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

**Part 1:
Overview**

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

iTeh STANDARD PREVIEW
Partie 1: Aperçu général
(standards.iteh.ai)

[ISO/IEC TR 29110-1:2011](https://standards.iteh.ai/catalog/standards/sist/d78d7eed-e44c-4e1d-9cbb-634f449732e0/iso-iec-tr-29110-1-2011)

<https://standards.iteh.ai/catalog/standards/sist/d78d7eed-e44c-4e1d-9cbb-634f449732e0/iso-iec-tr-29110-1-2011>

iTeh STANDARD PREVIEW (standards.iteh.ai)

[ISO/IEC TR 29110-1:2011](https://standards.iteh.ai/catalog/standards/sist/d78d7eed-e44c-4e1d-9cbb-634f449732e0/iso-iec-tr-29110-1-2011)

<https://standards.iteh.ai/catalog/standards/sist/d78d7eed-e44c-4e1d-9cbb-634f449732e0/iso-iec-tr-29110-1-2011>



COPYRIGHT PROTECTED DOCUMENT

© ISO/IEC 2011

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 749 09 47
E-mail copyright@iso.org
Web www.iso.org

Published in Switzerland

Contents

Page

Foreword	v
Introduction.....	vi
1 Scope	1
1.1 Fields of application.....	1
1.2 Target audience	1
2 Terms and definitions	1
3 Conventions and abbreviated terms	6
3.1 Naming, diagramming and definition conventions.....	6
3.2 Abbreviations.....	7
4 VSE Characteristics and VSE Potential Benefits	7
4.1 General	7
4.2 VSE Characteristics	7
4.3 VSE Potential Benefits	7
5 Lifecycle Process Concepts.....	7
5.1 Introduction.....	7
5.2 Lifecycle Models and Stages.....	7
5.3 Lifecycle Product Types	8
6 Process Improvement and Assessment Concepts.....	9
6.1 Process Improvement Concepts	9
6.2 Assessment Concepts	9
7 Standardization Concepts	9
7.1 Introduction.....	9
7.2 Standard	9
7.3 Technical Reports	10
7.4 Profile.....	10
7.5 Profile Group.....	10
7.6 Generic Profile Group	10
7.7 Guides.....	10
7.8 Use of Profiles	10
7.9 Conformance to Profiles.....	11
8 ISO/IEC 29110 series	11
8.1 Introduction.....	11
8.2 Overview.....	11
8.3 VSE Profiles	11
8.3.1 Framework and Taxonomy	12
8.3.2 Profile Specifications	12
8.4 Guides.....	12
8.4.1 Assessment Guide	12
8.4.2 Management and Engineering Guides	12
Annex A (informative) Basic reference works.....	13
A.1 Rationale	13
A.2 Market Study	13
A.3 Current Standards	13
Bibliography.....	14

Table of illustrations

Figure 1 — ISO/IEC 29110 series vii

Table of tables

Table 1 — ISO/IEC 29110 target audience vi

Table 2 — Lifecycle product types..... 8

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[ISO/IEC TR 29110-1:2011](https://standards.iteh.ai/catalog/standards/sist/d78d7eed-e44c-4e1d-9cbb-634f449732e0/iso-iec-tr-29110-1-2011)

<https://standards.iteh.ai/catalog/standards/sist/d78d7eed-e44c-4e1d-9cbb-634f449732e0/iso-iec-tr-29110-1-2011>

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.

In exceptional circumstances, when the joint technical committee has collected data of a different kind from that which is normally published as an International Standard ("state of the art", for example), it may decide to publish a Technical Report. A Technical Report is entirely informative in nature and shall be subject to review every five years in the same manner as an International Standard.

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 TR 29110-1 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]

Entry profile, intermediate profile and advanced profile will form the subjects of future Parts 5-1-1, 5-1-3 and 5-1-4, respectively.

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 bbbbbb* [Technical Report]

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 organization 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. Subsequently VSEs have no, 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 the application of the standards 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 lifecycles 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.

