet announcements
- Conference speeches and papers
- Free download of specifications, but for information only

5.3 Meetings

The Change Control Board will hold regular meetings. For the meeting policy of the Change Control Board, refer to the Change Management Process definition [1].

Appendix A Requirements traceability

Requirement ID	*Description*	*Section(s)*
SMR0040	The change management and release management processes shall be designed to keep the standard as consistent as possible over time.	2.1
SMR0130	A communication policy shall be defined. General reporting of changes, releases and issues to the market.	5
SMR0200	The processes of Change management and Release management shall be defined as separate entities with a clear interface between them	3.1.1 3.1.2 4.4
SMR0140	The minimum allowed period between releases of the AUTOSAR standard shall be defined.	2.2
SMR0210	A list of included products must be provided with every AUTOSAR release	5.1.2
SMR0250	The process of issuing new standard releases shall be embedded in a general release policy	2 2.1 2.2 2.3
SMR0220	Compatibility information shall be provided with the release.	5.1.2
SMR0240	A release numbering system shall be implemented.	4.1.1

Appendix B Availability of Roles [informative]

The following table gives an overview of the expected typical response times and the expected work load of the roles within the AUTOSAR organization (related to release management).

Role	***Typical Response Time***	***Expected Effort[3]***
Release Manager	4 weeks	50%
Change Control Board	4 weeks	20%

Table 1 - Availability of roles in the release management process

Appendix C Glossary

BSW	Basic Software
CCB	Change Control Board
CM	Change Management
CTS	Conformance Test Suite
RfC	Request for Change
RM	Release Management
SMR	Standard Maintenance Requirement (document)
SW	Software
OEM	Original Equipment Manufacturer

[3] in percentage of a full time equivalent – i.e. 100% means one person full time