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Device generic command set for magnetic and optical
disk drives

Technologies de l'information — Interface pour les périphériques intelligents —

*Partie 3: Jeu de commandes génériques appareil pour les disques magnétiques et
optiques*



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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. 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.

International Standard ISO/IEC 9318-3 was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*.

ISO/IEC 9318 consists of the following parts, under the general title *Information technology — Intelligent Peripheral Interface*:

- *Part 1: Physical level*
- *Part 2: Device specific command set for magnetic disk drives*
- *Part 3: Device generic command set for magnetic and optical disk drives*
- *Part 4: Device generic command set for magnetic tape drives*

Annex A forms an integral part of this part of ISO/IEC 9318. Annexes B and C are for information only.

Introduction

This part of ISO/IEC 9318 does not replace any existing standard, but it does complement other Intelligent Peripheral Interface (IPI) standards (see clause 2).

This part of ISO/IEC 9318 provides a definition of the device-generic portion of a series of standards called the Intelligent Peripheral Interface (IPI), a high performance, general-purpose parallel peripheral interface. This part of ISO/IEC 9318 responds to an industry market need (expressed both by users and manufacturers) to limit the increasing costs in hosts associated with changes in peripherals.

The first five clauses of this part of ISO/IEC 9318 contain material that is useful across all classes of devices that the device-generic command sets can support. Clauses 6 to 12 are oriented to particular device classes and in this document are intended for use with Magnetic and Optical disks.

- Clause 1 describes the scope.
- Clause 2 lists the normative reference.
- Clause 3 provides descriptions and conventions.
- Clause 4 describes the environment-of-use and projected application areas.
- Clause 5 describes the Message Packet structure used for commands and responses.
- Clause 6 describes Control commands.
- Clause 7 describes Position commands.
- Clause 8 describes the most generic Transfer commands.
- Clause 9 describes the Combination Transfer commands, which require a minimum of two sets of extents.
- Clause 10 describes the other Transfer commands, which are more device specific than those in clause 8.
- Clause 11 describes the Diagnostic commands.
- Clause 12 summarizes the commands defined in the document.

Information technology - Intelligent Peripheral Interface -

Part 3:

Device generic command set for magnetic and optical disk drives

1 Scope

This part of ISO/IEC 9318 describes the Logical Level 3 (generic level) Interface for magnetic and optical disk drives. See clause 6 of ISO/IEC 9318-1 for an explanation of the levels.

The physical, electrical, and configuration characteristics and the transmission protocol of this interface are in accordance with ISO/IEC 9318-1. The interface is capable of handling data rates from 0 to at least 10 Mbytes/s, depending on driver and receiver classes.

The purpose of this part of ISO/IEC 9318 is to facilitate the development and utilization of an intelligent interface which permits the interconnection of multiple peripheral types such as disk, tape, communications, to a controller.

This part of ISO/IEC 9318 does not replace any existing standard, but it does complement other Intelligent Peripheral Interface (IPI) standards (see clause 2).

This part of ISO/IEC 9318 provides a definition of the device-generic portion of a family of standards called the Intelligent Peripheral Interface (IPI), a high performance, general-purpose parallel peripheral interface.

The intent of the IPI is to isolate the host (CPU), both hardware and software, from changes in peripherals by providing a "function-generic" command set to allow the connection of multiple types of peripherals (disks, printers, tapes, communications). To smooth the transition from the current methods to the generic approach, the IPI supports device-specific command sets to aid in bridging the gap between the two approaches.

To accomplish this set of goals, the design of the IPI includes device-specific and device-generic command sets, both utilizing a common physical bus. The device-specific command set provides:

- device-oriented control;
- physical data addressing;
- timing critical operations;
- lower device cost.

The device-generic command set provides a higher level of functionality and portability. It includes:

- host/device independence;
- logical data addressing;
- timing independence;
- command queuing capability.

A system is not restricted to the use of one level of command set or the other. It is possible that both levels of command sets will be utilized with a given system's architecture to balance such parameters as system performance, cost, and peripheral availability. It is also possible for the host to provide for migration from device-specific to device-generic levels while still retaining the same physical interface.

2 Normative reference

The following standard contains provisions which, through reference in this text, constitutes provisions of this part of ISO/IEC 9318. At the time of publication, the edition indicated was valid. All standards are subject to revision, and parties to agreements based on this part of ISO/IEC 9318 are encouraged to investigate the possibility of applying the most recent edition of the standard indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO/IEC 9318-1:—¹⁾ - *Information technology - Intelligent Peripheral Interface*
 - *Part 1: Physical Level*

1) To be published.