

*This is an overview of the 1175 family of CASE Tool interconnection standards*

*1175.1 & 1175.3 have been published and can be purchased from the IEEE.  
1175.2 has been unanimously approved by the ballot group and is in final editing.  
1175.4 is planned for the end of 2007 & 1175.5 will follow thereafter.*

## The 1175 family of standards

This standard is a member of the 1175 family of IEEE standards. The members of this family are:

Standard number	Title
IEEE Std 1175.1™-2002	IEEE Guide for CASE Tool Interconnections—Classification and Description
IEEE P1175.2	Draft Recommended Practice for CASE Tool Interconnections—Characterization of Interconnections
IEEE Std 1175.3™-2004	IEEE Standard for CASE Tool Interconnections—Reference Model for Specifying Software Behavior
IEEE P1175.4	Draft Standard for CASE Tool Interconnections—Reference Model for Specifying System Behavior
IEEE P1175.5	Draft Standard for CASE Tool Interconnections—Syntax for Transferring Behavior Specifications

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This family of standards replaces IEEE Std 1175™-1991, IEEE Standard Reference Model for Computing System Tool Interconnections.<sup>1</sup> IEEE Std 1175-1991 was advanced to a full-use standard in 1994. It covered a number of closely related subjects, and the scope of material contained was able to serve a number of divergent interests.

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<sup>1</sup> Although approved in 1991, IEEE Std 1175-1991 was actually published in 1992, and is sometimes found referenced as IEEE Std 1175-1992. It appears in the standards listing on the IEEE Xplore Web site (<http://ieeexplore.ieee.org/>) as "IEEE Std 1175, 17 Aug. 1992," with the title "IEEE trial-use standard reference model for computing system tool interconnections." In 1994 the term "trial-use" was removed from the title when the standard was approved for full-use status. The 1994 version, which was identical to the 1992 publication except for the title and minor editorial corrections, is not available on the IEEE Web site.

This revision restructures and substantially augments the material in IEEE Std 1175-1991. It has been divided into several individually useful documents in order to facilitate its use by different communities of interest. These guides, recommended practices, and standards generally address issues involved in characterizing the kinds of interconnections that exist between a computing system tool and its environment. Although particularly intended to address the implementation and use of Computer-Aided Software Engineering (CASE) tools, the discussion of interconnections in this family actually has wider applicability to computing system tools in general, beyond only CASE tools.

Four kinds of interconnections with a computing system tool are addressed: interconnections with organizations, users, platforms, and other computing system tools. Consideration of interconnections is important to understanding, selecting, implementing, and using computing system tools. Also, although many computing system tools do not need to communicate behavior descriptions of subject systems, their creators need to develop such behavior descriptions for the tools themselves.

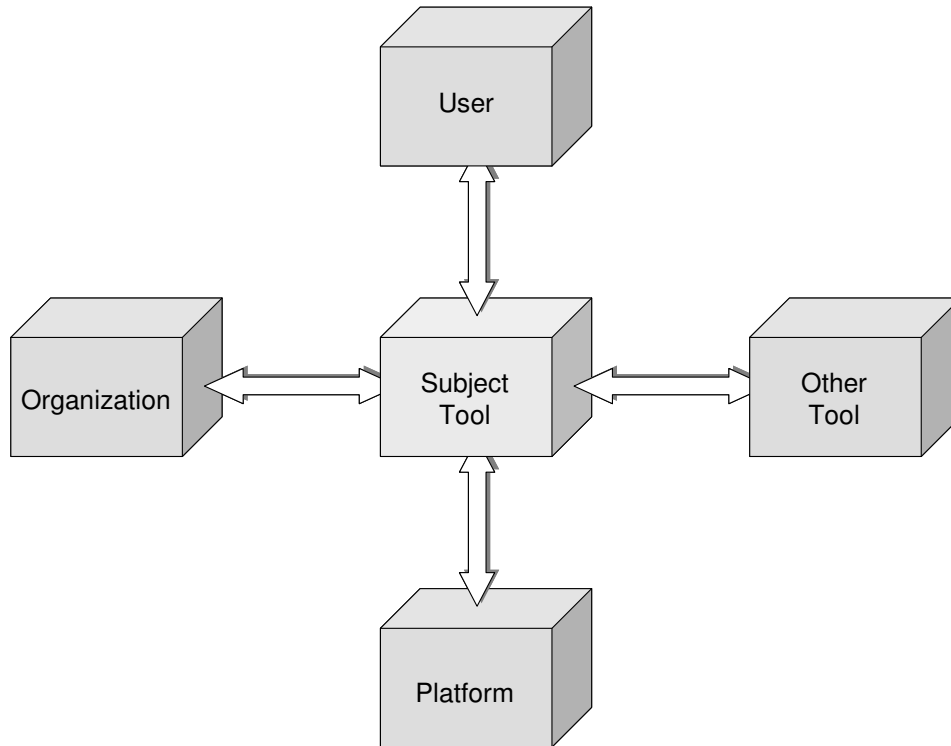
A brief summary overview of each of the members of this family of standards is given below. A more complete overview is available in IEEE Std 1175.1<sup>TM</sup>-2002, which provides an integrated overview of the members of the 1175 family of standards, and it describes the fundamental concepts that provide a basis for organizing the material.

