

SIDROPS  
Internet-Draft  
Intended status: Standards Track  
Expires: October 12, 2020

J. Snijders  
NTT  
April 10, 2020

**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 provisions of [BCP 78](#) and [BCP 79](#).

Internet-Drafts are working documents of the Internet Engineering Task Force (IETF). Note that other groups may also distribute working documents as Internet-Drafts. The list of current Internet-Drafts is at <https://datatracker.ietf.org/drafts/current/>.

Internet-Drafts are draft documents valid for a maximum of six months and may be updated, replaced, or obsoleted by other documents at any 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 October 12, 2020.

Copyright Notice

Copyright (c) 2020 IETF Trust and the persons identified as the document authors. All rights reserved.

This document is subject to [BCP 78](#) and the IETF Trust's Legal Provisions Relating to IETF Documents

(<https://trustee.ietf.org/license-info>) in effect on the date of publication of this document. Please review these documents carefully, as they describe your rights and restrictions with respect to this document. Code Components extracted from this document must include Simplified BSD License text as described in Section 4.e of the Trust Legal Provisions and are provided without warranty as described in the Simplified BSD License.

Table of Contents

- [1.](#) Introduction . . . . . [2](#)
- [2.](#) Export Model Design and Structure . . . . . [2](#)
- [3.](#) RPKI VRP Export Module . . . . . [2](#)
- [4.](#) Security Considerations . . . . . [4](#)
- [5.](#) IANA Considerations . . . . . [4](#)
- [6.](#) Acknowledgments . . . . . [4](#)
- [7.](#) Normative References . . . . . [4](#)
- Author's Address . . . . . [5](#)

**[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 Poincignon 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**

- [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>>.
- [RFC6020] Bjorklund, M., Ed., "YANG - A Data Modeling Language for the Network Configuration Protocol (NETCONF)", [RFC 6020](#), DOI 10.17487/RFC6020, October 2010, <<https://www.rfc-editor.org/info/rfc6020>>.
- [RFC6480] Lepinski, M. and S. Kent, "An Infrastructure to Support Secure Internet Routing", [RFC 6480](#), DOI 10.17487/RFC6480, February 2012, <<https://www.rfc-editor.org/info/rfc6480>>.

- [RFC6811] Mohapatra, P., Scudder, J., Ward, D., Bush, R., and R. Austein, "BGP Prefix Origin Validation", [RFC 6811](#), DOI 10.17487/RFC6811, January 2013, <<https://www.rfc-editor.org/info/rfc6811>>.
- [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>>.

## Author's Address

Job Snijders  
NTT  
Theodorus Majofskistraat 100  
Amsterdam 1065 SZ  
The Netherlands

Email: [job@ntt.net](mailto:job@ntt.net)