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Part 3: Shell and Utilities

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The Open Group Technical Standard
Base Specifications, Issue 6

Information technology—Portable Operating System Interface (POSIX®)

Part 3: Shell and Utilities

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Abstract

This standard defines a standard operating system interface and environment, including a command interpreter (or ''shell''), and common utility programs to support applications portability at the source code level. It is the single common revision to IEEE Std 1003.1-1996, IEEE Std 1003.2-1992, and the Base Specifications of The Open Group Single UNIX® † Specification, Version 2. This standard is intended to be used by both applications developers and system implementors and comprises four major components (each in an associated volume):

- General terms, concepts, and interfaces common to all volumes of this standard, including utility conventions and C-language header definitions, are included in the Base Definitions volume.
- Definitions for system service functions and subroutines, language-specific system services for the C programming language, function issues, including portability, error handling, and error recovery, are included in the System Interfaces volume.
- Definitions for a standard source code-level interface to command interpretation services (a ''shell'') and common utility programs for application programs are included in the Shell and Utilities volume.
- Extended rationale that did not fit well into the rest of the document structure, containing historical information concerning the contents of this standard and why features were included or discarded by the standard developers, is included in the Rationale (Informative) volume.

The following areas are outside the scope of this standard:

- Graphics interfaces
- Database management system interfaces
- Record I/O considerations
- Object or binary code portability
- System configuration and resource availability

This standard describes the external characteristics and facilities that are of importance to applications developers, rather than the internal construction techniques employed to achieve these capabilities. Special emphasis is placed on those functions and facilities that are needed in a wide variety of commercial applications.

Keywords

application program interface (API), argument, asynchronous, basic regular expression (BRE), batch job, batch system, built-in utility, byte, child, command language interpreter, CPU, extended regular expression (ERE), FIFO, file access control mechanism, input/output (I/O), job control, network, portable operating system interface (POSIX® †), parent, shell, stream, string, synchronous, system, thread, X/Open System Interface (XSI)

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ISO/IEC 9945 consists of the following parts, under the general title *Information technology — Portable Operating System Interface (POSIX®)*:

— *Part 1: Base Definitions*

— *Part 2: System Interfaces*

— *Part 3: Shell and Utilities*

— *Part 4: Rationale*

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Contents

Chapter	**1**	**Introduction**	**1**
	1.1	Scope	1
	1.2	Conformance	1
	1.3	Normative References	1
	1.4	Change History	1
	1.5	Terminology	1
	1.6	Definitions	3
	1.7	Relationship to Other Documents	3
	1.7.1	System Interfaces	3
	1.7.1.1	Process Attributes	3
	1.7.1.2	Concurrent Execution of Processes	3
	1.7.1.3	File Access Permissions	4
	1.7.1.4	File Read, Write, and Creation	4
	1.7.1.5	File Removal	6
	1.7.1.6	File Time Values	6
	1.7.1.7	File Contents	6
	1.7.1.8	Pathname Resolution	7
	1.7.1.9	Changing the Current Working Directory	7
	1.7.1.10	Establish the Locale	7
	1.7.1.11	Actions Equivalent to Functions	7
	1.7.2	Concepts Derived from the ISO C Standard	7
	1.7.2.1	Arithmetic Precision and Operations	7
	1.7.2.2	Mathematical Functions	9
	1.8	Portability	9
	1.8.1	Codes	9
	1.9	Utility Limits	17
	1.10	Grammar Conventions	19
	1.11	Utility Description Defaults	20
	1.12	Considerations for Utilities in Support of Files of Arbitrary Size	27
	1.13	Built-In Utilities	28
Chapter	**2**	**Shell Command Language**	**29**
	2.1	Shell Introduction	29
	2.2	Quoting	30
	2.2.1	Escape Character (Backslash)	30
	2.2.2	Single-Quotes	30
	2.2.3	Double-Quotes	30
	2.3	Token Recognition	31
	2.3.1	Alias Substitution	32
	2.4	Reserved Words	33
	2.5	Parameters and Variables	33
	2.5.1	Positional Parameters	33

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ISO/IEC 9945-3:2002
https://standards.iteh.ai/catalog/standards/sist/1ce9a166-ed1f-4e81-ba23-d8e506c811b6/iso-iec-9945-3-2002

