YANG Model for RPKI VRPs
draft-spaghetti-sidrops-rpki-vrp-yang-00

Abstract

   This document describes a YANG model for a commonly used
   datastructure for RPKI Validated ROA Payload data. This specific
   datastructure is commonly used in the transport between RPKI Cache
   Validators and BGP routers.

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
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   material or to cite them other than as "work in progress."

   This Internet-Draft will expire on October 12, 2020.

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1. Introduction

This document defines a base YANG [RFC6020] data module to structure
RPKI [RFC6480], Validated ROA Prefix [RFC6811] (VRP) information.
Such export functionality has emerged in several implementations of
relaying party (RP) software, but was not previously standardized,
resulting in loose coordination between implementers. This module
establishes a simple and consistent interface for information export
by RPs drawing from best practices observed in existing
implementations.

2. Export Model Design and Structure

This section should explain why the specific elements have been
chosen for export, and why the structure of roas block + prefix and
AS content is the most useful or widely used.

3. RPKI VRP Export Module

```
<CODE BEGINS> file "rpki-vrps.yang"
module rpki-vrp {

  namespace "urn:ietf:params:xml:ns:yang:rpki-vrp";

  prefix rpki-vrp;
  import "ietf-inet-types" {
    prefix inet;
  }
```

```
  typedef asn {
    type string {
      pattern 'AS(0|[1-9][0-9]{0,8}|[1-3][0-9]{1,9}|4([0-1][0-9]{8}|2([0-8]
[0-9]{7}|9([0-3][0-9]{6}|4([0-8][0-9]{5}|9([0-5][0-9]{4}|6([0-6][0-9]{3}|
7([0-1][0-9]{2}|2([0-8][0-9]|9[0-5]))))))))))';
    }
    description
      "The Autonomous System Number";
  }

  typedef ta {
    type enumeration {
      enum apic;
      enum arin;
      enum ripe;
      enum lacnic;
      enum afrinic;
    }
  }

  typedef ip-mask {
    type union {
      type ipv4-mask;
      type ipv6-mask;
    }
  }

  typedef ipv4-mask {
    type uint8 {
      range "0 .. 32";
    }
  }

  typedef ipv6-mask {
    type uint8 {
      range "0 .. 128";
    }
  }

  container roas {
    config true;
    list roas {
      key "prefix asn";
      leaf asn {
        type asn;
        mandatory true;
      }
      leaf prefix {
```

```
        type inet:ip-prefix;
        mandatory true;
```

```
        }
        leaf maxLength {
          type ip-mask;
          mandatory true;
        }
        leaf ta {
          type ta;
          mandatory true;
        }
        must "number(substring-after(prefix,'/')) >= number(maxLength)" {
          error-message "Max prefix Length is larger then prefix";
        }
      }
    }
  }
```
<CODE ENDS>

4. Security Considerations

   A few words about not spooking parsers would fit here.

5. IANA Considerations

   None.

6. Acknowledgments

   The authors would like to thank Yannis Gonianakis and Louis
   Poinsignon for their contributions to the data model described in
   this document. The authors are grateful for feedback from Kooistra
   and David Monosov.

7. Normative References

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Author's Address

   Job Snijders
   NTT
   Theodorus Majofskistraat 100
   Amsterdam 1065 SZ
   The Netherlands

   Email: job@ntt.net