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MIB Textual Conventions for Uniform Resource Identifiers (URIs)
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Abstract

This MIB module defines textual conventions to represent STD 66 Uniform Resource Identifiers (URIs). The intent is that these textual conventions will be imported and used in MIB modules that would otherwise define their own representation(s).

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1. Introduction

This memo defines a portion of the Management Information Base (MIB) for use with network management protocols in the Internet community. It defines textual conventions to represent STD 66 [\[RFC3986\]](#) URIs, which are further described by [\[RFC3305\]](#).

Three textual conventions are defined, one of unrestricted length, and two of different restricted lengths. Which length is appropriate will depend on tradeoffs made in particular MIB modules. The purpose of providing standard restricted-length textual conventions is to improve compatibility between MIB modules that require restricted-length URIs.

If a URI needs to be used as an index object, then the 'Uri' textual convention SHOULD be subtyped to a length appropriate for the OID of which it is part. The description of the 'Uri' textual convention discusses this case.

2. Terminology

The key words "MUST", "MUST NOT", "REQUIRED", "SHALL", "SHALL NOT", "SHOULD", "SHOULD NOT", "RECOMMENDED", "MAY", and "OPTIONAL" in this document are to be interpreted as described in [RFC 2119](#) [\[RFC2119\]](#).

3. The Internet-Standard Management Framework

For a detailed overview of the documents that describe the current Internet-Standard Management Framework, please refer to [section 7 of RFC 3410](#) [\[RFC3410\]](#).

Managed objects are accessed via a virtual information store, termed the Management Information Base or MIB. MIB objects are generally accessed through the Simple Network Management Protocol (SNMP). Objects in the MIB are defined using the mechanisms defined in the

Structure of Management Information (SMI). This memo specifies a MIB module that is compliant to the SMIV2, which is described in STD 58, [RFC 2578](#) [[RFC2578](#)], STD 58, [RFC 2579](#) [[RFC2579](#)] and STD 58, [RFC 2580](#) [[RFC2580](#)].

[4.](#) Definitions

URI-TC-MIB DEFINITIONS ::= BEGIN

IMPORTS

MODULE-IDENTITY, mib-2	FROM SNMPv2-SMI	-- [RFC2578]
TEXTUAL-CONVENTION	FROM SNMPv2-TC;	-- [RFC2579]

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uriTcMIB MODULE-IDENTITY

LAST-UPDATED "200703200000Z" -- 20 March 2007

ORGANIZATION "IETF Operations and Management (OPS) Area"

CONTACT-INFO "EMail: ops-area@ietf.org

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DESCRIPTION

"This MIB module defines textual conventions for representing URIs, as defined by [RFC 3986](#) STD 66."

REVISION "200703200000Z" -- 20 March 2007

DESCRIPTION

"Initial revision, published as RFC yyyy.

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-- RFC Ed.: replace yyyy with actual RFC number & remove this note

::= { mib-2 XXX }

-- RFC Ed.: replace XXX with IANA-assigned number & remove this note

Uri ::= TEXTUAL-CONVENTION

DISPLAY-HINT "1a"

STATUS current

DESCRIPTION

"A Uniform Resource Identifier (URI) as defined by STD 66.

Objects using this textual convention MUST be in US-ASCII encoding, and MUST be normalized as described by [RFC 3986](#) sections [6.2.1](#), [6.2.2.1](#), and [6.2.2.2](#). All unnecessary

percent-encoding is removed, and all case-insensitive characters are set to lowercase except for hexadecimal digits, which are normalized to uppercase as described in [section 6.2.2.1](#).

The purpose of this normalization is to help provide unique URIs. Note that this normalization is not sufficient to provide uniqueness. Two URIs that are textually distinct after this normalization may still be equivalent.

Objects using this textual convention MAY restrict the schemes that they permit. For example, 'data:' and 'urn:' schemes might not be appropriate.

A zero-length URI is not a valid URI. This can be used to express 'URI absent' where required, for example when used as an index field.

Where this textual convention is used for an index field, it MUST be subtyped to restrict its length. There is an

absolute limit of 128 subids for an OID, and it is not efficient to have OIDs whose length approaches this limit."

REFERENCE "[RFC 3986](#) STD 66 and [RFC 3305](#)"

SYNTAX OCTET STRING

Uri255 ::= TEXTUAL-CONVENTION

DISPLAY-HINT "255a"

STATUS current

DESCRIPTION

"A Uniform Resource Identifier (URI) as defined by STD 66.

