TECHNICAL REPORT

ISO/IEC TR 29110-5-3

First edition
2018-01

Systems and software engineering — Lifecycle profiles for Very Small Entities (VSEs) —

Part 5-3: Service delivery guidelines

Ingénierie des systèmes et du logiciel — Profils de cycle de vie pour très petits organismes (TPO) —
Partie 5-3: Lignes directrices de prestation des services

Reference number
ISO/IEC TR 29110-5-3:2018(E)

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Published in Switzerland

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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. In the field of information technology, ISO and IEC have established a joint technical committee, ISO/IEC JTC 1.

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).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO and IEC shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see the following URL: www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 7, *Software and systems engineering*.

A list of all parts in the ISO/IEC 29110 series can be found on the ISO website.

Introduction

Very Small Entities (VSEs) around the world are creating valuable products and services. For the purpose of ISO/IEC 29110, a Very Small Entity (VSE) is an enterprise, an organization, a department or a project having up to 25 people. Since many VSEs develop and/or maintain system and software components used in systems, either as independent products or incorporated in larger systems, a recognition of VSEs as suppliers of high quality products is required.

According to the Organization for Economic Co-operation and Development (OECD) SME and Entrepreneurship Outlook report (2005) ‘Small and Medium Enterprises (SMEs) constitute the dominant form of business organization in all countries world-wide, accounting for over 95 % and up to 99 % of the business population depending on country’. The challenge facing governments and economies is to provide a business environment that supports the competitiveness of this large heterogeneous business population and that promotes a vibrant entrepreneurial culture.

From studies and surveys conducted, it is clear that the majority of International Standards do not address the needs of VSEs. Implementation of and conformance with these standards is difficult, if not impossible. Consequently, VSEs have no, or very limited, ways to be recognized as entities that produce quality systems/system elements including software in their domain. Therefore, VSEs are excluded from some economic activities.

It has been found that VSEs find it difficult to relate International Standards to their business needs and to justify the effort required to apply standards to their business practices. Most VSEs can neither afford the resources, in terms of number of employees, expertise, budget and time, nor do they see a net benefit in establishing over-complex systems or software life cycle processes. To address some of these difficulties, a set of guidelines has been developed based on a set of VSE characteristics. The guidelines are based on subsets of appropriate standards processes, activities, tasks, and outcomes, referred to as Profiles. The purpose of a profile is to define a subset of International Standards relevant to the VSEs' context; for example, processes, activities, tasks, and outcomes of ISO/IEC/IEEE 12207 for software; and processes, activities, tasks, and outcomes of ISO/IEC/IEEE 15288 for systems; and information products (documentation) of ISO/IEC/IEEE 15289 for software and systems.

VSEs can achieve recognition through implementing a profile and by being audited against ISO/IEC 29110 specifications.

The ISO/IEC 29110 series of standards and technical reports can be applied at any phase of system or software development within a life cycle. This series of standards and technical reports is intended to be used by VSEs that do not have experience or expertise in adapting/tailoring ISO/IEC/IEEE 12207 or ISO/IEC/IEEE 15288 standards to the needs of a specific project. VSEs that have expertise in adapting/tailoring ISO/IEC/IEEE 12207 or ISO/IEC/IEEE 15288 are encouraged to use those standards instead of ISO/IEC 29110.

ISO/IEC 29110 is intended to be used with any lifecycle such as: waterfall, iterative, incremental, evolutionary or agile.

Systems, in the context of ISO/IEC 29110, are typically composed of hardware and software components.

The ISO/IEC 29110 series, targeted by audience, has been developed to improve system or software and/or service quality and process performance. See Table 1.

Table 1 — ISO/IEC 29110 target audience

ISO/IEC 29110	Title	Target audience
ISO/IEC 29110-1	Overview	VSEs and their customers, assessors, standards producers, tool vendors and methodology vendors.
ISO/IEC 29110-2	Framework for profile preparation	Profile producers, tool vendors and methodology vendors. Not intended for VSEs.
ISO/IEC 29110-3	Certification and assessment guidance	VSEs and their customers, assessors, accreditation bodies.
ISO/IEC 29110-4	Profile specifications	VSEs, customers, standards producers, tool vendors and methodology vendors.
ISO/IEC 29110-5	Management, engineering and service delivery guides	VSEs and their customers.

If a new profile is needed, ISO/IEC 29110-4 and ISO/IEC TR 29110-5 can be developed with minimal impact to existing documents.

