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Software engineering — Lifecycle profiles for Very Small Entities (VSEs) —

Part 4-1: Profile specifications: Generic profile group

*Ingénierie du logiciel — Profils de cycle de vie pour très petits
organismes (TPO) —*

Partie 4-1: Spécification de profil: Groupe de profil générique

Withhold

Reference number
ISO/IEC 29110-4-1:2011(E)



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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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of the joint technical committee is to prepare International Standards. Draft International Standards adopted by the joint technical committee are circulated to national bodies for voting. Publication as an International Standard requires approval by at least 75 % of the national bodies casting a vote.

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.

ISO/IEC 29110-4-1 was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 7, *Software and systems engineering*.

ISO/IEC 29110 consists of the following parts, under the general title *Software engineering — Lifecycle profiles for Very Small Entities (VSEs)*:

- *Part 1: Overview* [Technical Report]
- *Part 2: Framework and taxonomy*
- *Part 3: Assessment guide* [Technical Report]
- *Part 4-1: Profile specifications: Generic profile group*
- *Part 5-1-2: Management and engineering guide: Generic profile group: Basic profile* [Technical Report]

Parts 4 and 5 can be developed to accommodate new profile specifications and management and engineering guides as follows:

- *Part 4-m: Profile specifications: Profile group aaaaa*
- *Part 5-m-n: Management and engineering guide: Profile group aaaaa: Profile bbbbb* [Technical Report]

This first edition of part 4-1 contains the specification for the first profile developed (Basic). As more profiles are developed, this part will be restructured and amended to accommodate and include multiple specifications.

- *Part 4-1: Profile specifications: Generic profile group*

Introduction

The software industry recognizes the value of Very Small Entities (VSEs) in contributing valuable products and services. For the purpose of ISO/IEC 29110, a Very Small Entity (VSE) is an entity (enterprise, organization, department or project) having up to 25 people. VSEs also develop and/or maintain software that is used in larger systems; therefore, recognition of VSEs as suppliers of high quality software is often required.

According to the Organization for Economic Co-operation and Development (OECD) SME and Entrepreneurship Outlook report (2005), 'SMEs constitute the dominant form of business organisation in all countries world-wide, accounting for over 95 % and up to 99 % of the business population depending on country'. The challenge facing OECD governments 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. Conformance with these standards is difficult, if not impossible, giving VSEs no way, or very limited ways, to be recognized as entities that produce quality software in their domain. Therefore, VSEs are often cut off from some economic activities.

It has been found that VSEs find it difficult to relate International Standards to their business needs and to justify their application to their business practices. Most VSEs can neither afford the resources, in terms of number of employees, budget and time, nor do they see a net benefit in establishing software lifecycle processes. To rectify some of these difficulties, a set of guides has been developed according to a set of VSE characteristics. The guides are based on subsets of appropriate standards elements, referred to as VSE profiles. The purpose of a VSE profile is to define a subset of International Standards relevant to the VSE context, for example, processes and outcomes of ISO/IEC 12207 and products of ISO/IEC 15289.

ISO/IEC 29110, targeted by audience, has been developed to improve product and/or service quality, and process performance. See Table 1. ISO/IEC 29110 is not intended to preclude the use of different life cycles, such as waterfall, iterative, incremental, evolutionary or agile.

Table 1 — ISO/IEC 29110 target audience

ISO/IEC 29110	Title	Target audience
Part 1	Overview	VSEs, assessors, standards producers, tool vendors, and methodology vendors
Part 2	Framework and taxonomy	Standards producers, tool vendors and methodology vendors. Not intended for VSEs.
Part 3	Assessment guide	Assessors and VSEs
Part 4	Profile specifications	Standards producers, tool vendors and methodology vendors. Not intended for VSEs.
Part 5	Management and engineering guide	VSEs

If a new profile is needed, ISO/IEC 29110-4 and ISO/IEC TR 29110-5 can be developed without impacting existing documents and they become ISO/IEC 29110-4-m and ISO/IEC 29110-5-m-n, respectively, through the ISO/IEC process.