### **IEEE Std 1175.1-2002 Guide for CASE Tool Interconnections—Classification and Description**

IEEE Std 1175.1-2002 is a guide to the IEEE 1175 family of standards. It describes how these standards are intended to be used to accomplish the effective integration of computing system tools into a productive engineering environment and sets forth the fundamental concepts on which these standards are based. These concepts establish the integrating framework for the other members of this family of standards. IEEE Std 1175.1-2002 describes the scope of application of each member standard, the various issues addressed in that standard, and the interrelationships between the family members.

### **IEEE P1175.2 Recommended Practice for CASE Tool Interconnections—Characterization of Interconnections – *undergoing final editing.***

This standard presents four perspectives on a computing system tool's interconnections that offer insight into the operational problems of interconnecting computing system tools with their environment. This standard establishes recommended collections of standard contextual attributes describing relationships between a computing system tool and its organizational deployment, its human user, its executable platform, and its peer tools, as illustrated in the figure below. These contextual attributes are of the “news-story” form: who, what, when, where, why. The values of these contextual attributes are references to organizational, industrial, and professional standards. By assisting users to reach a clear understanding of the context of operation for a computing system tool, this standard contributes to the effective implementation and application of computing system tools.



### **IEEE Std 1175.3-2004 Standard for CASE Tool Interconnections—Reference Model for Specifying Software Behavior**

IEEE Std 1175.3-2004 is an expansion of Part 3 of IEEE Std 1175-1991. It focuses specifically on a common set of modeling concepts found in commercial CASE tools for describing the operational behavior of a software product, and it provides a formal, logical model for describing this behavior. IEEE Std 1175.3-2004 also defines a Semantic Transfer Language (STL) for communicating software behavior descriptions from one tool to another. A notable feature of the STL is its design for human readability, which makes STL text files suitable for use in software design reviews by users unfamiliar with computing system tool diagramming notations. In addition, the design of the STL syntax readily permits analysts to prepare and edit STL descriptions using a text editor or word processor.

To permit backward compatibility with Part 3 of IEEE Std 1175-1991, IEEE Std 1175.3-2004 makes no changes to the STL syntax or to the rules for conformance to this syntax as originally defined in Part 3 of IEEE Std 1175-1991. However, some aspects of the 1991 syntax that were previously left as user defined have now been specified in order to increase the consistency and reliability with which the STL may be used for exchanging software specification information. In addition, improvements have been made in how the STL syntax is defined and explained. Finally, the STL Interconnection Profile has been replaced with more straightforward, more “user-friendly” tabular and comma-separated-value formats to define a Tool Interconnection Profile that can serve the same purpose as the original form of the Profile.

## IEEE P1175.4 Standard for CASE Tool Interconnections—Reference Model for Specifying System Behavior – *tbd by December, 2007*

IEEE P1175.4 encompasses the description of other computing systems supported by IEEE 1175.3-2004, but it goes further, providing a basis for representing a wider variety of computing systems. Specifically, IEEE P1175.4 provides the necessary semantic elements for describing general hardware/software systems, including hardware-only, software-only, or mixed system components, and it allows these different types of components to be treated in a consistent manner.

## IEEE P1175.5 Standard for CASE Tool Interconnections—Syntax for Transferring Behavior Specifications – *projected completion December, 2008*

IEEE P1175.5 provides a structured syntax and a specific set of data elements that can be exchanged as a text stream or text file with users or other tools. This syntax permits describing a system's operational behavior as an instance of the reference meta-model in IEEE P1175.4. The figure below illustrates the relationship between the IEEE P1175.4 meta-model and the IEEE P1175.5 XML syntax in the context of the Tool–Tool exchange of a computing system description. IEEE P1175.5 also provides a logically equivalent human-readable syntax.

