Network Working Group
Internet-Draft
Intended status: Standards Track
Expires: 25 July 2024

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22 January 2024

YANG Groupings for UDP Clients and UDP Servers
draft-ahuang-netconf-udp-client-server-01

Commenté [BMI1]: As two groupings are defined.

Abstract

This document defines two YANG 1.1 modules to support the configuration of UDP clients and UDP servers.

Requirements Language

The key words "MUST", "MUST NOT", "REQUIRED", "SHALL", "SHALL NOT", "SHOULD", "SHOULD NOT", "RECOMMENDED", "NOT RECOMMENDED", "MAY", and "OPTIONAL" in this document are to be interpreted as described in BCP 14 [RFC2119] [RFC8174] when, and only when, they appear in all capitals, as shown here.

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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1. Introduction

This ~~documents~~ document defines two YANG 1.1 [RFC7950] modules to support the configuration of UDP clients and UDP servers [RFC0768], either as standalone or in conjunction with configuration of other ~~protocol~~ layers.

2. The "ietf-udp-client" Module

The "ietf-udp-client" YANG module defines the "udp-client-grouping" grouping for configuring UDP clients with remote server information.

2.1. The "udp-client-grouping" Grouping

The following tree diagram [RFC8340] illustrates the tree structure of the "udp-client-grouping" grouping:

```
module: ietf-udp-client

  grouping udp-client-grouping:
    +-- remote-address    inet:ip-address-no-zone
    +-- remote-port       inet:port-number
```

2.2. YANG Module

~~The "ietf-udp-client" YANG module defines the "udp-client-grouping" grouping.~~

This module imports types defined in [RFC6991].

```
<CODE BEGINS> file "ietf-udp-client@2024-01-22.yang"
module ietf-udp-client {
```

Commenté [BMI2]: Do you really need to "have" grouping in the name of the grouping?

Commenté [BMI3]: You may elaborate why a structure similar to TCP one is not used here:

```
grouping tcp-client-grouping:
  +-- remote-address            inet:host
  +-- remote-port?              inet:port-number
  +-- local-address?            inet:ip-address
  |     {local-binding-supported}?
  +-- local-port?               inet:port-number
  |     {local-binding-supported}?
```

(*) also clarify why the case where the remote address is a name is not supported here for UDP.

Commenté [BMI4]: Redundant with what is mentioned in previous sections.

```
yang-version 1.1;
namespace
  "urn:ietf:params:xml:ns:yang:ietf-udp-client";
prefix udpc;
import ietf-inet-types {
  prefix inet;
  reference
    "RFC 6991: Common YANG Data Types";
}

organization "IETF NETCONF (Network Configuration) Working Group";
contact
  "WG Web:   <http:/tools.ietf.org/wg/netconf/>
   WG List:  <mailto:netconf@ietf.org>

   Authors:  Alex Huang Feng
             <mailto:alex.huang-feng@insa-lyon.fr>
             Pierre Francois
             <mailto:pierre.francois@insa-lyon.fr>";

description
  "Defines a generic grouping for UDP-based client applications.

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Documents
  (https://trustee.ietf.org/license-info).

  This version of this YANG module is part of RFC-to-be; see the RFC
  itself for full legal notices.";


revision 2024-01-22 {
  description
    "Initial revision";
  reference
    "RFC-to-be: YANG Groupings for UDP Clients and UDP Servers";
}

grouping udp-client-grouping {
  description
    "Provides a reusable grouping for configuring a UDP client.";

  leaf remote-address {
    type inet:ip-address-no-zone;
    mandatory true;
    description
      "Specifies an IP address of the UDP client, which can be an
      IPv4 address or an IPV6-IPv6 address.";
  }

  leaf remote-port {
    type inet:port-number;
```

Commenté [BMI5]: You may explain how to cover the case of multiple addresses/port numbers are used to reach the same server instance. For example, the case of dual-stack.

Commenté [BMI6]: Or the remote peer?

```
          mandatory true;
          description
            "Specifies a Port port number of the UDP client.";
        }
      }
    }
    <CODE ENDS>
```

Commenté [BMI7]: Please note that the TCP structure does not have this leaf set as "mandatory". This would assume some default value, though.

3. The "ietf-udp-server" Module

The "ietf-udp-server" YANG module defines the "udp-server-grouping" grouping for configuring UDP servers.

3.1. The "udp-server-grouping" Grouping

The following tree diagram [RFC8340] illustrates the structure of "udp-server-grouping" grouping:

```
module: ietf-udp-server

  grouping udp-server-grouping:
    +-- local-address    inet:ip-address-no-zone
    +-- local-port       inet:port-number
```