ISO/IEC TR 29110-1 defines the business terms common to the VSE Profile Set of Documents. It introduces processes, lifecycle and standardization concepts, and the ISO/IEC 29110 series. It also introduces the characteristics and requirements of a VSE, and clarifies the rationale for VSE-specific profiles, documents, standards and guides.

ISO/IEC 29110-4-1:2011(E)

ISO/IEC 29110-2 introduces the concepts for software engineering standardized profiles for VSEs, and defines the terms common to the VSE Profile Set of Documents. It establishes the logic behind the definition and application of standardized profiles. It specifies the elements common to all standardized profiles (structure, conformance, assessment) and introduces the taxonomy (catalogue) of ISO/IEC 29110 profiles.

ISO/IEC TR 29110-3 defines the process assessment guidelines and compliance requirements needed to meet the purpose of the defined VSE Profiles. ISO/IEC TR 29110-3 also contains information that can be useful to developers of assessment methods and assessment tools. ISO/IEC TR 29110-3 is addressed to people who have direct relation with the assessment process, e.g. the assessor and the sponsor of the assessment, who need guidance on ensuring that the requirements for performing an assessment have been met.

This part of ISO/IEC 29110 provides the specification for all the profiles of the Generic Profile Group. The Generic Profile Group is applicable to VSEs that do not develop critical software products. The profiles are based on subsets of appropriate standards elements. VSE Profiles apply and are targeted at authors/providers of guides and authors/providers of tools and other support material.

ISO/IEC TR 29110-5-m-n provides an implementation management and engineering guide for the VSE Profile described in ISO/IEC 29110-4-m.

Figure 1 describes the ISO/IEC 29110 series and positions the parts within the framework of reference. Overviews and guides are published as Technical Reports (TR), and profiles are published as International Standards (IS).

