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IEEE Guide—
Adoption of ISO/IEC TR 24748-3:2011

Systems and Software Engineering—
Life Cycle Management—
Part 3: Guide to the Application of ISO/IEC 12207 (Software Life Cycle Processes)

IEEE Computer Society

Sponsored by the
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Adoption of ISO/IEC TR 24748-3:2011

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Sponsor

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ISO/IEC TR 24748-3:2011 is a guide for the application of ISO/IEC 12207:2008. It addresses system, life cycle, process, organizational, project, and adaptation concepts, principally through reference to ISO/IEC TR 24748-1 and ISO/IEC 12207:2008. It gives guidance on applying ISO/IEC 12207:2008 from the aspects of strategy, planning, application in organizations, and application on projects.

ISO/IEC TR 24748-3:2011 is intentionally aligned with both ISO/IEC TR 24748-1 and ISO/IEC TR 24748-2 *(Guide to the application of ISO/IEC 15288)* in its terminology, structure and content.

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Introduction

This introduction is not part of IEEE Std 24748-3-2012, IEEE Guide—Adoption of ISO/IEC TR 24748-3:2011, Systems and Software Engineering—Life Cycle Management—Part 2: Guide to the Application of ISO/IEC 15288 (System Life Cycle Processes).

The IEEE Software and Systems Engineering Standards Committee (S2ESC) has undertaken a long-term program to harmonize its standards with those of ISO/IEC JTC 1/SC 7, the international standards committee for software and systems engineering. In areas of overlap, one organization sometimes adopts the relevant standard from the other organization, or the two organizations cooperate to produce a single joint standard. In this case, S2ESC has chosen to adopt a relevant document from SC 7.

This IEEE standard is an adoption of ISO/IEC TR 24748-3:2011. References to some ISO/IEC standards should be considered as references to the identical IEEE standards:

- ISO/IEC/IEEE 12207:2008 is identical to ISO/IEC 12207:2008
- ISO/IEC/IEEE 14764:2006 is identical to ISO/IEC 14764:2006
- ISO/IEC/IEEE 15288:2008 is identical to ISO/IEC 15288:2008
- ISO/IEC/IEEE 16085:2006 is identical to ISO/IEC 16085:2006
- ISO/IEC/IEEE 16326:2009 is identical to ISO/IEC 16326:2009
- The IEEE Computer Society's *Guide to the Software Engineering Body of Knowledge* (http://www.computer.org/portal/web/swebok) is the identical source of ISO/IEC TR 19759:2005
- IEEE Std 1220:2005 is the identical source of ISO/IEC 26702:2007
- IEEE Std 1471:2007 is the identical source of ISO/IEC 42010:2007
- IEEE Std 90003:2008 is the identical adoption of ISO/IEC 90003:2004

It should be noted that IEEE is currently considering other identical adoptions. If approved, references to these ISO/IEC standards should be considered as references to the identical IEEE adoptions:

- IEEE Std 24748-1 would be the identical adoption of ISO/IEC TR 24748-1
- IEEE Std 24748-2 would be the identical adoption of ISO/IEC TR 24748-2
- IEEE Std 24774 would be the identical adoption of ISO/IEC TR 24774:2011

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IEEE Guide—
Adoption of ISO/IEC TR 24748-3:2011

Systems and Software Engineering—
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Part 3: Guide to the Application of ISO/IEC 12207 (Software Life Cycle Processes)

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Part 3: Guide to the application of ISO/IEC 12207 (Software life cycle processes)

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Partie 3: Guide pour l'application de l'ISO/CEI 12207 (Processus du cycle de vie du logiciel)

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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.

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 24748-3 was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 7, *Software and systems engineering*.

This first edition of ISO/IEC TR 24748-3 cancels and replaces ISO/IEC TR 15271:1998, which has been technically revised.

ISO/IEC TR 24748 consists of the following parts, under the general title *Systems and software engineering — Life cycle management*:

— *Part 1: Guide for life cycle management*

— *Part 2: Guide to the application of ISO/IEC 15288 (System life cycle processes)*

— *Part 3: Guide to the application of ISO/IEC 12207 (Software life cycle processes)*

Introduction

ISO (the International Organization for Standardization) and IEC (the International Electrotechnical Commission) currently have two International Standards that focus on life cycle processes:

— ISO/IEC 15288:2008, *Systems and software engineering — System life cycle processes*, and

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

In addition, ISO and IEC have a multi-part International Standard that promotes the adoption of an integrated process approach when establishing, implementing, operating, monitoring, reviewing, maintaining and improving a Service Management System (SMS), to deliver services which meet business needs and customer requirements:

— ISO/IEC 20000, *Information technology — Service management*.