ISO/IEC 29110-1 defines the terms common to the ISO/IEC 29110 series. It introduces processes, lifecycle and standardization concepts, the taxonomy (catalogue) of ISO/IEC 29110 profiles and the ISO/IEC 29110 series. It also introduces the characteristics and needs of a VSE and clarifies the rationale for specific profiles, documents, standards and guidelines.

ISO/IEC 29110-2 introduces the concepts for systems and software engineering profiles for VSEs. It establishes the logic behind the definition and application of profiles. For standardized profiles, it specifies the elements common to all profiles (structure, requirements, conformance, assessment). For domain-specific profiles (profiles that are not standardized and developed outside of the ISO process), it provides general guidance adapted from the definition of standardized profiles.

ISO/IEC 29110-3 defines certification schemes, assessment guidelines and compliance requirements for process capability assessment, conformity assessments, and self-assessments for process improvements. ISO/IEC 29110-3 also contains information that can be useful to developers of certification and assessment methods and developers of certification and assessment tools. ISO/IEC 29110-3 is addressed to people who have direct involvement with the assessment process, e.g. the auditor, certification and accreditation bodies and the sponsor of the audit, who need guidance on ensuring that the requirements for performing an audit have been met.

ISO/IEC 29110-4-m provides the specification for all profiles in one profile group (a profile group may contain a single profile or multiple profiles). A profile is specified in terms of requirements imported from appropriate base standards.

ISO/IEC TR 29110-5-m provides management, engineering and service delivery guidelines for the profiles in a profile group.

This document provides guidelines to manage a set of services delivered to customers.

Figure 1 describes the ISO/IEC 29110 International Standards (IS) and Technical Reports (TR) and positions the parts within the framework of reference. Overview, assessment guidelines, management and engineering guidelines are available from ISO as freely available Technical Reports (TR). The Framework document, profile specifications and certification schemes are published as International Standards (IS).

For readers that are new to the ISO/IEC 29110 series, refer to ISO/IEC TR 29110-1:2016 *Systems and software engineering — Lifecycle profiles for Very Small Entities (VSEs) — Part 1: Overview*. Part 1 defines the terms common to the set of ISO/IEC 29110 documents. It introduces processes, lifecycle and standardization concepts, the taxonomy (catalogue) of ISO/IEC 29110 profiles and the ISO/IEC 29110 series. It also introduces the characteristics and requirements of a VSE and clarifies the rationale for specific profiles, documents, standards and guidelines.

