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MIB Textual Conventions for Uniform Resource Identifiers (URIs)

Status of This Memo

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 Object Identifier (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]

uriTcMIB MODULE-IDENTITY
    LAST-UPDATED "200709100000Z" -- 10 September 2007
    ORGANIZATION "IETF Operations and Management (OPS) Area"
    CONTACT-INFO "EMail: ops-area@ietf.org
                  Home page: http://www.ops.ietf.org/"
    DESCRIPTION
            "This MIB module defines textual conventions for
            representing URIs, as defined by RFC 3986 STD 66."
    REVISION     "200709100000Z" -- 10 September 2007
    DESCRIPTION
           "Initial revision, published as RFC 5017.

            Copyright (C) The IETF Trust (2007). This version of this
            MIB module is part of RFC 5017; see the RFC itself for full
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            legal notices."
    ::= { mib-2 164 }

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 is rooted under the mib-2 subtree. IANA has assigned { mib-2 164 } to the URI-TC-MIB module specified 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.

[RFC2579] McCloghrie, K., Ed., Perkins, D., Ed., and J. Schoenwaelder, Ed., "Textual Conventions for SMIv2", STD 58, RFC 2579, April 1999.

[RFC2580] McCloghrie, K., Perkins, D., and J. Schoenwaelder, "Conformance Statements for SMIv2", STD 58, RFC 2580, April 1999.

[RFC3986] Berners-Lee, T., Fielding, R., and L. Masinter, "Uniform Resource Identifier (URI): Generic Syntax", STD 66, RFC 3986, January 2005.

8.2. Informative References

[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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