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Programme Management - Configuration Management - Part 104: Configuration Control

Programm-Management - Konfigurationsmanagement - Teil 104: Konfigurationslenkung

Management de Programme - Gestion de la Configuration - Partie 104 : Maîtrise de la configuration

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European foreword

This document (EN 9223-104:2018) has been prepared by the Aerospace and Defence Industries Association of Europe - Standardization (ASD-STAN).

After enquiries and votes carried out in accordance with the rules of this Association, this Standard has received the approval of the National Associations and the Official Services of the member countries of ASD, prior to its presentation to CEN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by September 2018, and conflicting national standards shall be withdrawn at the latest by September 2018.

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Introduction

The finality of Configuration Management is to assure during the whole **product** lifecycle[1]:

— consistency and commonality of the technical information among all actors;

— **traceability** of this technical information.

For that purpose, Configuration Management organizes and implements the following activities:

— selection of items and technical information that shall be submitted to Configuration Management, under clearly established responsibility (configuration identification);

— capture, keeping this information and making it available (configuration status accounting);

— verification and validation of the coherence of this information at defined steps of the product lifecycle (configuration verifications, reviews and audits);

— technical changes and gaps processing in order to keep the consistency of this information (configuration control).

1 See EN ISO 9000:2015.

1 Scope

The present document is declined from the principles described in the EN 9223-100, it:

— is based on internationally-recognised concepts;

— proposes organisational principles and implementation processes for configuration management from both viewpoints: “programme” and “company”, with emphasis on the “programme” viewpoint;

— deals with configuration control but not contract management methods.

It is up to each person responsible for a programme to define the detailed methods of application and tailoring as necessary.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 9100, *Quality Management Systems — Requirements for Aviation, Space and Defence Organizations*

EN 9223-100, *Programme Management — Configuration Management — Part 100: A guide for the application of the principles of configuration management*[2]

EN 9223-105, *Programme Management — Configuration Management — Part 105: Glossary*[2]

EN ISO 9000, *Quality Management System — Fundamentals and Vocabulary*

ISO 10007:2003, *Quality management system — Guidelines for configuration management*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN ISO 9000, ISO 10007 and EN 9200 apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at http://www.electropedia.org/
- ISO Online browsing platform: available at http://www.iso.org/obp

The specific terms needed to understand and to use the document are the object of definitions appearing in EN 9223-105.

[2] Published as ASD-STAN Prestandard at the date of publication of this standard. http://www.asd-stan.org/

4 Configuration control place in the overall programme Configuration Management

4.1 Configuration control process overview

As a rule, configuration control begins when the configuration baseline has been identified and then verified, reviewed and audited.