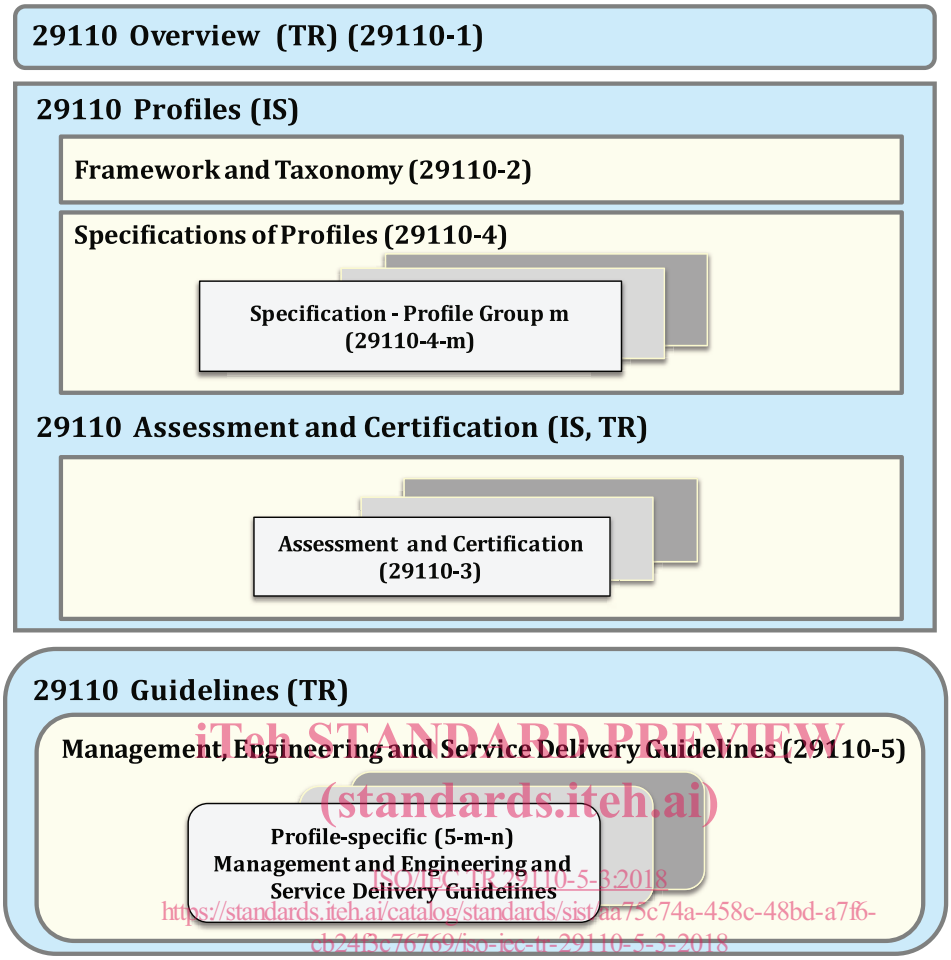

Figure 1 — ISO/IEC 29110 series

Systems and software engineering — Lifecycle profiles for Very Small Entities (VSEs) —

Part 5-3: Service delivery guidelines

1 Scope

1.1 Fields of application

These Service Delivery guidelines are applicable to Very Small Entities (VSEs). A VSE is an enterprise, an organization, a department or a project having up to 25 people.

This document provides guidance to manage a set of services delivered to customers. The VSE can act as an internal service provider (providing services internal to the VSE) or as an external service provider (providing services commercially to external customers). These lifecycle processes (Governance, Service Control, Service Relationship and Service Incident) support and enhance the activities of software and system operations (further to development and installation) to create effective and efficient products and services.

This document provides guidance for Service Delivery. This document, when implemented, will assist and guide the VSE in the delivery of services which can benefit customers. This document does not promote uniformity in approach across all organizations as specific objectives and initiatives are tailored to suit an individual organization's needs.

Tasks described in this guideline document (and therefore activities and processes) are related by input/output relationships which imply a logical execution sequence. The order of presentation of the processes or the associated numbering scheme is for identification purposes only, NOT to indicate implementation or execution order. As every VSE is different; tasks can be implemented in an order that is suitable for the organization, while respecting the relationships between tasks.

1.2 Target audience

This document is intended to be used by VSEs to establish processes to implement effective and efficient service delivery. This service delivery guidelines document can be used by VSEs that are offering only services to its customers or it can be combined with the information from ISO/IEC 29110 systems and/or software management and engineering guidelines.

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 29110-2, *Software engineering — Lifecycle profiles for Very Small Entities (VSEs) — Part 2: Framework and taxonomy*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO/IEC 29110-2 and the following 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

3.1
activity
set of cohesive tasks of a process

[SOURCE: ISO/IEC 29110-2-1:2015, 4.1]

3.2
agreement
mutual acknowledgement of terms and conditions under which a working relationship is conducted

EXAMPLE Contract, memorandum of agreement.

[SOURCE: ISO/IEC 12207:2008, 4.4]

3.3
audit
systematic, independent, documented process for obtaining records, statements of fact or other relevant information and assessing them objectively, to determine the extent to which specified requirements are fulfilled

Note 1 to entry: Whilst "audit" applies to management systems, "assessment" applies to conformity assessment bodies as well as more generally.

[SOURCE: ISO/IEC 29110-1:2016, 3.7]

3.4
change
add, move, modify, removal of a configuration item (CI)

Note 1 to entry: Changes can be classified based on risk and impact to the organization; common types include pre-approved, emergency or normal.

3.5
configuration item
CI
item or aggregation of hardware, software or both that is designated for configuration management and treats as a single entity in the configuration management process

Note 1 to entry: Configuration items can vary widely in complexity, size and type, ranging from an entire system including all hardware, software and documentation, to a single module or a minor hardware component.

[SOURCE: ISO/IEC/IEEE 15288:2015, 4.1.14]

3.6
control manager
CM
role that approves/rejects change and manages change-related tasks such as testing and deployment

Note 1 to entry: This role may be combined with other roles and is a direct report (or shared role) with the Service Manager. If one person is appointed to the role, the person reports to the Service Manager for service matters and has the authority over change-related tasks.

3.7
customer
CUS
person or organization that could or does receive a product or a service that is intended for or required by this person or organization

EXAMPLE Consumer, client, end-user, retailer, receiver of product or service from an internal *process* (3.23), beneficiary and purchaser.

Note 1 to entry: A customer can be internal or external to the organization.

[SOURCE: ISO 9000:2015, 3.2.4]

3.8
document
information and the medium on which it is contained

EXAMPLE Record, specification, procedure document, drawing, report, standard.

Note 1 to entry: The medium can be paper, magnetic, electronic or optical computer disc, photograph or master sample, or combination thereof.

Note 2 to entry: A set of documents, for example specifications and records, is frequently called "documentation".