3.2. YANG Module

The "ietf-udp-server" ~~YANG module defines the "udp-server-grouping" grouping.~~imports types defined in [RFC6991]

```
<CODE BEGINS> file "ietf-udp-server@2024-01-22.yang"
module ietf-udp-server {
  yang-version 1.1;
  namespace
    "urn:ietf:params:xml:ns:yang:ietf-udp-server";
  prefix udps;

  import ietf-inet-types {
    prefix inet;
    reference
      "RFC 6991: Common YANG Data Types";
  }

  organization "IETF NETCONF (Network Configuration) Working Group";
  contact
    "WG Web:   <http:/tools.ietf.org/wg/netconf/>
     WG List:  <mailto:netconf@ietf.org>

     Authors:  Alex Huang Feng
               <mailto:alex.huang-feng@insa-lyon.fr>
               Pierre Francois
               <mailto:pierre.francois@insa-lyon.fr>";

  description
    "Defines a generic grouping for UDP-based server applications.

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```

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

        This version of this YANG module is part of RFC-to-be; see the RFC
        itself for full legal notices.";

      revision 2024-01-22 {
        description
          "Initial revision";
        reference
          "RFC-to-be: YANG Groupings for UDP Clients and UDP Servers";
      }


      grouping udp-server-grouping {
        description
          "Provides a reusable grouping for configuring a UDP servers.";

        leaf local-address {
          type inet:ip-address-no-zone;
          mandatory true;
          description
            "Specifies an IP address of the UDP server, which can be an
            IPv4 address or an ~~IPV6~~ IPv6 address.";
        }

        leaf local-port {
          type inet:port-number;
          mandatory true;
          description
            "Specifies a ~~Port~~ port number of the UDP server.";
        }
      }
    }
    <CODE ENDS>

4.  Security Considerations

   Following the guidelines for UDP applications defined in [RFC8085],
   "applications that need to protect their communications against
   eavesdropping, tampering, or message forgery SHOULD employ end-to-end
   security services provided by other IETF protocols".  A UDP client
   and server can use DTLS [RFC9147] [RFC7525] to encrypt the payloads.

   For configuring a UDP application with DTLS encryption, the groupings
   "tls-client-grouping" and "tls-server-grouping" defined in "ietf-tls-
   client" and "ietf-tls-server" modules can be used
   [I-D.ietf-netconf-tls-client-server].

5.  IANA Considerations

   This document describes the URIs from IETF XML Registry and the
```

Commenté [BMI8]: How to cover the case where a server is reachable over IPv4 and IPv6.

Commenté [BMI9]: Idem as above.

Commenté [BMI10]: Please use the template at https://wiki.ietf.org/group/ops/yang-security-guidelines.

registration of a two new YANG module names

5.1. URI

IANA is requested to assign two new URI from the IETF XML Registry [RFC3688]. The following two URIs are suggested:

URI: urn:ietf:params:xml:ns:yang:ietf-udp-client
Registrant Contact: The IESG.
XML: N/A; the requested URI is an XML namespace.

URI: urn:ietf:params:xml:ns:yang:ietf-udp-server
Registrant Contact: The IESG.
XML: N/A; the requested URI is an XML namespace.

5.2. YANG module name

This document also requests two new YANG module names in the YANG Module Names registry [RFC8342] with the following suggestions:

name: ietf-udp-client
namespace: urn:ietf:params:xml:ns:yang:ietf-udp-client
prefix: udpc
maintained by IANA? N
reference: RFC-to-be

name: ietf-udp-server
namespace: urn:ietf:params:xml:ns:yang:ietf-udp-server
prefix: udps
maintained by IANA? N
reference: RFC-to-be

6. Acknowledgements

The authors would like to thank xxx for their review and valuable comments.

7. References

7.1. Normative References

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

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

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

[RFC8174] Leiba, B., "Ambiguity of Uppercase vs Lowercase in RFC 2119 Key Words", BCP 14, RFC 8174, DOI 10.17487/RFC8174, May 2017, <https://www.rfc-editor.org/info/rfc8174>.

[RFC8340] Bjorklund, M. and L. Berger, Ed., "YANG Tree Diagrams", BCP 215, RFC 8340, DOI 10.17487/RFC8340, March 2018, <https://www.rfc-editor.org/info/rfc8340>.

[RFC8342] Bjorklund, M., Schoenwaelder, J., Shafer, P., Watsen, K., and R. Wilton, "Network Management Datastore Architecture (NMDA)", RFC 8342, DOI 10.17487/RFC8342, March 2018, <https://www.rfc-editor.org/info/rfc8342>.

7.2. Informative References

[I-D.ietf-netconf-tls-client-server] Watsen, K., "YANG Groupings for TLS Clients and TLS Servers", Work in Progress, Internet-Draft, draft-ietf-netconf-tls-client-server-34, 28 December 2023, <https://datatracker.ietf.org/doc/html/draft-ietf-netconf-tls-client-server-34>.

[RFC7525] Sheffer, Y., Holz, R., and P. Saint-Andre, "Recommendations for Secure Use of Transport Layer Security (TLS) and Datagram Transport Layer Security (DTLS)", RFC 7525, DOI 10.17487/RFC7525, May 2015, <https://www.rfc-editor.org/info/rfc7525>.

[RFC8085] Eggert, L., Fairhurst, G., and G. Shepherd, "UDP Usage Guidelines", BCP 145, RFC 8085, DOI 10.17487/RFC8085, March 2017, <https://www.rfc-editor.org/info/rfc8085>.

[RFC9147] Rescorla, E., Tschofenig, H., and N. Modadugu, "The Datagram Transport Layer Security (DTLS) Protocol Version 1.3", RFC 9147, DOI 10.17487/RFC9147, April 2022, <https://www.rfc-editor.org/info/rfc9147>.

Commenté [BMI11]: Obsoleted by RFC 9325 - Recommendations for Secure Use of Transport Layer Security (TLS) and Datagram Transport Layer Security (DTLS) (ietf.org)

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