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YANG Data Model for IPv6 Neighbor Discovery
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Abstract

This document defines a YANG data model to configure and manage IPv6 Neighbor Discovery (ND) and related functions, including IPv6 address resolution, redirect function, proxy Neighbor Advertisement, Neighbor Unreachability Detection (NUD), Duplicate Address Detection (DAD), and Enhanced Duplicate Address Detection.

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1. Introduction

This document defines a YANG data model "ietf-ipv6-nd" to configure and manage IPv6 Neighbor Discovery (ND) and related functions, including IPv6 address resolution [RFC4861], redirect function [RFC4861], proxy Neighbor Advertisement [RFC4861], Neighbor Unreachability Detection (NUD) [RFC4861], Duplicate Address Detection (DAD) [RFC4862], and Enhanced Duplicate Address Detection [RFC7527].

Basic neighbor management functionality is supported by the "ietf-ip" YANG data model [RFC8344], and there is already a draft [I-D.ietf-intarea-arp-yang-model] extending the basic ARP YANG functionality to cover optional ARP features and related statistics, which applies only to IPv4. Thus, an extension for IPv6 is required to maintain the Neighbor Cache entries.

[RFC4861] specifies the Neighbor Discovery protocol for IPv6, and [RFC4862] specifies related functions. This document covers IPv6 address resolution [RFC4861], redirect function [RFC4861], proxy

Neighbor Advertisement [RFC4861], NUD [RFC4861], DAD [RFC4862], and Enhanced DAD [RFC7527]. Other function, such as Router and Prefix Discovery [RFC4861] are covered by submodule "ietf-ipv6-router-advertisements" in [RFC8349], and static neighbor cache entries and Stateless Address Autoconfiguration [RFC4862] are covered by module "ietf-ip" in [RFC8344].

The model is based on YANG 1.1 as defined in [RFC7950] and conforms to Network Management Datastore Architecture (NMDA) as defined in [RFC8342].

1.1. Terminology

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.

The following terms are defined in [RFC8342]:

- * configuration
- * system state
- * operational state

The following terms are defined in [RFC7950]:

- * augment
- * container
- * data model
- * data node
- * leaf
- * list
- * module
- * schema tree

The following terms are defined in [RFC4861]:

- * Neighbor Discovery

- * Neighbor Advertisement
- * proxy Neighbor Advertisement
- * Neighbor Unreachability Detection

The following term is defined in [RFC4862]:

- * Duplicate Address Detection
- * Stateless Address Autoconfiguration

The following term is defined in [RFC7527]:

- * Enhanced Duplicate Address Detection

1.2. Tree Diagrams

Tree diagrams used in this document follow the notation defined in [RFC8340].

2. Design of the Data Model

The YANG data model for IPv6 ND defines global configurations and augments the "ietf-ip" [RFC8344] to provide per-interface configuration. It configures and manages IPv6 address resolution and redirect functions based on the IPv6 ND protocol, as well as other related functions, including proxy Neighbor Advertisement, NUD, DAD, and Enhanced DAD.

Note that the features related to ICMP Router and Prefix Discovery are outside the scope of this module, since they have already been defined in the submodule "ietf-ipv6-router-advertisements" [RFC8349]. Static neighbor cache entries and stateless address autoconfiguration [RFC4862] are also out of the scope, as they are covered by "ietf-ip" [RFC8344].

2.1. IPv6 Address Resolution and Redirect Function

The data model augments the "/if:interfaces/if:interface/ip:ipv6" path defined in the "ietf-ip" module [RFC8344] for IPv6 ND protocol [RFC4861].

The "dynamic-discovery" leaf enables the dynamic IPv6 address resolution based on ND protocol.

The "ns-interval" leaf defines the interval of retransmitting Neighbor Solicitation messages when a node tries to learn the link-layer address of another node.

For the management of Neighbor Cache entries, the "stale-timeout" leaves define the timeout for STALE entries, while the "age" leaf augments the "/if:interfaces/if:interface/ip:ipv6/ip:neighbor" path to indicate the elapsed time since the Neighbor Cache entry was last confirmed reachable.

The "statistics" container defines a collection of interface-related statistics on IPv6 ND messages.

The "redirect" leaf enables the sending and processing of Redirect messages.

