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Systems and software engineering — Life cycle management —

Part 7: Application of systems engineering on defence programs

Ingénierie des systèmes et du logiciel — Gestion du cycle de vie —

Partie 7: Application de l'ingénierie des systèmes aux programmes de défense

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Foreword

ISO (the International Organization for Standardization) and IEC (the International Electrotechnical Commission) form the specialized system for worldwide standardization. National bodies that are members of ISO or IEC participate in the development of International Standards through technical committees established by the respective organization to deal with particular fields of technical activity. ISO and IEC technical committees collaborate in fields of mutual interest. Other international organizations, governmental and non-governmental, in liaison with ISO and IEC, also take part in the work.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of document should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives or www.iec.ch/members_experts/refdocs).

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This document was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 7, *Software and systems engineering*, in cooperation with the Systems and Software Engineering Standards Committee of the IEEE Computer Society, under the Partner Standards Development Organization cooperation agreement between ISO and IEEE.

This second edition cancels and replaces the first edition (ISO/IEC/IEEE 24748-7:2019), which has been technically revised.

The main changes are as follows:

— aligned content to ISO/IEC/IEEE 15288:2023 which was recently revised

— converted from original IEEE Std format to ISO format

— updated necessary defence specific language to include outputs

— Added/updated defence references

A list of all parts in the ISO/IEC/IEEE 24748 series can be found on the ISO and IEC websites.

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Introduction

For effective and efficient application of ISO/IEC/IEEE 15288 on defence programs, additional application requirements are needed. ISO/IEC/IEEE 15288 is written in a general manner to address all types of systems and different modes of application. Thus, it does not have requirements specific to the use by defence projects that facilitate effective implementation of an acquirer-supplier agreement, such as use in defence contracts.

This document implements ISO/IEC/IEEE 15288 for application on defence programs, providing the defence-specific language and terminology to help ensure the correct application of acquirer-supplier requirements for a defence program. It provides the basis for selection, negotiation, agreement, and performance of necessary systems engineering activities and delivery of products, while allowing flexibility for both innovative implementation and tailoring of the specific systems engineering process(es) to be used by system suppliers, either contractors or government system developers, integrators, maintainers, or sustainers. This document includes the expected or required outputs and associated attributes.

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Systems and software engineering — Life cycle management —

Part 7: Application of systems engineering on defence programs

1 Scope

This document establishes the requirements for systems engineering activities to be performed on projects of defence agencies, including the United States (US) Department of Defense (DoD), across the entire system life cycle. This document implements ISO/IEC/IEEE 15288 for use by defence agencies in acquiring systems or systems engineering support, including the planning, acquisition, operation, modification, and sustainment of defence systems. It provides the foundation for systems engineering within the context of ISO/IEC/IEEE 15288. This document provides detailed requirements for the application of the life cycle processes, activities, and tasks of ISO/IEC/IEEE 15288 for use on any defence system and includes the effective integration of agreement processes, technical processes, technical management processes, organizational project enabling processes, and essential specialty engineering requirements. While primarily supporting the acquirer-supplier agreement mode, this document also can be used to support the other modes: use by organizations, projects, and process assessors.

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.

ISO/IEC/IEEE 15288:2023, *Systems and software engineering — System life cycle processes*

3 Terms, definitions and abbreviated terms

3.1 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO, IEC and IEEE maintain terminology databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at https://www.electropedia.org/

— IEEE Standards Dictionary Online: available at http://dictionary.ieee.org

NOTE For additional terms and definitions in the field of systems and software engineering, see ISO/IEC/IEEE 24765, which is published periodically as a “snapshot” of the SEVOCAB (Systems and software Engineering Vocabulary) database and which is publicly accessible at http://www.computer.org/sevocab.

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3.1.1
allocated baseline
approved requirements for a product, subsystem or component, describing the functional, performance, interoperability, and interface requirements that are allocated from higher-level requirements and the verifications required to demonstrate achievement of those requirements, as established at a specific point in time and documented in the allocated configuration documentation

3.1.2
baseline, noun
formally approved version of a *configuration item* (3.1.3), regardless of media, formally designated and fixed at a specific time during the configuration item's life cycle

Note 1 to entry: This document uses the noun form of baseline to refer only to configuration baselines managed by the configuration management process, including the *functional baseline* (3.1.4), *allocated baseline* (3.1.1), and *product baseline* (3.1.5). It does not refer to other baselines used in defence such as the acquisition program baseline.

[SOURCE: ISO/IEC/IEEE 15288:2023, 3.8, modified — Note 1 to entry has been added.]

3.1.3
configuration item
item or aggregation of system elements that is designated for configuration management and treated as a single entity in the configuration management process

[SOURCE: ISO/IEC/IEEE 15288:2023, 3.11, modified — 'hardware, software, or both' has been replaced with 'system elements']

3.1.4
functional baseline
description of the system's performance (functional, interoperability, and interface characteristics) and the verification required to demonstrate the achievement of those specified characteristics

Note 1 to entry: The functional baseline is directly traceable to the operational requirements contained in the initial capabilities document or equivalent document.

3.1.5
product baseline
description of the detailed design at a specific point in time, for production, fielding or deployment, and operations and support

Note 1 to entry: The product baseline prescribes all necessary physical (form, fit and function) characteristics and selected functional characteristics designated for production acceptance testing and production test requirements.

Note 2 to entry: The product baseline is also known as the product configuration baseline. It is intended as the product configuration.

3.1.6
system effectiveness analysis
analytical approach used to determine how well a system performs in its intended utilization environment

3.2 Abbreviated terms

CDRL	contract data requirements list
CI	configuration item
CM	configuration management
DEMIL	demilitarization
DID	data item description

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DoDAF	DoD architecture framework
DoDD	US Department of Defense Directive
DoDI	US Department of Defense Instruction
DoDM	US Department of Defense Manual
ECP	engineering change proposal
ECR	engineering change request
ESOH	environment, safety, and occupational health
EVM	earned value management
NDI	non-development item
IMP	integrated master plan
IMS	integrated master schedule
JCIDS	joint capabilities integration and development system
MODAF	UK Ministry of Defence architecture framework
SEMP	systems engineering management plan
SEP	systems engineering plan
SoS	system of systems
TPM	technical performance measures

4 Conformance

4.1 Intended usage

ISO/IEC/IEEE 15288:2023, 4.1 shall apply as stated with the following addition:

This document includes required outputs for defence applications for each process.

4.2 Full conformance

4.2.1 Full conformance to outcomes

ISO/IEC/IEEE 15288:2023, 4.2.1 shall apply as stated.

4.2.2 Full conformance to tasks

ISO/IEC/IEEE 15288:2023, 4.2.2 shall apply as stated.

4.3 Tailored conformance

ISO/IEC/IEEE 15288:2023, 4.3 shall apply as stated with the following addition:

The tailoring process shall be in accordance with ISO/IEC/IEC 15288:2023, Annex A.

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