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Ingénierie du logiciel et des systèmes — Services d'environnement en ingénierie 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.

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This second edition cancels and replaces the first edition (ISO/IEC 15940:2006), which has been technically revised.

Introduction

Software engineering environments, or “SEEs” refer to a collection of services, partially or fully automated by software tools, that are used to support the execution of human activities in systems and software engineering.

These activities are usually carried out within a software or system development/maintenance project, and cover such areas as the specification, development, re-engineering or maintenance of systems.

ISO/IEC 12207 describes in a comprehensive manner all of the processes, activities and tasks performed during the software life cycle.

The term “Software Engineering Environment” may cover several situations; from the mere juxtaposition of a few tools running on the same operating system, to the fully integrated environment, able to handle, monitor, and even control all the data, processes, and activities in the systems and software engineering life cycle. A SEE provides support to human activities through a series of services that describe the capabilities of the environment. The software process supported by a SEE becomes an assisted or automated software process. This International Standard describes SEE services and relates them to ISO/IEC 12207:2008 in a manner applicable to a range of organizations. In defining a life cycle process for an organization, the user needs to find the appropriate level of automation provided by a software engineering environment. This may result in establishing a new SEE or improving an existing one.

Through the automation of activities, either partially or fully, the SEE provides benefits to an organization through reduced cost (higher productivity), improved management and from the higher product quality that can result. For example, the automation of repetitive activities such as the execution of test cases provides not only productivity gains, but can also help to ensure completeness and consistency in the testing activities

This International Standard defines the SEE services conceptually in a reference model that can be adapted to any SEEs to automate one or more software and system engineering activities.

For a user interested in a specific process, this International Standard describes the relationship between given systems and software engineering processes, the software engineering services, and the corresponding exemplary software engineering tools.

The suite of SEE services described supports the process definitions in ISO/IEC 12207. The purpose is to define a set of SEE Services that are compatible with ISO/IEC 12207:2008, and that can be used either as a general reference, or to define an automated software and system process.