2.2. Proxy Neighbor Advertisement

The "proxy-na" container augmenting "ietf-ip" [RFC8344] defines the configurations of proxy Neighbor Advertisements [RFC4861], which indicate that a router is willing to accept packets not explicitly addressed to itself. After receiving a Neighbor Solicitation message whose destination address is not its own IPv6 address, a proxy router replies to the source with a Neighbor Advertisement message carrying its own link-layer address and the IPv6 address of the original destination.

The "inter-vlan-proxy" leaf enables the router to proxy for hosts in the same subnet with different VLANs to enable the communication between them.

The "all-proxy" leaf enables the router to proxy for all hosts, that is, responds unconditionally to Neighbor Solicitation messages no matter whether the sources and destinations are in the same subnet or not with its own Neighbor Advertisement messages, which can attract the traffic to the router itself for centralized control or hiding the topology of the network.

2.3. Neighbor Unreachability Detection

The "nud" leaf augmenting "ietf-ip" [RFC8344] enables Neighbor Unreachability Detection (NUD) [RFC4861], which is used by a node to track the reachability of the neighbors to which it sends packets and update the state of the related Neighbor Cache entries.

The "reachable-time" leaf defines the time to confirm a neighbor's reachability for NUD. A neighbor's state changes from REACHABLE to STALE when there is no other reachability confirmation from the neighbor within the "reachable-time".

The "ns-interval" leaf also indicates the interval for retransmitting Neighbor Solicitation messages used by NUD.

2.4. Duplicate Address Detection

The "dup-addr-detect-transmits" leaf, which indicates the number of consecutive Neighbor Solicitation messages sent while performing Duplicate Address Detection (DAD) [RFC4862], has already been defined in "ietf-ip" [RFC8344]. The value of "dup-addr-detect-transmits" can be set to 0 to disable DAD.

The "ns-interval" leaf also indicates the interval for retransmitting Neighbor Solicitation messages during DAD.

The "enhanced-dad" container augmenting "ietf-ip" [RFC8344] defines the configurations for enhanced DAD [RFC7527], which is used to automatically detect the looped-back IPv6 ND messages used in DAD.

The "enhanced-dad-auto-resolve" leaf enables automated action when a duplicate is detected. When enabled, a trusted router may log a system management message, drop the received ND message, and block the untrusted IPv6 host nodes from which the duplicate NS (DAD) or NA message was received.

2.5. IPv6 Neighbor Discovery Data Model

This document defines the YANG module "ietf-ipv6-nd", which has the following structure.

```

module: ietf-ipv6-nd
  +--rw nd
    +--rw stale-timeout?   uint32

  augment /if:interfaces/if:interface/ip:ipv6:
    +--rw nd
      +--rw dynamic-discovery?  boolean
      +--rw nud?                 boolean
      +--rw reachable-time?     uint32
      +--rw ns-interval?        uint32
      +--rw stale-timeout?      uint32
      +--rw redirect?           boolean
      +--rw proxy-na
        | +--rw inter-vlan-proxy?  boolean
        | +--rw all-proxy?         boolean
      +--rw enhanced-dad
        | +--rw enable?             boolean
        | +--rw enhanced-dad-auto-resolve?  boolean
      +--ro statistics
        +--ro in-ns-pkts?         yang:counter32
        +--ro in-na-pkts?         yang:counter32
        +--ro in-rs-pkts?         yang:counter32
        +--ro in-ra-pkts?         yang:counter32
        +--ro in-redirect-pkts?   yang:counter32
        +--ro out-ns-pkts?        yang:counter32
        +--ro out-na-pkts?        yang:counter32
        +--ro out-rs-pkts?        yang:counter32
        +--ro out-ra-pkts?        yang:counter32
        +--ro out-redirect-pkts?  yang:counter32
      augment /if:interfaces/if:interface/ip:ipv6/ip:neighbor:
        +--ro age?               uint32

```

Figure 1

3. IPv6 Neighbor Discovery YANG Module

This section presents the YANG module of IPv6 Neighbor Discovery defined in this document.