Note 3 to entry: Some requirements (e.g. the requirement to be readable) relate to all types of documents. However, there can be different requirements for specifications (e.g. the requirement to be revision controlled) and for records (e.g. the requirement to be retrievable).

[SOURCE: ISO 9000:2015, 3.8.5]

3.9
effectiveness
extent to which planned activities are realized and planned results are achieved

[SOURCE: ISO 9000:2015, 3.7.11, modified — Note 1 to entry has been removed.]

3.10
efficiency
relationship between the result achieved and the resources used

[SOURCE: ISO 9000:2015, 3.7.10]

3.11
external service provider
providing services commercially to external customers

3.12
governance
system of directing and controlling

[SOURCE: ISO/IEC 38500:2015, 2.8]

3.13
incident
anomalous or unexpected event, set of events, condition, or situation at any time during the life cycle of a project, product, service, or system

[SOURCE: ISO/IEC/IEEE 15288:2015, 4.1.21]

3.14
incident manager
IM
role that has authority over all incidents and manages incident-related tasks

Note 1 to entry: This role may be combined with other roles. This role is a direct report (or shared role) with the Service Manager. The person can also be responsible for a Service Desk, if one exists.

3.15
information security policy
document that states, in writing, how an organization plans to protect its physical and information technology assets

[SOURCE: ISO/TS 21547:2010, 3.2.25]

3.16
internal service provider
providing services internal to the VSE

3.17
lifecycle
evolution of a system, product, service, project or other human-made entity, from conception through retirement

[SOURCE: ISO/IEC/IEEE 15288:2015, 4.1.23]

3.18
management
MGT
coordinated activities to direct and control an organization

Note 1 to entry: Management can include establishing *policies* and *objectives*, and *processes* to achieve these objectives.

Note 2 to entry: The word "management" sometimes refers to people, i.e. a person or group of people with authority and responsibility for the conduct and control of an organization. When "management" is used in this sense, it should always be used with some form of qualifier to avoid confusion with the concept of "management" as a set of activities defined above. For example, "management shall." is deprecated whereas "top management shall." is acceptable. Otherwise different words should be adopted to convey the concept when related to people, e.g. managerial or managers.

[SOURCE: ISO 9000:2015, 3.3.3]

3.19
operator
individual or organization that performs the operations of a system

Note 1 to entry: The role of operator and the role of user can be vested, simultaneously or sequentially, in the same individual or organization.

Note 2 to entry: An individual operator combined with knowledge, skills and procedures can be considered as an element of the system.

Note 3 to entry: An operator may perform operations on a system that is operated, or of a system that is operated, depending on whether or not operating instructions are placed within the system boundary.

[SOURCE: ISO/IEC/IEEE 15288:2015, 4.1.26]

3.20
organization
person or a group of people that has its own functions responsibilities, authorities and relationships to achieve its objectives

[SOURCE: ISO 9000:2015, 3.2.1, modified — Notes 1 and 2 to entry have been removed.]

3.21
practitioner
PT
person or team performing the activities within one or more process areas

3.22
procedure
specified way to carry out an activity or a process

Note 1 to entry: Procedures can be documented or not.

[SOURCE: ISO 9000:2015, 3.4.5]

3.23
process
set of interrelated or interacting activities which transforms inputs into outputs to deliver an intended result

Note 1 to entry: Whether the "intended result" of a process is called output, product or service depends on the context of the reference.

Note 2 to entry: Inputs to a process are generally the outputs of other processes and outputs of a process are generally the inputs to other processes.

Note 3 to entry: Two or more interrelated and interacting processes in series can also be referred to as a process.

Note 4 to entry: Processes in an organization are generally planned and carried out under controlled conditions to add value.

[SOURCE: ISO 9000:2015, 3.4.1, modified — Notes 5 and 6 to entry have been removed.]

3.24
profile
set of one or more base standards and/or profiles, and where applicable, the identification of chosen classes, conforming subsets, options and parameters of those base standards, or standardized profiles necessary to accomplish a particular function

[SOURCE: ISO/IEC TR 10000-1:1998, 3.1.4, modified — article "a" has been removed from the beginning of the definition, "ISPs" has been replaced by "profiles" in the first instance, and in the second instance, "ISPs" has been replaced by "standardized profiles".]

3.25
record
document stating results achieved or providing evidence of activities performed

[SOURCE: ISO 9000:2015, 3.8.10]

3.26
relationship manager
RM
role that develops and manages the customer and supplier interfaces as well as the *service catalogue* (3.28)

Note 1 to entry: This role may be combined with other roles. This role is a direct report (or shared role) with the Service Manager.