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Programming Languages — C++ Extensions for Networking

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ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Fax: +41 22 749 09 47
Email: copyright@iso.org
Website: www.iso.org

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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.

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

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1 Scope [scope]

[1] This document describes extensions to the C++ Standard Library. This document specifies requirements for implementations of an interface that computer programs written in the C++ programming language may use to perform operations related to networking, such as operations involving sockets, timers, buffer management, host name resolution and internet protocols. This document is applicable to information technology systems that can perform network operations, such as those with operating systems that conform to the POSIX interface. This document is applicable only to vendors who wish to provide the interface it describes.

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2 Normative references [references]

1 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.

(1.1) — ISO/IEC 14882:2014, *Programming languages — C++*

(1.2) — ISO/IEC TS 19568:2015, *C++ Extensions for Library Fundamentals*

(1.3) — ISO/IEC 9945:2009, *Information Technology — Portable Operating System Interface (POSIX)*

(1.4) — ISO/IEC 2382-1:1993, *Information technology — Vocabulary*

2 The programming language and library described in ISO/IEC 14882 is herein called the C++ Standard. References to clauses within the C++ Standard are written as "C++ 2014, Clause 17". The operating system interface described in ISO/IEC 9945 is herein called POSIX.

3 This document mentions commercially available operating systems for purposes of exposition. POSIX® is a registered trademark of The IEEE. Windows® is a registered trademark of Microsoft Corporation. This information is given for the convenience of users of this document and does not constitute an endorsement by ISO or IEC of these products.

4 Unless otherwise specified, the whole of the C++ Standard's Library introduction (C++ 2014, Clause 17) is included into this document by reference.

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3 Terms and definitions [defs]

1 For the purposes of this document, the terms and definitions given in ISO/IEC 14882:2014, ISO/IEC 2382-1:1993, and the following apply.

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

(2.1) — IEC Electropedia: available at http://www.electropedia.org/

(2.2) — ISO Online browsing platform: available at http://www.iso.org/obp

3 Terms that are used only in a small portion of this document are defined where they are used and italicized where they are defined.

3.1 [defs.host.byte.order]

host byte order

the arrangement of bytes in any integer type when using a specific machine architecture

[SOURCE: ISO/IEC 9945:2009, 3.193]

3.2 [defs.net.byte.order]

network byte order

the way of representing any integer type such that, when transmitted over a network via a network endpoint, the `int` type is transmitted as an appropriate number of octets with the most significant octet first, followed by any other octets in descending order of significance

[SOURCE: ISO/IEC 9945:2009, 3.237]

3.3 [defs.sync.op]

synchronous operation

operation where control is not returned until the operation completes

3.4 [defs.async.op]

asynchronous operation

operation where control is returned immediately without waiting for the operation to complete

[*Note 1 to entry:* Multiple asynchronous operations may be executed concurrently. — *end note*]

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