This service management standard may be used in conjunction with ISO/IEC 15288 and ISO/IEC 12207 for the delivery of system services and software services.

The purpose of this part of ISO/IEC TR 24748 is to provide guidance on the application of the software life cycle processes standard, ISO/IEC 12207:2008. Taken together, the parts of ISO/IEC TR 24748 are intended to facilitate the joint usage of the process content of the two high-level life cycle process standards, which in turn may be used together with related standards such as the one for service management, and various other lower-level process standards. In this way, ISO/IEC TR 24748 provides unified and consolidated guidance on the life cycle management of systems and software. Its purpose is to help ensure consistency in system concepts and life cycle concepts, models, stages, processes, process application, key points of view, adaptation and use in various domains as the two standards (and others) are used in combination. It should help a project design a life cycle model for managing progress on a project.

Whereas ISO/IEC TR 24748-1 addresses in generic terms the purpose stated above of guidance for the life cycle management of systems and software, this part of ISO/IEC TR 24748 focuses in on and expands the coverage of those aspects most relevant to software. This part of ISO/IEC TR 24748 will also, in conjunction with ISO/IEC TR 24748-1, aid in identifying and planning the use of the life cycle processes described in ISO/IEC 12207:2008. The proper use of these processes will contribute to a project being completed successfully, meeting its objectives and requirements for each stage and for the overall project.

This part of ISO/IEC TR 24748 elaborates on factors that should be considered when applying ISO/IEC 12207:2008 and does this in the context of the various ways in which ISO/IEC 12207:2008 can be applied. The guidance is not intended to provide the rationale for the requirements of ISO/IEC 12207:2008. Before reading this part of ISO/IEC TR 24748, readers have to understand the relation between system and software, the concept of "system of interest", and the structure of a system. These concepts are described in ISO/IEC TR 24748-1.

Systems and software engineering — Life cycle management —

Part 3:
Guide to the application of ISO/IEC 12207 (Software life cycle processes)

1 Scope

This part of ISO/IEC TR 24748 is a guide for the application of ISO/IEC 12207:2008. It addresses system, life cycle, process, organizational, project, and adaptation concepts, principally through reference to ISO/IEC TR 24748-1 and ISO/IEC 12207:2008. It gives guidance on applying ISO/IEC 12207:2008 from the aspects of strategy, planning, application in organizations, and application on projects.

This part of ISO/IEC TR 24748 is intentionally aligned with both ISO/IEC TR 24748-1 and ISO/IEC TR 24748-2 (*Guide to the application of ISO/IEC 15288*) in its terminology, structure and content.

2 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO/IEC 12207:2008, ISO/IEC 15288:2008 and ISO/IEC TR 24748-1:2010, apply.

3 Overview of ISO/IEC 12207:2008

3.1 General

ISO/IEC 12207:2008, *Systems and software engineering — Software life cycle processes*, establishes a common framework for software life cycle processes, with well-defined terminology, that can be referenced by the software industry. It applies to the acquisition of systems and software products and services, to the supply, implementation, operation, maintenance, and disposal of software products and the software portion of a system, whether performed internally or externally to an organization. Those aspects of system definition needed to provide the context for software products and services are included. Software includes the software portion of firmware.

ISO/IEC 12207:2008 may be used stand alone or jointly with other International Standards, such as ISO/IEC 15288:2008, and supplies a process reference model that supports process capability assessment in accordance with ISO/IEC 15504-2, *Information technology — Process assessment — Part 2: Performing an assessment*.

The purpose of ISO/IEC 12207:2008 is to provide a defined set of processes to facilitate communication among acquirers, suppliers and other stakeholders in the life cycle of a software product. ISO/IEC 12207:2008 is written for acquirers of systems and software products and services and for suppliers, implementers, operators, maintainers, managers, quality assurance managers, and users of software products.