This module imports modules from Common YANG Data Types [RFC6991], A YANG Data Model for Interface Management [RFC8343], and A YANG Data Model for IP Management [RFC8344].

```
<CODE BEGINS> file "ietf-ipv6-nd@2025-10-20.yang"
module ietf-ipv6-nd {
  yang-version 1.1;
  namespace "urn:ietf:params:xml:ns:yang:ietf-ipv6-nd";
  prefix v6nd;

  import ietf-yang-types {
    prefix yang;
    reference
      "RFC 6991: Common YANG Data Types";
  }
  import ietf-interfaces {
    prefix if;
    reference
      "RFC 8343: A Yang Data Model for Interface Management";
  }
  import ietf-ip {
    prefix ip;
    reference
      "RFC 8344: A Yang Data Model for IP Management";
  }

  organization
    "IETF IPv6 Maintenance Working Group (6man)";
  contact
    "WG Web:  <https://datatracker.ietf.org/wg/6man/>
    WG List:  <mailto: 6man@ietf.org>

    Author:  Fan Zhang
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    Author:  Bo Wu
              <lane.wubo@huawei.com>
    Author:  Jiayuan Hu
              <hujy5@chinatelecom.cn>"

  description
    "This YANG module defines a YANG data model to configure and manage
    IPv6 Neighbor Discovery (ND) and related functions, including
    IPv6 address resolution, redirect, proxy Neighbor
    Advertisement, Neighbor Unreachability Detection (NUD), Duplicate
    Address Detection (DAD), and Enhanced DAD.

    The model is based on YANG 1.1 as defined in RFC 7950 and
    conforms to Network Management Datastore Architecture (NMDA)
    as defined in RFC 8342.

    Copyright (c) 2025 IETF Trust and the persons identified as
```


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This version of this YANG module is part of RFC XXXX (<https://www.rfc-editor.org/info/rfcXXXX>); see the RFC itself for full legal notices.

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 (RFC 2119) (RFC 8174) when, and only when, they appear in all capitals, as shown here.";

reference

"RFC4861: Neighbor Discovery for IP version 6 (IPv6)

RFC4862: IPv6 Stateless Address Autoconfiguration

RFC7527: Enhanced Duplicate Address Detection";

revision 2025-10-20 {

description

"Init revision";

reference

"RFC XXXX: YANG Data Model for IPv6 Neighbor Discovery";

}

/* Data nodes */

container nd {

description

"Global parameters for IPv6 ND.";

leaf stale-timeout {

type uint32;

units "second";

description

"The global timeout for Neighbor Cache entry in the STALE state.";

reference

"RFC4861: Neighbor Discovery for IP version 6 (IPv6)
Section 5.3";