2.5.2 Special Parameters 34
2.5.3 Shell Variables 34
2.6 Word Expansions 36
2.6.1 Tilde Expansion 37
2.6.2 Parameter Expansion 37
2.6.3 Command Substitution 40
2.6.4 Arithmetic Expansion 41
2.6.5 Field Splitting 42
2.6.6 Pathname Expansion 42
2.6.7 Quote Removal 42
2.7 Redirection 43
2.7.1 Redirecting Input 44
2.7.2 Redirecting Output 44
2.7.3 Appending Redirected Output 44
2.7.4 Here-Document 44
2.7.5 Duplicating an Input File Descriptor 45
2.7.6 Duplicating an Output File Descriptor 45
2.7.7 Open File Descriptors for Reading and Writing 46
2.8 Exit Status and Errors 46
2.8.1 Consequences of Shell Errors 46
2.8.2 Exit Status for Commands 46
2.9 Shell Commands 47
2.9.1 Simple Commands 47
2.9.1.1 Command Search and Execution 48
2.9.2 Pipelines 49
2.9.3 Lists 50
2.9.3.1 Asynchronous Lists 50
2.9.3.2 Sequential Lists 51
2.9.3.3 AND Lists 51
2.9.3.4 OR Lists 51
2.9.4 Compound Commands 52
2.9.4.1 Grouping Commands 52
2.9.4.2 The for Loop 52
2.9.4.3 Case Conditional Construct 53
2.9.4.4 The if Conditional Construct 53
2.9.4.5 The while Loop 54
2.9.4.6 The until Loop 54
2.9.5 Function Definition Command 54
2.10 Shell Grammar 55
2.10.1 Shell Grammar Lexical Conventions 55
2.10.2 Shell Grammar Rules 56
2.11 Signals and Error Handling 61
2.12 Shell Execution Environment 61
2.13 Pattern Matching Notation 62
2.13.1 Patterns Matching a Single Character 62
2.13.2 Patterns Matching Multiple Characters 63
2.13.3 Patterns Used for Filename Expansion 63
2.14 Special Built-In Utilities 64

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break 65
colon 67
continue 69
dot 71
eval 73
exec 75
exit 77
export 79
readonly 81
return 83
set 85
shift 91
times 93
trap 95
unset 98

Chapter 3 Batch Environment Services 101
3.1 General Concepts 101
3.1.1 Batch Client-Server Interaction 101
3.1.2 Batch Queues 101
3.1.3 Batch Job Creation 102
3.1.4 Batch Job Tracking 102
3.1.5 Batch Job Routing 102
3.1.6 Batch Job Execution 103
3.1.7 Batch Job Exit 103
3.1.8 Batch Job Abort 103
3.1.9 Batch Authorization 103
3.1.10 Batch Administration 104
3.1.11 Batch Notification 104
3.2 Batch Services 104
3.2.1 Batch Job States 105
3.2.2 Deferred Batch Services 106
3.2.2.1 Batch Job Execution 106
3.2.2.2 Batch Job Routing 113
3.2.2.3 Batch Job Exit 113
3.2.2.4 Batch Server Restart 114
3.2.2.5 Batch Job Abort 114
3.2.3 Requested Batch Services 115
3.2.3.1 Delete Batch Job Request 115
3.2.3.2 Hold Batch Job Request 116
3.2.3.3 Batch Job Message Request 116
3.2.3.4 Batch Job Status Request 117
3.2.3.5 Locate Batch Job Request 117
3.2.3.6 Modify Batch Job Request 117
3.2.3.7 Move Batch Job Request 118
3.2.3.8 Queue Batch Job Request 118
3.2.3.9 Batch Queue Status Request 119
3.2.3.10 Release Batch Job Request 119

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3.2.3.11 Rerun Batch Job Request 120
3.2.3.12 Select Batch Jobs Request 120
3.2.3.13 Server Shutdown Request 120
3.2.3.14 Server Status Request 121
3.2.3.15 Signal Batch Job Request 121
3.2.3.16 Track Batch Job Request 121
3.3 Common Behavior for Batch Environment Utilities 122
3.3.1 Batch Job Identifier 122
3.3.2 Destination 123
3.3.3 Multiple Keyword-Value Pairs 123