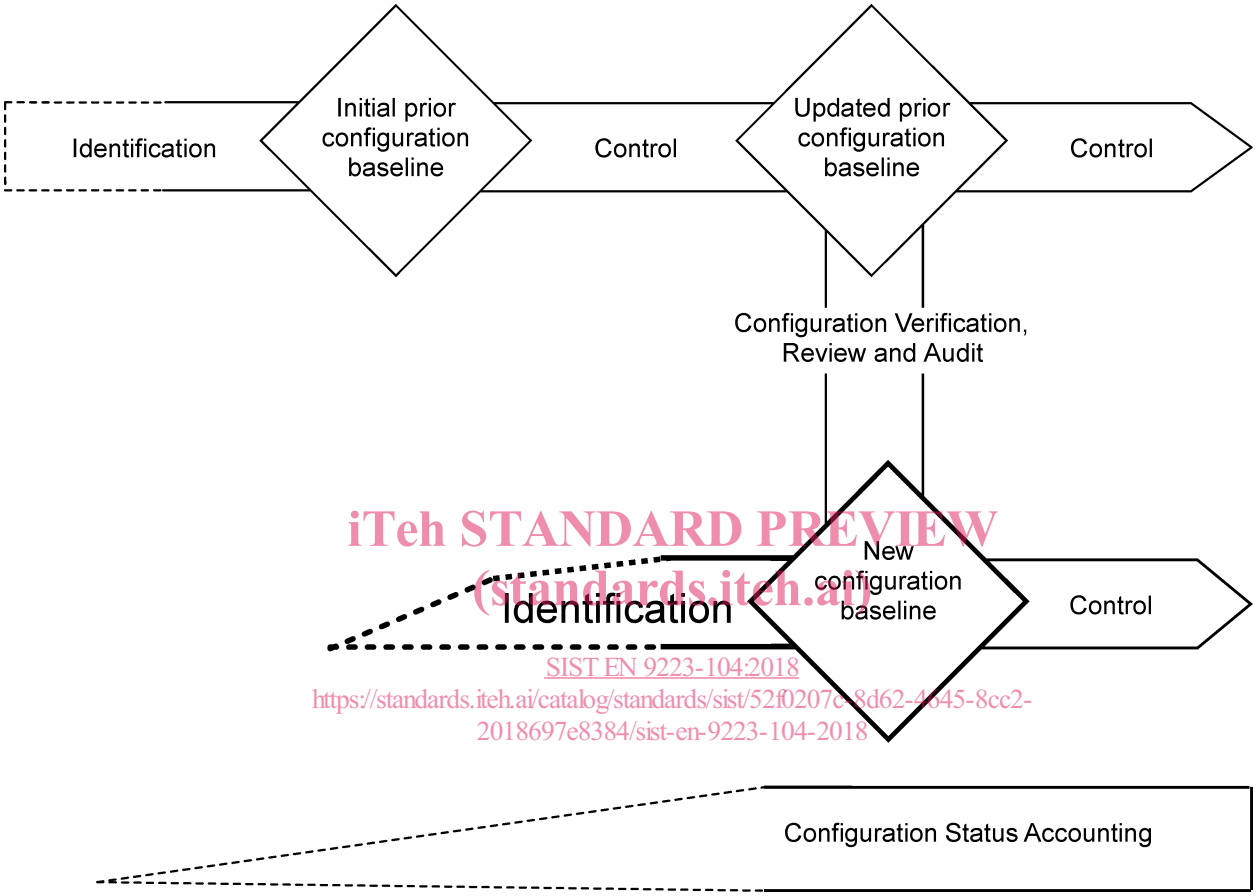

Figure 1 — Place of the configuration control process in Configuration Management processes

4.2 The Configuration Control process nature

The configuration management process is composed of a set of actions and decisions (product and responsibilities-trees), set up in order to keep and improve consistent relationships between the configurations and the products trees:

— maintaining identification (updates of functional, allocated and product configuration baselines, etc.);

— maintaining qualifications (verification of non-regression);

— maintaining links between the different configurations of a same item such as, links between index of definition file and index of the technical requirement specification.

Configuration control is mainly a decisional process (preparing decision and decision making, and control of decisions implementation) meant to guarantee the overtime consistency for configuration items and associated data. As such, for a given authority, configuration control exclusively concerns

items and data selected during the configuration identification process. This set of items and data establishes the authority's field of competence.

The process is implemented as soon as the first configuration baseline is established.

It addresses any effects on the configuration of (see Figure 3):

— needs for technical changes (including those following the detection of defects);

— technical events and anomalies.

Within this framework, configuration control relies on an organization that:

— associates customers, industrial partners and suppliers to jointly carry out tasks and responsibilities;

— attributes a making authority to each configuration item;

— attributes power delegations throughout the network of customers, partners and suppliers, according to the decisions of selection;

— uses mandatory or existing document management systems, (see Annex A);

— uses mandatory or existing technical data management systems;

— uses mandatory or existing product lifecycle management systems;

— specifies modalities of tracking of changes as described in the Configuration Management plan.