}

}

augment "/if:interfaces/if:interface/ip:ipv6" {

```
description
  "Augments interface configuration and state data with
  parameters of IPv6 ND.";
container nd {
  description
    "Parameters of IPv6 ND.";
  leaf dynamic-discovery {
    type boolean;
    default "true";
    description
      "Controls whether dynamic link-layer address resolution
      for IPv6 on the interface is enabled or disabled.
      true - dynamic link-layer address resolution based on
            IPv6 ND is enabled,
      false - dynamic link-layer address resolution based on
            IPv6 ND is disabled.";
    reference
      "RFC4861: Neighbor Discovery for IP version 6 (IPv6)
      Section 7.2";
  }
  leaf nud {
    type boolean;
    default "true";
    description
      "Controls whether Neighbor Unreachability Detection (NUD)
      on the interface is enabled or disabled.
      true - NUD is enabled,
      false - NUD is disabled.";
    reference
      "RFC4861: Neighbor Discovery for IP version 6 (IPv6)
      Section 7.3";
  }
  leaf reachable-time {
    type uint32 {
      range "0..3600000";
    }
    units "millisecond";
    description
      "The time to confirm a neighbor's reachability for NUD.";
    reference
      "RFC4861: Neighbor Discovery for IP version 6 (IPv6)
      - ReachableTime";
  }
  leaf ns-interval {
    type uint32;
    units "milliseconds";
    description
      "The interval of retransmitting Neighbor Solicitations to a
```

```
        neighbor for address resolution, NUD, or DAD.";
    reference
        "RFC4861: Neighbor Discovery for IP version 6 (IPv6)
        Section 7.3.3";
}
leaf stale-timeout {
    type uint32;
    units "second";
    description
        "The timeout for Neighbor Cache entry in the STALE state on
        the interface.";
    reference
        "RFC4861: Neighbor Discovery for IP version 6 (IPv6)
        Section 5.3";
}
leaf redirect {
    type boolean;
    default "false";
    description
        "Controls whether sending of ICMP Redirect messages
        on the interface is enabled or disabled.
        true - Sending of ICMP Redirect messages is enabled,
        false - Sending of ICMP Redirect messages is disabled.";
    reference
        "RFC4861: Neighbor Discovery for IP version 6 (IPv6)
        Section 8";
}
container proxy-na {
    description
        "Parameters of proxy Neighbor Advertisements.";
    leaf inter-vlan-proxy {
        type boolean;
        default "false";
        description
            "Controls whether the router proxies for hosts in the
            same subnet with different VLANs";
    }
    leaf all-proxy {
        type boolean;
        default "false";
        description
            "Controls whether the router proxies for all hosts,
            that is, responds unconditionally to Neighbor
            Solicitation with its own Neighbor Advertisement.";
    }
    reference
        "RFC4861: Neighbor Discovery for IP version 6 (IPv6)
        Section 7.2.8";
}
```

```
}
container enhanced-dad {
  description
    "Parameters of Enhanced DAD algorithm.";
  leaf enable {
    type boolean;
    default "false";
    description
      "Controls whether Enhanced DAD algorithm is enabled or
      disabled.";
  }
  leaf enhanced-dad-auto-resolve {
    type boolean;
    default "false";
    description
      "Controls whether the automated action is taken when
      detecting duplicates. A trusted router can log a system
      management message, drop the received ND message, and
      block the untrusted IPv6 host nodes from which the
      duplicate NS(DAD) or NA message was received.";
  }
  reference
    "RFC7527: Enhanced Duplicate Address Detection";
}
container statistics {
  config false;
  description
    "A collection of interface-related statistics about IPv6
    ND messages.";
  leaf in-ns-pkts {
    type yang:counter32;
    description
      "The number of received Neighbor Solicitation packets.";
  }
  leaf in-na-pkts {
    type yang:counter32;
    description
      "The number of received Neighbor Advertisement packets.";
  }
  leaf in-rs-pkts {
    type yang:counter32;
    description
      "The number of received Router Solicitation packets.";
  }
  leaf in-ra-pkts {
    type yang:counter32;
    description
      "The number of received Router Advertisement packets.";
```

```
    }
    leaf in-redirect-pkts {
      type yang:counter32;
      description
        "The number of received Redirect packets.";
    }
    leaf out-ns-pkts {
      type yang:counter32;
      description
        "The number of sent Neighbor Solicitation packets.";
    }
    leaf out-na-pkts {
      type yang:counter32;
      description
        "The number of sent Neighbor Advertisement packets.";
    }
    leaf out-rs-pkts {
      type yang:counter32;
      description
        "The number of sent Router Solicitation packets.";
    }
    leaf out-ra-pkts {
      type yang:counter32;
      description
        "The number of sent Router Advertisement packets.";
    }
    leaf out-redirect-pkts {
      type yang:counter32;
      description
        "The number of sent Redirect packets.";
    }
  }
}

augment "/if:interfaces/if:interface/ip:ipv6/ip:neighbor" {
  description
    "Augments IPv6 neighbor list with parameters of IPv6 address
    resolution based on IPv6 ND.";
  leaf age {
    type uint32;
    units "milliseconds";
    config false;
    description
      "The time that has passed since receipt of the last
      reachability confirmation for the neighbor.";
    reference
      "RFC4861: Neighbor Discovery for IP version 6 (IPv6)";
  }
}
```

```
        Section 5.1";
    }
}
}

<CODE ENDS>
```

Figure 2

4. IANA Considerations

This document registers a URI in the IETF XML registry [RFC3688]. Following the format in [RFC3688], the following registration is requested to be made:

```
URI: urn:ietf:params:xml:ns:yang:ietf-ipv6-nd
Registrant Contact: The IESG.
XML: N/A, the requested URI is an XML namespace.
```

Figure 3

This document registers a YANG module in the YANG Module Names registry [RFC6020].

```
name: ietf-ipv6-nd
namespace: urn:ietf:params:xml:ns:yang:ietf-ipv6-nd
prefix: v6nd
reference: RFC XXXX
```

Figure 4

5. Security Considerations

The YANG module specified in this document defines a schema for data that is designed to be accessed via network management protocols such as NETCONF [RFC6241] or RESTCONF [RFC8040]. The lowest NETCONF layer is the secure transport layer, and the mandatory-to-implement secure transport is Secure Shell (SSH) [RFC6242]. The lowest RESTCONF layer is HTTPS, and the mandatory-to-implement secure transport is TLS [RFC8446].

