                    Using Markup in YANG Text Arguments
                     draft-lhotka-netmod-yang-markup-00

Abstract

   This document defines a YANG extension that allows for specifying a
   media type for text in the arguments of these YANG statements:
   "contact", "description", "error-message", "organization" and
   "reference."

Status of This Memo

   This Internet-Draft is submitted in full conformance with the
   provisions of BCP 78 and BCP 79.

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   time. It is inappropriate to use Internet-Drafts as reference
   material or to cite them other than as "work in progress."

   This Internet-Draft will expire on September 10, 2017.

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1. Introduction

   Descriptions play an important role in YANG data models. They may
   specify normative semantic constraints that cannot be expressed
   formally, instructions for implementors of the data model, and other
   vital information. That is why descriptions often comprise several
   paragraphs of text and sometimes also other structures such all
   numbered or bulleted lists.

   So far, YANG modules have mostly used only plain text in the argument
   of the "description" statement, i.e., formatted text structures using
   just whitespace. This is generally sufficient for human readers and
   also for including YANG modules in RFC documents, but less so for
   tools that are designed to process or use YANG modules in other ways,
   for example:

   o converting YANG compact syntax to other formats (YIN, HTML)

   o including YANG modules in standards and other documents whose
      source form in not plain text

   o including description text in user interface elements.

   The above considerations also apply, albeit to a lesser extent, to
   other YANG statements with more structured arguments: "contact",
   "error-message", "organization" and "reference".

   In principle, it is possible to use any kind of markup such as
   markdown [RFC7764] but doing so would not be not very effective and
   tool-friendly unless the markup format is either standardized or
   declared in the module source.

   This document defines a YANG extension statement, "text-media-type",
   that can be placed as a substatement of the "module" or "submodule"
   statement to indicate the media type that is used throughout the

(sub)module for markup in the arguments of the five YANG statements
mentioned above.

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 [RFC2119].

3. Declaring the Media Type of Text Arguments

Section 4 below contains the "ietf-yang-text-media-type" module that
defines a YANG language extension: "text-media-type". Its purpose is
to declare media type that is used for markup in the arguments of the
following YANG statements:

o contact

o description

o error-message

o organization

o reference

The common characteristic of these five statements is that their
argument is represented as the <text> element in YIN format
(Section 13 of [RFC7950]).

The "text-media-type" extension is intended to be used at the top
level of a YANG module or submodule, i.e., as a substatement of
either "module" or "submodule" statement. The declared media type
applies to arguments of the above YANG statements throughout the
module or submodule.

The "text-media-type" extension MAY be ignored, and a module in which
it appears MUST be valid YANG.

The argument of the "text-media-type" extension is a string
specifying the media type in the format defined in [RFC6838]. The
media type SHOULD be registered by IANA in the "text" registry
[IANA-MEDIA-TYPES]. Media type parameters MAY be used.

It is RECOMMENDED to use only media types representing "lightweight"
markup that is easy to read even in the unprocessed source form, such
as "text/markdown".

YANG modules have to be use the UTF-8 character encoding, see
Section 6 of [RFC7950]. This implies the following rules:

o Whenever the "charset" parameter is present, its value MUST be
   "UTF-8".

o If no default value is defined for the "charset" parameter of a
   given media type, or if a default value is defined but is
   different from "UTF-8", then the "charset" parameter MUST be
   present with the value of "UTF-8".

Even if the "text-media-type" extension statement is present and
markup used in text arguments, all YANG and YIN syntax rules still
apply.

The "ietf-yang-text-media-type" module not only defines but also uses
the "text-media-type" extension statement, which illustrates its
typical use.