Technical events and anomalies detected and characterized throughout the product lifecycle are processed in a specific way, including as necessary (but not limited to) the following actions:

— describing conformity issues (actually stated or foreseeable);

— investigating the causes and assessing the effects;

— designing and implementing curative actions (e. g. rework or repairs);

— designing corrective and/or preventive actions;

— confirming and identifying nonconformity;

— issuing requests for:

  — concessions on the considered item;

  — technical changes and deviations on subsequent items.

Such requests are outputs from the above described processes, and should be submitted to the competent Configuration Management authority and forms inputs for the configuration control process (see Figure 3).

The final consequences on the configuration may be:

— technical changes introduced in the updated approved configuration, the applicable configuration, and the as-built configuration;

— decided and implemented deviations;

— accepted and recorded concessions.

Possible consequences on the contractual baseline are covered by the provisions specific to contract management (amendment, endorsement or equivalent).

The configuration control process is more precisely described (hereafter).

Control process for concessions and deviation permits as well as the associated competence criteria, should be based on the same basic requirements.

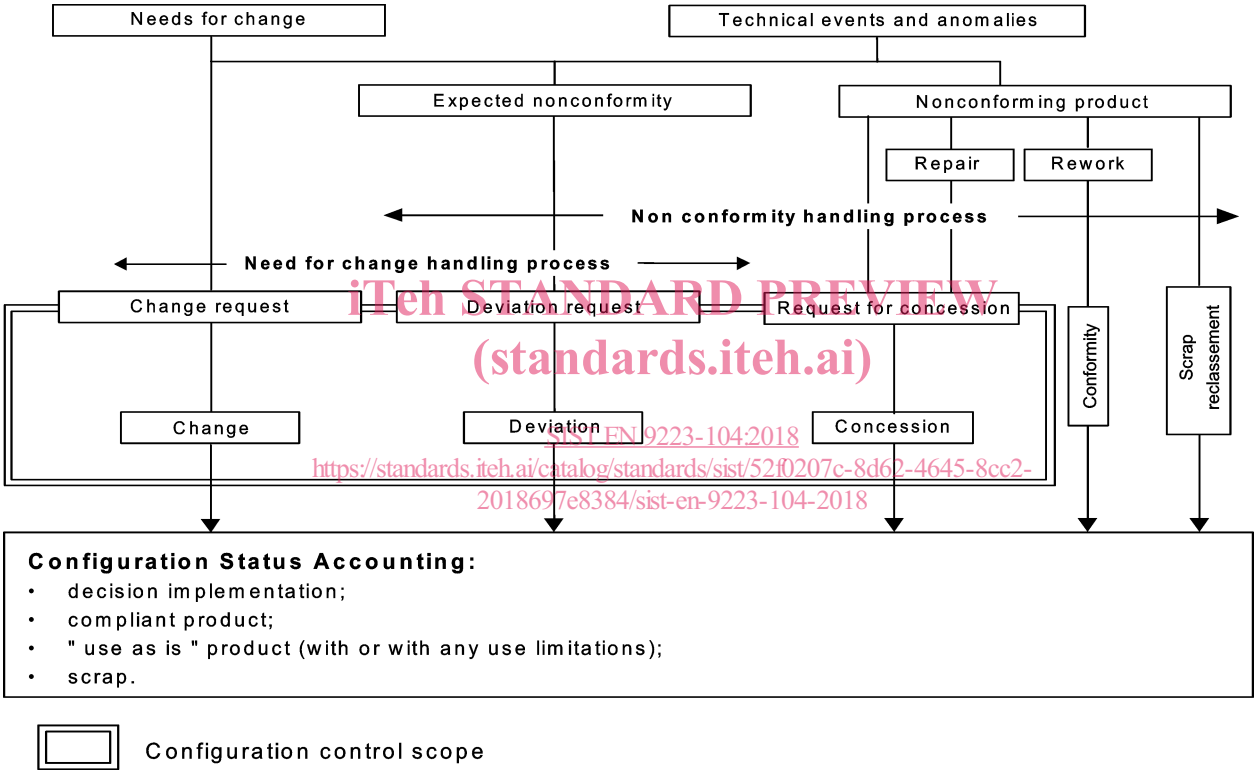

Figure 2 — Configuration control and other interface processes

4.3 Tasks associated with configuration control

4.3.1 Identifying process

The following tasks apply to all items, whether selected or not as configuration items, even though these tasks cannot be considered as Configuration Management activities. Nonetheless, an efficient configuration control process cannot be carried out without their rigorous implementation. The Configuration Management plan shall specify details of implementation.