The NETCONF Access Control Model (NACM) [RFC8341] provides the means to restrict access for particular NETCONF or RESTCONF users to a preconfigured subset of all available NETCONF or RESTCONF protocol operations and content.

There are a number of data nodes defined in this YANG module that are writable/creatable/deletable (i.e., config true, which is the default). These data nodes may be considered sensitive or vulnerable in some network environments. Write operations (e.g., edit-config) to these data nodes without proper protection can have a negative effect on network operations. These are the subtrees and data nodes and their sensitivity/vulnerability:

- * /if:interfaces/if:interface/ip:ipv6/ipv6-nd:nd/ipv6-nd:dynamic-discovery - This leaf is used to enable IPv6 address resolution, which could allow traffic to be hijacked.
- * /if:interfaces/if:interface/ip:ipv6/ipv6-nd:nd/ipv6-nd:proxy-na - This subtree is used to enable proxy Neighbor Advertisement on an interface, which could allow spoofing traffic to be injected.
- * /if:interfaces/if:interface/ip:ipv6/ipv6-nd:nd/ipv6-nd:nud - This leaf could be used to disable NUD on an interface, which could lead to delays in Neighbor Cache updates and cause packets forwarding to unreachable nodes.
- * /if:interfaces/if:interface/ip:ipv6/ipv6-nd:nd/ipv6-nd:reachable-time - This leaf is used to consider a neighbor reachable since the last confirmation of reachability, which could be set to big values to prolong the effect of spoofing Neighbor Cache entries or small values to cause unnecessary frequent NUDs.
- * /if:interfaces/if:interface/ip:ipv6/ipv6-nd:nd/ipv6-nd:ns-interval - This leaf is used to set the interval of retransmitting Neighbor Solicitations, which could allow DoS attacks.
- * /ipv6-nd:nd/ipv6-nd:stale-timeout and /if:interfaces/if:interface/ip:ipv6/ipv6-nd:nd/ipv6-nd:stale-timeout - These leaves are used to set the timeout for Neighbor Cache entry in the STALE state, which could allow the consumption of cache.

Some of the readable data nodes in the ietf-ipv6-nd module may be considered sensitive or vulnerable in some network environments. It is thus important to control read access (e.g., via get, get-config, or notification) to these data nodes.

6. Acknowledgments

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8. Informative References

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Appendix A. Data Model Examples

A.1. Configured Static IPv6 Neighbor Cache Entry

This example illustrates the manual configuration for a Neighbor Cache entry of interface eth0 for peer 2001:db8::2 with link-layer address 00:00:5E:00:53:AB statically.

Note: '\ ' line wrapping per [RFC8792].

```
<?xml version="1.0" encoding="utf-8"?>
<interfaces \
  xmlns="urn:ietf:params:xml:ns:yang:ietf-interfaces" \
  xmlns:ianaift="urn:ietf:params:xml:ns:yang:iana-if-type">
  <interface>
    <name>eth0</name>
    <type>ianaift:ethernetCsmacd</type>
    <!-- other parameters from ietf-interfaces omitted -->

    <ipv6 xmlns="urn:ietf:params:xml:ns:yang:ietf-ip">
      <!-- ipv6 address configuration parameters omitted -->
      <neighbor>
        <ip>2001:db8::2</ip>
        <link-layer-address>00:00:5E:00:53:AB</link-layer-address>
      </neighbor>
    </ipv6>
  </interface>
</interfaces>
```

Figure 5

A.2. Configuration of Proxy Neighbor Advertisement, NUD, and DAD

This example illustrates the configuration of enabling proxy Neighbor Advertisement, NUD, and DAD with setting the "dup-addr-detect-transmits" leaf as 1, the "reachable-time" leaf as 30000 milliseconds, and the "ns-interval" leaf as 1000 milliseconds.

