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ISO/IEC 13187

Edition 1.0 2011-07

INTERNATIONAL STANDARD



**Information technology –
Server management command line protocol (SM CLP) specification**

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

PRICE CODE **XC**

ICS 35.200

ISBN 978-2-88912-577-7

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INFORMATION TECHNOLOGY –

Server management command line protocol (SM CLP) specification

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International Standard ISO/IEC 13187 was prepared by SNIA (Storage Networking Industry Association¹), was adopted, under the fast track procedure, by subcommittee 25: Interconnection of information technology equipment, of ISO/IEC joint technical committee 1: Information technology.

¹ Storage Networking Industry Association, 425 Market Street, Suite 1020, San Francisco, CA 92105, U.S.A.

This International Standard has been approved by vote of the member bodies, and the voting results may be obtained from the address given on the second title page.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

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INFORMATION TECHNOLOGY –

Server management command line protocol (SM CLP) specification

1 Scope

This International Standard lays out the general framework for the Server Management Command Line Protocol (SM CLP). This standard is intended to guide developers of implementations of the SM CLP and may also be used as a reference by system administrators and other users of SM CLP implementations.

The following subjects are within the scope of this document:

- command line protocol syntax and semantics;
- input format and output format;
- accessing and traversing the target address space;
- error handling and semantics;
- session management, including mapping to supported transports;
- session characteristics;
- operation processing and reporting.

The following subjects are outside the scope of this document:

- control command verbs, such as loop control, conditionals, or prompting;
- regular expressions, such as mathematical or logical expressions;
- command editor environment;
- client's shell environment;
- physical interconnects;
- complex data, data types, or objects;
- operation error precedence.

2 Normative references

The following referenced documents are indispensable for the application 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.

ISO 639-2, *Codes for the Representation of Names of Languages Part 2: Alpha-3 Code*, March 2002

DMTF, *Common Information Model (CIM) Schema*, version 2.12, April 20, 2006

DMTF, DSP0215, *Server Management Managed Element (SM ME) Addressing Specification v1.0*, November 10, 2006

DMTF, [DSP0216](#), *Command Line Protocol (CLP)-to-Common Information Model (CIM) Mapping Specification*, version 1.0, 2005

DMTF, DSP0224, *Server Management Command Line Protocol (SM CLP) Command Response XML Schema, v1.0, 2006*

DMTF, DSP1005, *Command Line Protocol (CLP) Service Profile, v1.0, October 10, 2006*

IETF, RFC2234, *Augmented BNF for Syntax Specifications: ABNF, November 1997*

IETF, RFC2396, *Uniform Resource Identifiers (URI): Generic Syntax, August 1998*