This part of ISO/IEC 29110 defines the business terms common to the ISO/IEC 29110 series. 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 29110-2 introduces the concepts for software engineering standardized profiles for VSEs, and defines the terms common to the ISO/IEC 29110 series. 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.

ISO/IEC 29110-4-*m* provides the specification for all the profiles in one profile group that are based on subsets of appropriate standards elements. VSE Profiles apply and are targeted to 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).

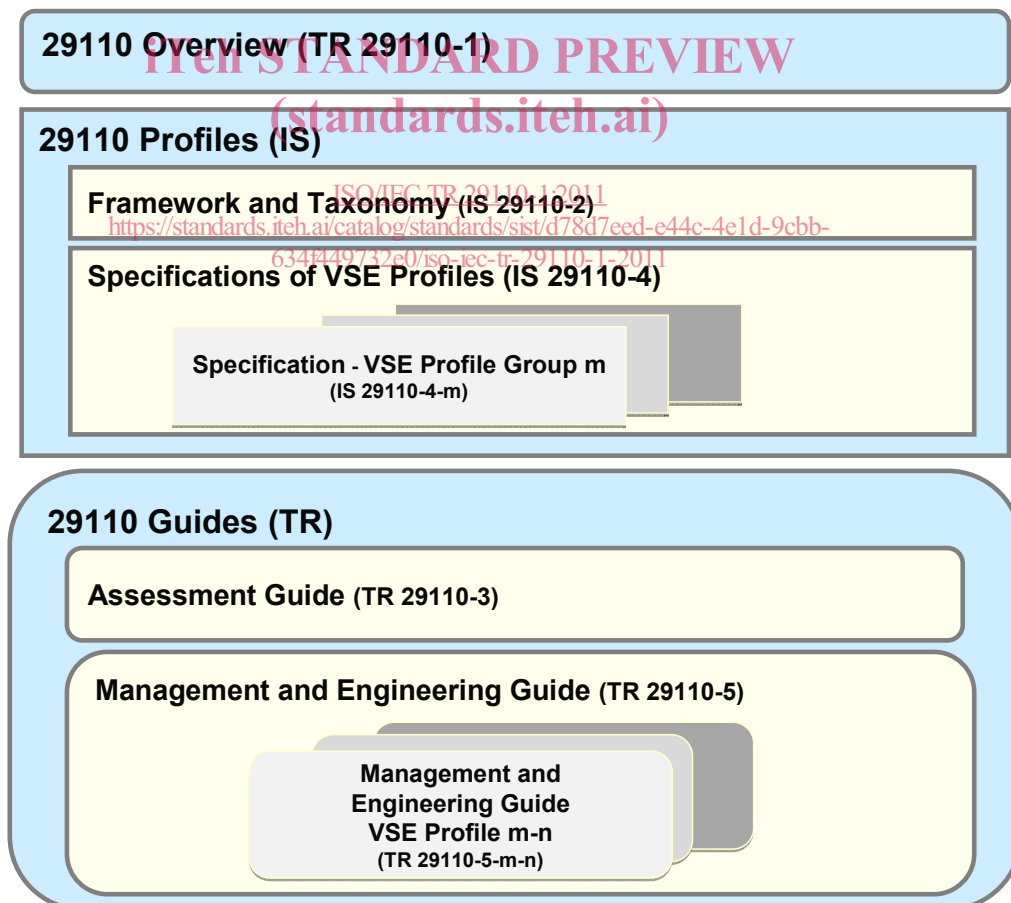


Figure 1 — ISO/IEC 29110 series

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[ISO/IEC TR 29110-1:2011](https://standards.iteh.ai/catalog/standards/sist/d78d7eed-e44c-4e1d-9cbb-634f449732e0/iso-iec-tr-29110-1-2011)

<https://standards.iteh.ai/catalog/standards/sist/d78d7eed-e44c-4e1d-9cbb-634f449732e0/iso-iec-tr-29110-1-2011>

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

Part 1: Overview

1 Scope

1.1 Fields of application

This part of ISO/IEC 29110 introduces the major concepts required to understand and use the ISO/IEC 29110 series. It introduces the characteristics and requirements of a Very Small Entity (VSE), and clarifies the rationale for VSE-specific profiles, documents, standards and guides.