Objects using this textual convention MUST be in US-ASCII encoding, and MUST be normalized as described by [RFC 3986](#) sections [6.2.1](#), [6.2.2.1](#), and [6.2.2.2](#). All unnecessary percent-encoding is removed, and all case-insensitive characters are set to lowercase except for hexadecimal digits, which are normalized to uppercase as described in [section 6.2.2.1](#).

The purpose of this normalization is to help provide unique URIs. Note that this normalization is not sufficient to

provide uniqueness. Two URIs that are textually distinct after this normalization may still be equivalent.

Objects using this textual convention MAY restrict the schemes that they permit. For example, 'data:' and 'urn:' schemes might not be appropriate.

A zero-length URI is not a valid URI. This can be used to express 'URI absent' where required, for example when used as an index field.

STD 66 URIs are of unlimited length. Objects using this textual convention impose a length limit on the URIs that they can represent. Where no length restriction is required, objects SHOULD use the 'Uri' textual convention instead. Objects used as indices SHOULD subtype the 'Uri' textual convention."

REFERENCE "[RFC 3986](#) STD 66 and [RFC 3305](#)"

SYNTAX OCTET STRING (SIZE (0..255))

Uri1024 ::= TEXTUAL-CONVENTION

DISPLAY-HINT "1024a"

STATUS current

DESCRIPTION

"A Uniform Resource Identifier (URI) as defined by STD 66.

Objects using this textual convention MUST be in US-ASCII

encoding, and MUST be normalized as described by [RFC 3986](#) sections [6.2.1](#), [6.2.2.1](#), and [6.2.2.2](#). All unnecessary percent-encoding is removed, and all case-insensitive characters are set to lowercase except for hexadecimal digits, which are normalized to uppercase as described in [section 6.2.2.1](#).

The purpose of this normalization is to help provide unique URIs. Note that this normalization is not sufficient to provide uniqueness. Two URIs that are textually distinct after this normalization may still be equivalent.

Objects using this textual convention MAY restrict the schemes that they permit. For example, 'data:' and 'urn:'

schemes might not be appropriate.

A zero-length URI is not a valid URI. This can be used to express 'URI absent' where required, for example when used as an index field.

STD 66 URIs are of unlimited length. Objects using this textual convention impose a length limit on the URIs that they can represent. Where no length restriction is required, objects SHOULD use the 'Uri' textual convention instead. Objects used as indices SHOULD subtype the 'Uri' textual convention."

REFERENCE "[RFC 3986](#) STD 66 and [RFC 3305](#)"

SYNTAX OCTET STRING (SIZE (0..1024))

END

[5.](#) Security Considerations

See also the Security Considerations of STD 66 [[RFC3986](#)].

This MIB module does not define any management objects. Instead, it defines a textual convention that may be imported by other MIB modules and used for object definitions.

Meaningful security considerations can only be written in the MIB modules that define management objects. This document therefore has no impact on the security of the Internet.

[6.](#) IANA Considerations

URI-TC-MIB should be rooted under the mib-2 subtree. IANA is requested to assign { mib-2 XXX } to the URI-TC-MIB module specified

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in this document.

[7.](#) Acknowledgements

This module was generated by editing together contributions from Randy Presuhn, Dan Romascanu, Bill Fenner, Juergen Schoenwaelder, and others.

[8.](#) References

[8.1](#) Normative References

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- [RFC2578] McCloghrie, K., Ed., Perkins, D., Ed., and J. Schoenwaelder, Ed., "Structure of Management Information Version 2 (SMIv2)", STD 58, [RFC 2578](#), April 1999.
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- [RFC3986] Berners-Lee, T., Fielding, R., and L. Masinter, "Uniform Resource Identifier (URI): Generic Syntax", STD 66, [RFC 3986](#), January 2005.

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- [RFC3305] Mealling, M. and R. Denenberg, "Report from the Joint W3C/IETF URI Planning Interest Group: Uniform Resource Identifiers (URIs), URLs, and Uniform Resource Names (URNs): Clarifications and Recommendations", [RFC 3305](#), August 2002.
- [RFC3410] Case, J., Mundy, R., Partain, D., and B. Stewart, "Introduction and Applicability Statements for Internet-Standard Management Framework", [RFC 3410](#), December 2002.

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