Note: '\ ' line wrapping per [RFC8792].

```
<?xml version="1.0" encoding="utf-8"?>
<interfaces \
  xmlns="urn:ietf:params:xml:ns:yang:ietf-interfaces" \
  xmlns:ianaift="urn:ietf:params:xml:ns:yang:iana-if-type">
  <interface>
    <name>eth0</name>
    <type>ianaift:ethernetCsmacd</type>
    <!-- other parameters from ietf-interfaces omitted -->

    <ipv6 xmlns="urn:ietf:params:xml:ns:yang:ietf-ip">
      <dup-addr-detect-transmits>1</dup-addr-detect-transmits>
      <!-- ipv6 address configuration parameters omitted -->

      <nd xmlns="urn:ietf:params:xml:ns:yang:ietf-ipv6-nd">
        <dynamic-discovery>true</dynamic-discovery>
        <nud>true</nud>
        <reachable-time>30000</reachable-time>
        <ns-interval>1000</ns-interval>
        <stale-timeout>1200</stale-timeout>
        <proxy-na>
          <inter-vlan-proxy>true</inter-vlan-proxy>
        </proxy-na>
      </nd>
    </ipv6>
  </interface>
</interfaces>
```

Figure 6

Appendix B. Coverage of IPv6 ND Functions in YANG Modules

This appendix analyzes the functional elements related to the IPv6 ND protocol and identifies whether they are covered by existing IETF YANG modules or defined in this document.

The table below maps the relevant RFCs, functions or parameters, the corresponding YANG modules, and their specific data paths. The functions are defined in [RFC4861] (Neighbor Discovery for IP version 6 (IPv6)), [RFC4862] (IPv6 Stateless Address Autoconfiguration), and other RFC extending IPv6 ND functions. The parameters are defined in Section 6.2.1 and 6.3.2 of [RFC4861], Section 5.1 of [RFC4862], and Section 3.3 of [RFC4941].

	RFC	Function/Parameter	Covered by
	(Sec)		Path
	4861	Neighbor Cache	ietf-ip
neighbor	s5.1		/if:interfaces/if:interface/ip:ipv6/ip:
	4862	Prefix List	ietf-ipv6-
r:prefix-	s5.1	(AdvPrefixList)	router-
			list
			advertisements
	4861	IsRouter	ietf-ip
	s6.2.1		/if:interfaces/if:interface/ip:ipv6/
			ip:forwarding
	4861	AdvSendAdvertisements	ietf-ipv6-
r:ipv6-	s6.2.1		router-
			router-advertisements
			advertisements
	4861	MaxRtrAdvInterval	ietf-ipv6-
r:max-	s6.2.1		router-
			rtr-adv-interval
			advertisements
	4861	MinRtrAdvInterval	ietf-ipv6-
r:min-	s6.2.1		router-
			rtr-adv-interval
			advertisements
	4861	AdvManagedFlag	ietf-ipv6-
	s6.2.1		router-
			v6ur:managed-flag
			advertisements
	4861	AdvOtherConfigFlag	ietf-ipv6-
r:other-			/if:interfaces/if:interface/ip:ipv6/v6u

	s6.2.1	router-	config-flag
		advertisements	
	-----+	-----+	-----+
-----+	4861	AdvLinkMTU	ietf-ipv6-
r:link-			/if:interfaces/if:interface/ip:ipv6/v6u
	s6.2.1	router-	mtu
		advertisements	
	-----+	-----+	-----+
-----+	4861	AdvReachableTime (for	ietf-ipv6-
		RA)	/if:interfaces/if:interface/ip:ipv6/
	s6.2.1	router-	v6ur:reachable-time
		advertisements	
	-----+	-----+	-----+
-----+	4861	AdvRetransTimer	ietf-ipv6-
			/if:interfaces/if:interface/ip:ipv6/
	s6.2.1	router-	v6ur:retrans-timer
		advertisements	
	-----+	-----+	-----+
-----+	4861	AdvCurHopLimit	ietf-ipv6-
r:cur-			/if:interfaces/if:interface/ip:ipv6/v6u
	s6.2.1	router-	hop-limit

