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Information technology — TLS specification for storage systems

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Foreword

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The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of document should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO and IEC shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT), see the following URL: Foreword — Supplementary information.

ISO/IEC 20648 was prepared by the Storage Networking Industry Association (SNIA) [as TLS Specification for Storage Systems, Version 1.0.1] and was adopted, under the PAS procedure, by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, in parallel with its approval by the national bodies of ISO and IEC. The content of ISO/IEC 20648 and SNIA TLS Specification for Storage Systems Version 1.0.1 is identical.

Introduction

Within Information and Communications Technology (CT), one of the best defenses against telecommunications attacks is to deploy security services implemented with mechanisms specified in standards that are thoroughly vetted in the public domain and rigorously tested by third party laboratories, by vendors, and by users of commercial off-the-shelf products. Three services that most often address network user security requirements are confidentiality, message integrity and authentication.

The Internet Engineering Task Force (IETF) with its Transport Layer Security (TLS) has a standard that is able to prevent tampering, message forgery, and eavesdropping by encrypting data units, or segments, from one end of the transport layer to the other. In addition, TLS is application protocol independent, which means higher-level protocols like HTTP can layer on top of the TLS protocol transparently.

Additional details beyond the basic TLS protocol specification are necessary to ensure both security and interoperability. This specification provides that detail in the form of specific requirements and guidance for using Transport Layer Security (TLS) in conjunction with storage systems.

Information technology — TLS specification for storage systems

1 Scope

This specification details the requirements for use of the Transport Layer Security (TLS) protocol in conjunction with data storage technologies. The requirements set out in this specification are intended to facilitate secure interoperability of storage clients and servers as well as non-storage technologies that may have similar interoperability needs.

This specification is relevant to anyone involved in owning, operating or using data storage devices. This includes senior managers, acquirers of storage product and service, and other non-technical managers or users, in addition to managers and administrators who have specific responsibilities for information security and/or storage security, storage operation, or who are responsible for an organization's overall security program and security policy development. It is also relevant to anyone involved in the planning, design and implementation of the architectural aspects of storage security.

2 Normative references

The following referenced documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO/IEC 27000, *Information technology — Security techniques — Information security management systems — Overview and vocabulary*

IETF RFC 5280, *Internet X.509 Public Key Infrastructure Certificate and Certificate Revocation List (CRL) Profile*, IETF, 2008

IETF RFC 5246, *The Transport Layer Security (TLS) Protocol Version 1.2*, IETF, 2008

IETF RFC 5746, *Transport Layer Security (TLS) Renegotiation Indication Extension*, IETF, 2010

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO/IEC 27000 and the following apply.

3.1
cipher suite
named combination of authentication, encryption, and message authentication code algorithms used to negotiate the security settings for a network connection

Note 1 to entry: Cipher suites are typically used with the Transport Layer Security (TLS) and the Secure Sockets Layer (SSL) network protocols.

3.2
digital certificate
data structure signed with a digital signature that is based on a public key and which asserts that the key belongs to a subject identified in the structure