4. YANG Module

RFC Editor: In this section, replace all occurrences of 'XXXX' with
the actual RFC number and all occurrences of the revision date below
with the date of RFC publication (and remove this note).

```
<CODE BEGINS> file "ietf-yang-text-media-type@2017-03-09.yang"

module ietf-yang-text-media-type {

  namespace "urn:ietf:params:xml:ns:yang:ietf-yang-text-media-type";

  prefix ymt;

  ymt:text-media-type "text/markdown; charset=UTF-8";

  organization
    "IETF NETMOD (NETCONF Data Modeling Language) Working Group";

  contact
    "WG Web:   <https://tools.ietf.org/wg/netmod/>
     WG List:  <mailto:netmod@ietf.org>

     WG Chair: Lou Berger
               <mailto:lberger@labn.net>

     WG Chair: Kent Watsen
               <mailto:kwatsen@juniper.net>
```

```
        Editor:   Ladislav Lhotka
                  <mailto:lhotka@nic.cz>";

  description
     "This module defines the *text-media-type* extension that allows
      for specifying media-type for markup that is used in arguments
      of these YANG statements: contact, description, error-message,
      organization, and reference.

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      authors of the code. All rights reserved.

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      forth in Section 4.c of the IETF Trust's Legal Provisions
      Relating to IETF Documents
      (https://trustee.ietf.org/license-info).

      The key words 'MUST', 'MUST NOT', 'REQUIRED', 'SHALL', 'SHALL
      NOT', 'SHOULD', 'SHOULD NOT', 'RECOMMENDED', 'MAY', and
      'OPTIONAL' in the module text are to be interpreted as described
      in RFC 2119 (https://tools.ietf.org/html/rfc2119).

      This version of this YANG module is part of RFC XXXX
      (https://tools.ietf.org/html/rfcXXXX); see the RFC itself for
      full legal notices.";

  revision 2017-03-09 {
    description
      "Initial revision.";
    reference
      "RFC XXXX: Using Markup in YANG Text Arguments";
  }

  extension text-media-type {
    argument type;
    description
      "This extension allows for specifying a media type that is used
       for markup in the arguments of the following YANG statements:

       - contact

       - description

       - error-message

       - organization
```

          - reference

          The *text-media-type* extension statement MAY be used at the
          top level of a module or submodule, i.e., as a substatement of
          module or *submodule*, and no more than once. The declared
          media type applies throughout the module or submodule.

          The argument SHOULD be a media type registered by IANA in the
          text registry. Media type parameters MAY be present.

          This YANG extension is only indicative and optional to
          implement. Tools MAY ignore it completely or support just a
          subset of markup directives that are available for a given
          media type.";
      reference
        "- IANA: Media Types, 2016-12-21. Available [online]
          (http://www.iana.org/assignments/media-types/media-types.xhtml)

          - [RFC 6838](https://tools.ietf.org/html/rfc6838): Media Type
          Specifications and Registration Procedures";
    }
}

<CODE ENDS>

5. IANA Considerations

   RFC Editor: In this section, replace all occurrences of 'XXXX' with
   the actual RFC number and all occurrences of the revision date below
   with the date of RFC publication (and remove this note).

   This document registers the following namespace URI in the "IETF XML
   registry" [RFC3688]:

   URI: urn:ietf:params:xml:ns:yang:ietf-yang-text-media-type
   Registrant Contact: The IESG.
   XML: N/A, the requested URI is an XML namespace.

   This document registers the following YANG module in the "YANG Module
   Names" registry [RFC6020]:

   Name: ietf-yang-text-media-type
   Namespace: urn:ietf:params:xml:ns:yang:ietf-yang-text-media-type
   Prefix: ymt
   Reference: RFC XXXX

6. Security Considerations

   The "text-media-type" extension defined in this document provides
   information that is completely optional. YANG modules and submodules
   in which it is present have to satisfy all rules of the YANG
   language. The extension therefore doesn't introduce any new threats.

7. References

7.1. Normative References

   [IANA-MEDIA-TYPES]
             Internet Assigned Numbers Authority, "Media Types", 12
             2016.

   [RFC2119] Bradner, S., "Key words for use in RFCs to Indicate
             Requirement Levels", BCP 14, RFC 2119,
             DOI 10.17487/RFC2119, March 1997,
             <http://www.rfc-editor.org/info/rfc2119>.

   [RFC3688] Mealling, M., "The IETF XML Registry", BCP 81, RFC 3688,
             DOI 10.17487/RFC3688, January 2004,
             <http://www.rfc-editor.org/info/rfc3688>.

   [RFC6020] Bjorklund, M., Ed., "YANG - A Data Modeling Language for
             the Network Configuration Protocol (NETCONF)", RFC 6020,
             DOI 10.17487/RFC6020, October 2010,
             <http://www.rfc-editor.org/info/rfc6020>.

   [RFC6838] Freed, N., Klensin, J., and T. Hansen, "Media Type
             Specifications and Registration Procedures", BCP 13,
             RFC 6838, DOI 10.17487/RFC6838, January 2013,
             <http://www.rfc-editor.org/info/rfc6838>.

   [RFC7950] Bjorklund, M., Ed., "The YANG 1.1 Data Modeling Language",
             RFC 7950, DOI 10.17487/RFC7950, August 2016,
             <http://www.rfc-editor.org/info/rfc7950>.

7.2. Informative References

   [RFC7764] Leonard, S., "Guidance on Markdown: Design Philosophies,
             Stability Strategies, and Select Registrations", RFC 7764,
             DOI 10.17487/RFC7764, March 2016,
             <http://www.rfc-editor.org/info/rfc7764>.

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