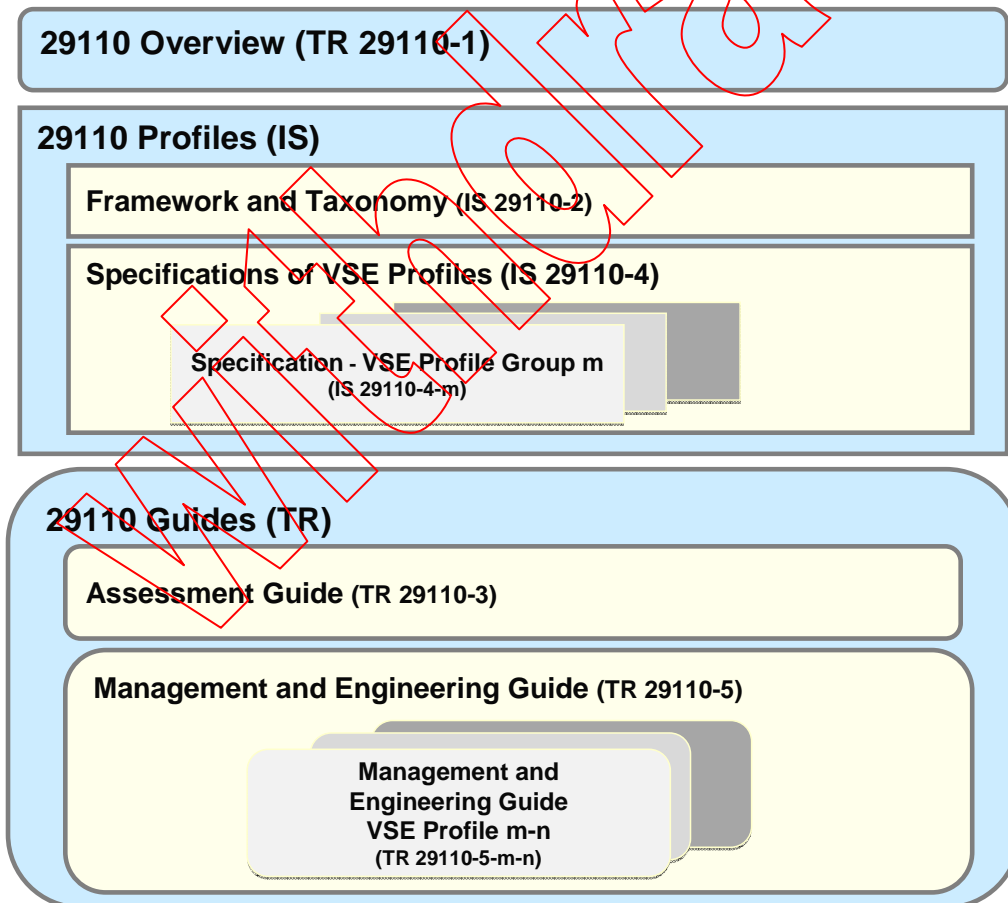


Figure 1 — ISO/IEC 29110 series

Software engineering — Lifecycle profiles for Very Small Entities (VSEs) —

Part 4-1:

Profile specifications: Generic profile group

1 Scope

1.1 Fields of application

ISO/IEC 29110 is applicable to Very Small Entities (VSEs). VSEs are enterprises, organizations, departments or projects up to 25 people. The lifecycle processes described in ISO/IEC 29110 are not intended to preclude or discourage their use by organizations bigger than VSEs.

The lifecycle processes defined in ISO/IEC 29110 can be used by VSEs when acquiring and using, as well as when creating and supplying, a software system. They can be applied at any level in a software system's structure and at any stage in the lifecycle. The processes described in ISO/IEC 29110 are not intended to preclude or discourage the use of additional processes that VSEs find useful.

This part of ISO/IEC 29110 provides a profile specification for the Basic VSE Profile within the Generic Profile Group. The Basic VSE Profile applies to VSEs involved in software development. It selects ISO/IEC 12207 project management and software implementation process elements and ISO/IEC 15289:2006 products from the single project perspective.

Its purpose is to provide the normative and informative links to the subset of ISO/IEC 12207 and ISO/IEC 15289:2006.

1.2 Target audience

This part of ISO/IEC 29110 is targeted at assessors, VSEs that want to claim conformance, authors/providers of guides, and authors/providers of tools and other support material.

2 Conformance

2.1 Conformance situations

This part of ISO/IEC 29110 can be implemented by

- developers of products that facilitate the implementation and the use of this part of ISO/IEC 29110 within organizations;

NOTE Examples of such products are methods, courses, teaching aids, tools, and forms.

- organizations or projects implementing and using the processes and products prescribed by this part of ISO/IEC 29110.

Therefore, conformance can be claimed by developers of products and organizations, with different interpretations, and different conformity assessment methods.

It can be attested by a third party. It can be mandated as part of procurement and contractual processes

2.2 Conformance to this part of ISO/IEC 29110

A VSE that claims conformance to this part of ISO/IEC 29110 shall implement and use all the mandatory profile elements as identified in Clause 7, and the associated properties and requirements as described in the base standards when applicable.

Conformance is achieved by demonstrating that

- mandatory requirements for the lifecycle products (information items) have been satisfied using the content of conformant work products as evidence,
- mandatory requirements for the lifecycle processes have been satisfied using the objectives (outcomes) and products as evidence.

Conformance to this part of ISO/IEC 29110 implies conformance to ISO/IEC 12207 and ISO/IEC 15289:2006, as per their conformance clause that allows partial or tailored conformance.

A product that claims conformance to this part of ISO/IEC 29110 shall implement all the mandatory profile elements as identified in Clause 7, and the associated properties and requirements as described in the base standards when applicable. Conformance is achieved by demonstrating that the conforming product does not exclude, modify or contradict any of the mandatory profile elements.

3 Normative references

The following referenced documents are indispensable for the application 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 TR 29110-1, *Software engineering — Lifecycle profiles for Very Small Entities (VSEs) — Part 1: Overview*

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

ISO/IEC 12207:2008, *Systems and software engineering — Software life cycle processes*

ISO/IEC 15289:2006, *Systems and software engineering — Content of systems and software life cycle process information products (Documentation)*