Chapter 4 Utilities 125

Index 1079

List of Figures

4-1 pax Format Archive Example 710

List of Tables

1-1 Actions when Creating a File that Already Exists 5
1-2 Selected ISO C Standard Operators and Control Flow Keywords 8
1-3 Utility Limit Minimum Values 17
1-4 Symbolic Utility Limits 18
1-5 Regular Built-In Utilities 28
3-1 Batch Utilities 101
3-2 Environment Variable Summary 105
3-3 Next State Table 107
3-4 Results/Output Table 108
3-5 Batch Services Summary 115
4-1 Expressions in Decreasing Precedence in *awk* 156
4-2 Escape Sequences in *awk* 162
4-3 Operators in *bc* 198
4-4 Programming Environments: Type Sizes 215
4-5 Programming Environments: *c99* and *cc* Arguments 216
4-6 ASCII to EBCDIC Conversion 303
4-7 ASCII to IBM EBCDIC Conversion 304
4-8 File Utility Output Strings 444
4-9 Table Size Declarations in *lex* 535
4-10 Escape Sequences in *lex* 537
4-11 ERE Precedence in *lex* 538
4-12 Named Characters in *od* 679
4-13 ustar Header Block 715
4-14 ustar *mode* Field 716
4-15 Octet-Oriented cpio Archive Entry 718
4-16 Values for cpio c_mode Field 719
4-17 Variable Names and Default Headers in *ps* 752

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4-18	Environment Variable Values (Utilities)	801
4-19	Control Character Names in *stty*	886
4-20	Circumflex Control Characters in *stty*	886
4-21	uuencode Base64 Values	970
4-22	Internal Limits in *yacc*	1072

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Foreword

Structure of the Standard

This document was originally developed by the Austin Group, a joint working group of members of the IEEE, members of The Open Group, and members of ISO/IEC Joint Technical Committee 1, as one of the four volumes of IEEE Std 1003.1-2001. The standard was approved by ISO and IEC and published in four parts, correlating to the original volumes.

A mapping of the parts to the volumes is shown below:

ISO/IEC 9945 Part	IEEE Std 1003.1 Volume	Description
9945-1	Base Definitions	General terms, concepts, and interfaces common to all parts of ISO/IEC 9945, including utility conventions and C-language header definitions, are included.
9945-2	System Interfaces	Definitions for system service functions and subroutines, language-specific system services for the C programming language, function issues, including portability, error handling, and error recovery, are included.
9945-3	Shell and Utilities	Definitions for a standard source code-level interface to command interpretation services (a ''shell'') and common utility programs for application programs are included.
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Introduction

Note: This introduction is not part of IEEE Std 1003.1-2001, Standard for Information Technology — Portable Operating System Interface (POSIX).

This standard has been jointly developed by the IEEE and The Open Group. It is both an IEEE Standard and an Open Group Technical Standard.

The Austin Group

This standard was developed, and is maintained, by a joint working group of members of the IEEE Portable Applications Standards Committee, members of The Open Group, and members of ISO/IEC Joint Technical Committee 1. This joint working group is known as the Austin Group.[3] The Austin Group arose out of discussions amongst the parties which started in early 1998, leading to an initial meeting and formation of the group in September 1998. The purpose of the Austin Group has been to revise, combine, and update the following standards: ISO/IEC 9945-1, ISO/IEC 9945-2, IEEE Std 1003.1, IEEE Std 1003.2, and the Base Specifications of The Open Group Single UNIX Specification.

After two initial meetings, an agreement was signed in July 1999 between The Open Group and the Institute of Electrical and Electronics Engineers (IEEE), Inc., to formalize the project with the first draft of the revised specifications being made available at the same time. Under this agreement, The Open Group and IEEE agreed to share joint copyright of the resulting work. The Open Group has provided the chair and secretariat for the Austin Group.

iTeh STANDARD PREVIEW
(standards.iteh.ai)

The base document for the revision was The Open Group's Base volumes of its Single UNIX Specification, Version 2. These were selected since they were a superset of the existing POSIX.1 and POSIX.2 specifications and had some organizational aspects that would benefit the audience for the new revision.

ISO/IEC 9945-3:2002
https://standards.iteh.ai/catalog/standards/sist/1ce9a166-ed1f-4e81-ba23-18559b181bb6/iso-iec-9945-3-2002

The approach to specification development has been one of ''write once, adopt everywhere'', with the deliverables being a set of specifications that carry the IEEE POSIX designation and The Open Group's Technical Standard designation, and, if approved, an ISO/IEC designation. This set of specifications forms the core of the Single UNIX Specification, Version 3.

This unique development has combined both the industry-led efforts and the formal standardization activities into a single initiative, and included a wide spectrum of participants. The Austin Group continues as the maintenance body for this document.

Anyone wishing to participate in the Austin Group should contact the chair with their request. There are no fees for participation or membership. You may participate as an observer or as a contributor. You do not have to attend face-to-face meetings to participate; electronic participation is most welcome. For more information on the Austin Group and how to participate, see *http://www.opengroup.org/austin*.

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3. The Austin Group is named after the location of the inaugural meeting held at the IBM facility in Austin, Texas in September 1998.