4.3.2 Document management tasks

The setting up of a system of identifiers permit to identify changes within a document, although it does not belong to configuration management activities (indeed, an item or a document shall have an identifier, whether it is considered as a configuration item or not).

4.3.3 Product marking

Products or batches/lots marking shall permit to link these items to any control decision.

Thus:

— this marking, thanks to the documentation of associated configuration status, can lead to know all the control decisions (change index, deviation or concession marking);

— serialisation marking also guarantees the traceability necessary to maintenance (interchangeability);

— marking ensuring interchangeability must be implemented on the specimen or on its associated accompanying documents.

Marking rules could be clarified in the configuration management plan.

5 Configuration control principles

5.1 General

For a specific authority, configuration control over an item encompasses the configuration documentation and associated data, “identified” as a whole.

In order to define its scope of intervention, each authority[3] assumes the decision to recognise configuration items and data for which it has been delegated configuration management authority.

5.2 Allocation of an item to an authority

The allocation of an item to an authority, and reciprocally, is deduced from an analysis based on the configuration data and items, as potentially impacted by a control decision. This allocation rule shall be clarified in the configuration management plan.

5.3 Technical changes, deviations permits and concessions shared provisions

In the following clauses, provisions common to technical changes, deviation permits and concessions and provisions specific to each category will be distinguished.

Each technical change, deviation permit and concession experiences its own life cycle and is subject to a decision-making process.

Management process:

— indicates involved entities and actors (who does what?);

— describes process flow (how?) and the decisions to be made (what?);

— is tailored as the programme progresses.

Two pieces of information are particularly important in the technical changes, deviation permits and concessions management procedure:

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3 Several authority levels exist; each authority is responsible for the configuration identification, at its level.

— the request which generally replaces the statement of need (see 5.8);

— the file which, from the request, is step by step supplemented with any necessary elements (see 5.7).

A simplified example of the logical progression of technical change management is presented in Annex C.

NOTE In case of acknowledged emergency, and subject to previous collection of any necessary pieces of advice, this process may be conducted according to a specific procedure generally called “emergency procedure”.

5.4 Technical changes process

Any technical change shall meet an identified specific need (see 5.8).

Any technical change exhibits the following features:

— once approved, the technical change is intended to stand unmodified (any cancellation or modification would require another technical change to be approved);

— the technical change is intended to apply to the whole set of items to be produced after the decision, subject to related application provisions;

— retrofitting previously produced items is possible;

— once approved, the technical change is incorporated in the updated approved configuration.

5.5 Deviation permit process

A deviation permit is a predicted gap of conformity with respect to the updated approved configuration resulting from a decision made (or to be taken) before effective implementation:

— on a limited and specified batch of articles; or

— during a limited and specified period.

Once accepted, a deviation permit shall be incorporated in the applicable configuration. As such, a deviation permit has main features in common with a technical change.

Typical reasons for processing a deviation permit may be:

— anticipated implementation of a technical change, that is under consideration but not yet qualified;

— a change to the applicable requirements, that is under consideration but not yet implemented in the technical specification;

— a quite specific feature, intended to be applied on a strictly limited batch of articles (colour, configuration for tests, repair solution, material characteristics that exceed specifications, etc.);

— provisional implementation of a technical change, for qualification and validation purpose;

— temporary acceptance of a nonconformity to be phased out by a future necessary technical change, not yet approved (or even designed);