It also introduces process, lifecycle and standardization concepts and defines the business terms common to the ISO/IEC 29110 series.

This part of ISO/IEC 29110 is applicable to VSEs. The lifecycle processes described in ISO/IEC 29110 are not intended to preclude or discourage their use by an entity that is larger than a VSE.

1.2 Target audience

This part of ISO/IEC 29110 is targeted both at the general audience wishing to understand the ISO/IEC 29110 series and more specifically at users of the ISO/IEC 29110 series. It is intended that it be read first when initially exploring VSE Profile documents. While there is no specific prerequisite to read this part of ISO/IEC 29110, it will be helpful to the user in understanding the other parts.

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

2 Terms and definitions

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

2.1

activity

set of cohesive tasks of a process

[ISO/IEC 12207:2008]

2.2

assessment indicator

sources of objective evidence used to support the assessors' judgment in rating process attributes

EXAMPLE Work products, practice, or resource.

[ISO/IEC 15504-1]

2.3

assessor

individual who participates in the rating of process attributes

[ISO/IEC 15504-1]

2.4

baseline

specification or product that has been formally reviewed and agreed upon, that thereafter serves as the basis for further development, and that can be changed only through formal change control procedures

[ISO/IEC 12207:2008]

2.5

base standard

approved International Standard or Telecommunication Standardization Sector of the International Telecommunications Union (ITU-T) Recommendation

[ISO/IEC TR 10000-1]

2.6

competent assessor

assessor who has demonstrated the competencies to conduct an assessment and to monitor and verify the conformance of a process assessment

[ISO/IEC 15504-1]

iTeh STANDARD PREVIEW
(standards.iteh.ai)

2.7

customer

organization or person that receives a product or service

NOTE A customer can be internal or external to the organization.
<https://standards.iteh.ai/catalog/standards/sist/d78d7eed-e44c-4e1d-9cbb-634f449732e0/iso-iec-tr-29110-1-2011>

[ISO/IEC 12207:2008]

2.8

deployment package

set of artefacts developed to facilitate the implementation of a set of practices of the selected framework

2.9

generic profile group

profile group applicable to VSEs that do not develop critical software products and have typical situational factors

2.10

guide

document published by ISO or IEC giving rules, orientation, advice or recommendations relating to international standardization

[ISO/IEC Directives, Part 2]

2.11

international standard

standard that is adopted by an international standardizing/standards organization and made available to the public

[ISO/IEC Directives, Part 2]

2.12**standardized profile**

internationally agreed-to, harmonized standard which describes one or more profiles

NOTE Adapted from the definition of "International Standardized Profile" in ISO/IEC TR 10000-1.

2.13**lifecycle**

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

[ISO/IEC 12207:2008]

2.14**process**

set of interrelated or interacting activities which transforms inputs into outputs

[ISO 9000]

2.15**process assessment**

disciplined evaluation of an organizational unit's processes against a Process Assessment Model

[ISO/IEC 15504-1]

2.16**process assessment model**

model suitable for the purpose of assessing process capability, based on one or more Process Reference Models

[ISO/IEC 15504-1]

iTech STANDARD PREVIEW
(standards.itech.ai)

<https://standards.itech.ai/catalog/standards/sist/d78d7eed-e44c-4e1d-9cbb-634f449732e0/iso-iec-tr-29110-1-2011>

2.17**process capability**

characterization of the ability of a process to meet current or projected business goals

[ISO/IEC 15504-1]

2.18**process capability level**

point on the six-point ordinal scale (of process capability) that represents the capability of the process, each level building on the capability of the level below

[ISO/IEC 15504-1]

2.19**process improvement**

actions taken to change an organization's processes so that they more effectively and/or efficiently meet the organization's business goals

[ISO/IEC 15504-1]

2.20**process outcome**

observable result of a process

[ISO/IEC 15504-1]