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Information technology — Year 2000 terminology

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Abstract: This standard provides concepts, definitions, remediation techniques, and other supporting terms fundamental to a lexicon for Year 2000 terminology. It addresses key topics pertinent to the development of resolutions to the Year 2000 problem. The core of this standard is the definitions Clause which contains the definition for Year 2000 compliance. Two critical aspects of this definition are: first, the acknowledgment of the significance of documentation associated with technology, and, second, the recognition that compliance is a two-way street, i.e., the proper exchange of date data is paramount for technology to remain compliant.

Keywords: date exchange, remediation techniques, Year 2000 compliant

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International Standard ISO/IEC 16509 was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology, Subcommittee SC 22, Programming languages, their environments and system software interfaces*.

Annexes A to C of this International Standard are for information only.



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This introduction provides background on the rationale used to develop this international standard. This information is meant to aid in the understanding and usage of this standard.

This international standard addresses the key industry concern over the existence of multiple terms and lexicons that carry varied meanings. IEEE has designed this standard to assist individuals and organizations in their efforts to develop Year 2000 solutions. Having a base-line set of terms and definitions that can serve as a foundation for such efforts is vital.

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Contents

1.	Overview.....	1
1.1	Scope.....	2
1.2	Purpose.....	2
1.3	Conformance.....	3
2.	References.....	3
3.	Definitions.....	3
4.	Concepts.....	3
4.1	Valid date interval (also known as compliance date range)	3
4.2	Time horizon to failure (also known as event horizon)	4
4.3	Year 2000 life cycle	4
	Annex A—Techniques, terms, and special dates.....	5
	Annex B—Bibliography	8

Information technology—Year 2000 terminology

1. Overview

The Year 2000 issue appears to be a simple problem that is intuitively understood. However, when examined closely, the solutions are varied and complex in nature. The essence of this problem is the representation of the year as a two-digit number in hardware and software elements of computer systems and other technologies. This representation may, for example, cause hardware or software malfunctions to occur when a system date or application date crosses the year 2000 boundary (whether that is the actual arrival of the date or for date processing purposes) or when the system or application must refer to a date that occurs on, before, or after 1 January 2000. These malfunctions can include the following:

- Incorrect arithmetic calculation, comparison, sorting, or sequencing resulting in the failure of logical, relational, and set-membership operations;
- Incorrect recognition of leap year;
- Conflict with values in data fields used for non-date purposes, e.g., “no date provided,” or “never expires”; and
- Date data field overflow.

The two-digit date may not be the sole cause of these malfunctions. They may also result from poor programming practices or a lack of full understanding of the Gregorian calendar. The consequences of these malfunctions could range from immediate system failures to more insidious long-term data corruptions.

The impact of the Year 2000 problem is potentially significant to virtually any segment of the global digital infrastructure and the economies it supports. Among the environments in which critical applications may be affected by Year 2000 issues are:

- Bio-medical
- Telecommunications/transportation
- Finance/banking
- Aviation/aerospace
- National security/law enforcement
- Other critical infrastructure

As this standard is being prepared, many organizations are in various stages of addressing this problem. Some are just beginning to assess the impact on their own information technology (IT) environments. Others

have already begun to implement solutions. The rising need for solutions has created a market environment wherein there are a growing number of organizations offering such solutions. These organizations have also created a diverse set of terms. Many of the terms may seem similar, but will actually have multiple meanings within differing environments, which brings the potential for confusion to what should be an easily understood problem.

This standard identifies common terms, definitions, and related concepts that have broad applicability to this area of work. Those presented herein may be applied wholly or in part to fit a specific requirement.

A lexicon within which the common terms, definitions, and related concepts are understood is vital. The IT industry's use of the terms defined in this standard will minimize confusion. In addition, having common terms, definitions, and related concepts will speed the development of urgently needed solutions. This standard describes what these terms, definitions, and related concepts mean, not how to implement or verify Year 2000 compliance.

It is not the intent of this standard to specify how Year 2000 compliance should be implemented or verified.

1.1 Scope

This standard identifies terms and concepts pertinent to the resolution of the Year 2000 issue, including the rollover from the year 1999 to 2000, incorrect recognition of leap years, and values in date fields used for non-date purposes, and provides definitions of these terms and descriptions of these concepts.

This standard does not specifically address operating system anomalies such as might occur in the year 2038.

1.2 Purpose

This standard provides a common lexicon with descriptions and definitions for the Year 2000 issue. These descriptions and definitions may be applied in whole or in part depending on the requirement.

This standard is composed of a Definitions Clause (3), a Concepts Clause (4), and two Annexes (A and B).

1.2.1 Concepts

A concept is a set of interrelated ideas pertaining to the Year 2000 issue. This standard offers a description of these concepts. This is not an exhaustive list.

1.2.2 Definitions

These are focused meanings of terms fundamental to the resolution of the Year 2000 issue.

1.2.3 Annex A

This annex outlines remediation techniques currently being used to make system elements Year 2000 compliant. This list of techniques is not exhaustive. It presents only those techniques acknowledged as having gained a significant amount of industry consensus. Along with the techniques is a list of supporting terms and their explanation. In addition, the annex briefly explains the role of special dates in the development of solutions for the Year 2000 problem. This annex is informative.

1.2.4 Annex B

This is a bibliography listing other related publications.

1.3 Conformance

Vendors who claim that their products conform to this standard declare that their use of the term “Year 2000 Compliant” is in accordance with the definition in this standard.