			advertisements	
	4861	AdvDefaultLifetime	ietf-ipv6-	/if:interfaces/if:interface/ip:ipv6/
	s6.2.1		router-	v6ur:default-lifetime
			advertisements	
	4861	AdvPrefixList	ietf-ipv6-	/if:interfaces/if:interface/ip:ipv6/v6u
r:prefix-	s6.2.1	/AdvValidLifetime	router-	list/v6ur:prefix/v6ur:control-adv-
			advertisements	prefixes/v6ur:advertise/v6ur:valid-life
time				
	4861	AdvPrefixList	ietf-ipv6-	/if:interfaces/if:interface/ip:ipv6/v6u
r:prefix-	s6.2.1	/AdvOnLinkFlag	router-	list/v6ur:prefix/v6ur:control-adv-
			advertisements	prefixes/v6ur:advertise/v6ur:on-link-fl
ag				
	4861	AdvPrefixList/	ietf-ipv6-	/if:interfaces/if:interface/ip:ipv6/v6u
r:prefix-	s6.2.1	AdvPreferredLifetime	router-	list/v6ur:prefix/v6ur:control-adv-
			advertisements	prefixes/v6ur:advertise/v6ur:preferred-
lifetime				
	4861	AdvPrefixList/	ietf-ipv6-	/if:interfaces/if:interface/ip:ipv6/v6u
r:prefix-	s6.2.1	AdvAutonomousFlag	router-	list/v6ur:prefix/v6ur:control-adv-
			advertisements	prefixes/v6ur:advertise/v6ur:autonomous
-flag				
	4861	ReachableTime(for NUD)	ietf-ipv6-nd	/if:interfaces/if:interface/ip:ipv6/v6n
d:nd/	s6.3.2			v6nd:reachable-time
	4861	RetransTimer(for NS)	ietf-ipv6-nd	/if:interfaces/if:interface/ip:ipv6/v6n
d:nd/	s6.3.2			v6nd:ns-interval
	/4862			
	s5.1			
	4861	CurHopLimit(for Node)	(reuse	

	s6.3.2		AdvCurHopLimit)	
d:nd/	4861	Timeout for stale	ietf-ipv6-nd	/if:interfaces/if:interface/ip:ipv6/v6n
	s5.3	information		v6nd:stale-timeout
d:nd/	4861	Address Resolution	ietf-ipv6-nd	/if:interfaces/if:interface/ip:ipv6/v6n
	s7.2			v6nd:dynamic-discovery
d:nd/	4861	Neighbor	ietf-ipv6-nd	/if:interfaces/if:interface/ip:ipv6/v6n
	s7.2	Unreachability		v6nd:nud
		Detection		
d:nd/	4861	Proxy Neighbor	ietf-ipv6-nd	/if:interfaces/if:interface/ip:ipv6/v6n
	s7.2.8	Advertisements		v6nd:proxy-na
d:nd/	4861	Redirect	ietf-ipv6-nd	/if:interfaces/if:interface/ip:ipv6/v6n
	s8			v6nd:redirect

+-----+			
4862	DupAddrDetectTransmits	ietf-ip	/if:interfaces/if:interface/ip:ipv6/ip:
dup-addr-			
s5.1			detect-transmits
+-----+			
+-----+			
4862	Creation of Global	ietf-ip	/if:interfaces/if:interface/ip:ipv6/ip:
autoconf/			
s5.5	Addresses		ip:create-global-addresses
+-----+			
+-----+			
4941	Creation of Temporary	ietf-ip	/if:interfaces/if:interface/ip:ipv6/ip:
autoconf/			
	Addresses		ip:create-temporary-addresses
+-----+			
+-----+			
4941	TEMP_VALID_LIFETIME	ietf-ip	/if:interfaces/if:interface/ip:ipv6/ip:
autoconf/			
			ip:temporary-valid-lifetime
+-----+			
+-----+			
4941	TEMP_PREFERRED_	ietf-ip	/if:interfaces/if:interface/ip:ipv6/ip:
autoconf/			
	LIFETIME		ip:temporary-preferred-lifetime
+-----+			
+-----+			
7527	Enhanced Duplicate	ietf-ipv6-nd	/if:interfaces/if:interface/ip:ipv6/v6n
d:nd/			
	Address Detection		v6nd:enhanced-dad
+-----+			
+-----+			

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