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# INTERNATIONAL STANDARD

# NORME INTERNATIONALE

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**Dependability management -  
Part 3-10: Application guide - Maintainability and maintenance**

**Gestion de la sûreté de fonctionnement -  
Partie 3-10: Guide d'application - Maintenabilité et maintenance**



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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

**Dependability management -  
Part 3-10: Application guide - Maintainability and maintenance**

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IEC 60300-3-10 has been prepared by IEC technical committee 56: Dependability. It is an International Standard.

This second edition cancels and replaces the first edition published in 2001. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

- a) more guidance is included on establishing a maintenance programme;
- b) some guidance on support and supportability has been removed and has been moved to IEC 60300-3-14.

The text of this International Standard is based on the following documents:

Draft	Report on voting
56/2059/FDIS	56/2097/RVD

Full information on the voting for its approval can be found in the report on voting indicated in the above table.

The language used for the development of this International Standard is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at [www.iec.ch/members\\_experts/refdocs](http://www.iec.ch/members_experts/refdocs). The main document types developed by IEC are described in greater detail at [www.iec.ch/publications](http://www.iec.ch/publications).

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- reconfirmed,
- withdrawn, or
- revised.

## INTRODUCTION

This document provides guidance on how to identify and apply appropriate analysis and assurance techniques for maintainability and maintenance.

Maintainability relates to the ease and speed with which an item can be retained in, or restored to, a state to perform as required. Maintainability relates to the time and resources to undertake maintenance in a defined context.

For software, maintainability is the ease with which the software can be modified without major reverse engineering or redesign to address faults and changing needs. The purpose of software maintenance is to retain the functionality of software over time.

Maintenance actions are those necessary to retain or restore an item to a state to perform as required. The relative ease and economy of maintenance actions relates to the total impact resulting from the actions' frequency, timing, and duration. The impact can include economic, availability and performance impacts.

An important part of the cost of an item over its life is the total resources spent on the tasks necessary to maintain it in a satisfactory condition. This is influenced by the number of required tasks, their complexity, and duration. An item that can be maintained easily and is supported by a competent and efficient maintenance organization generally has a greater availability and a reduced life cycle cost compared to one that does not have these attributes.

This document provides managers and technical professionals involved in specification, design, development, manufacture, acceptance and use of products and services with guidance on how to achieve, analyse and ensure maintainability and maintenance effectiveness.

Guidance in this document can be used at any time during the life cycle of an item or project for the planning and implementation of a maintainability or maintenance programme.

The activities described within this document can form part of an organization's asset management or quality management strategy and can therefore be aligned to, and consistent with, the organizational objectives.

The maintainability and maintenance programme content described in this document can be tailored to suit the needs of the application. Maintainability and maintenance programmes can be conducted independently or as one integrated programme.

This document is one of the 'top level' interrelated dependability standards that provides managers and technical personnel with guidance on how to effectively plan and implement dependability activities. Other documents in the suite are:

- IEC 60300-1 which highlights the importance and benefits of managing dependability. It gives guidance on dependability activities and how to integrate them into an existing management system and life cycle processes;
- IEC 60300-3-4 which provides guidance for writing dependability requirements in specifications together with a means of assuring the achievement of those requirements;
- IEC 60300-3-14 which provides guidance on how to identify and apply appropriate analysis and assurance techniques for supportability (and support);
- Standards to cover reliability and availability, which are planned.

## 1 Scope

This part of IEC 60300 gives guidance to managers and technical and financial personnel on the basic principles of maintainability and maintenance activities that are applicable to any organization.

This document describes:

- the value and nature of maintainability and maintenance characteristics;
- the interfaces between maintainability and related dependability attributes of reliability, availability and supportability, as well as potential trade-offs that can be made through the interfaces during the life cycle of an item;
- the elements of maintainability and maintenance programmes;
- the application of maintainability and maintenance programmes throughout the life cycle;
- techniques to ensure maintainability and maintenance requirements are met;
- maintainability and maintenance data and information management.

This document is applicable to equipment, software, services, or structures, and gives guidance on matters of common interest to any business supplying, purchasing or sustaining products, services, or structures.

## 2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 60050-192, *International Electrotechnical Vocabulary (IEV) - Part 192: Dependability*, available at <https://www.electropedia.org/>

## 3 Terms, definitions and abbreviated terms

### 3.1 Terms and definitions

For the purposes of this document, the terms and definitions given in IEC 60050-192 and the following apply.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

- IEC Electropedia: available at <https://www.electropedia.org/>
- ISO Online browsing platform: available at <https://www.iso.org/obp>

#### 3.1.1

Item

subject being considered

Note 1 to entry: The item can be an individual part, component, device, functional unit, equipment, subsystem, system, service or process.

Note 2 to entry: The item can consist of hardware, software, people or any combination thereof.

Note 3 to entry: The item is often comprised of elements that can each be individually considered.

[SOURCE: IEC 60050-192:2024, 192-01-01]