

## Neighbor Detection Commands

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## Chapter 1 ND Commands

ND commands include the following ones:

- `debug ipv6 nd`
- `show ipv6 neighbors`
- `clear ipv6 neighbors`
- `ipv6 neighbor`
- `ipv6 nd dad attempts`
- `ipv6 nd managed-flag`
- `ipv6 nd ns-interval`
- `ipv6 nd other-flag`
- `ipv6 nd prefix`
- `ipv6 nd ra interval`
- `ipv6 nd ra-interval`
- `ipv6 nd ra-lifetime`
- `ipv6 nd reachable-time`
- `ipv6 nd router-preference`
- `ipv6 nd suppress-ra`

### 1.1.1 `debug ipv6 nd`

To enable the ND debug switch, run the following command:

**`debug ipv6 nd`** [*entry* | *timer* | *synchronize*]

Parameter

Parameter	Description
<i>entry</i>	Stands for the switch of neighbor's cache entry change.
<i>timer</i>	Stands for the switch of neighbor's cache timer change. .
<i>synchronize</i>	Stands for the switch of the neighbor's cache synchronization.

**Default value**

The ND debug switch is disabled by default.

**Command mode**

EXEC

**Instruction**

If there is no other parameters, all debug switches will be enabled.

**Example**

None

**Related command**

None

**1.1.2 show ipv6 neighbors**

To display the neighbor cache of the current switch, run the following command:

**show ipv6 neighbors**

**Parameter**

None

**Default value**

None

**Command mode**

EXEC

**Instruction**

None

**Related command**

None

### 1.1.3 clear ipv6 neighbors

To delete all manually configured neighbor caches, run the following command:

**clear ipv6 neighbors**

#### Parameter

None

#### Default value

None

#### Command mode

EXEC

#### Instruction

This command is used to delete all neighbor caches that are obtained by the switch, but not those neighbor caches that are configured through the **ipv6 neighbor** command.

#### Related command

ipv6 neighbor

### 1.1.4 ipv6 neighbor

To set the neighbor cache of a switch, run the following command in global configuration mode.

**ipv6 neighbor** *address6 interface mac*

#### Parameter

Parameter	Description
<i>address6</i>	Stands for the IPv6 address of the neighbor.
<i>interface</i>	Stands for the port of the switch.
<i>mac</i>	Stands for the address of the link layer of the neighbor.

#### Default value

None

## Command mode

Global configuration mode

## Instruction

This command can be used to set the neighbor cache of a switch and the neighbor cache will not time out unless you run the "no" form of this command to delete the neighbor cache.

## Example

```
IPv6_config#ipv6 neighbor 1::1 e1/1 00:e0::4c:5a:78:eb
```

The example shows how to set a neighbor on interface e1/1. In the example, the IPv6 address of a neighbor is **1::1** and the address of the link layer of the neighbor is **00:e0:4c:5a:78:eb**.

## Related command

show ipv6 neighbors

### 1.1.5 ipv6 nd dad attempts

To set the number of NSs that are transmitted when ND conducts DAD, run the following command:

**ipv6 nd dad attempts** *num*

## Parameter

Parameter	Description
<i>num</i>	Stands for the number of the NSs which are transmitted during DAD.

## Default value

1

## Command mode

Interface configuration mode

## Instruction

You can use the "no" form of this command to resume the default settings.

## Related command

None

### 1.1.6 ipv6 nd managed-flag

To set the M flag in the RA message, run the following command:

**ipv6 nd managed-flag**

## Parameter

None

## Default value

The M flag is 0.

## Command mode

Interface configuration mode

## Instruction

The command can be used to set the M flag in the RA message, which is transmitted by the local port, to 1 and the "no" form of this command can be used to resume the M flag to 0.

## Related command

None

### 1.1.7 ipv6 nd ns-interval

To set the NS transmission interval of the local port and the retrans-timer field in the RA message, run the following command:

**ipv6 nd ns-interval** *milliseconds*

## Parameter

Parameter	Description
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<i>milliseconds</i>	Stands for the time whose unit is millisecond.
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#### Default value

The default NS transmission interval is 1000 milliseconds, that is, 1 second. The retrans-timer field in the RA message is 0 by default, that is, it is not sure.

#### Command mode

Interface configuration mode

#### Instruction

This command can be used to set the NS transmission interval of the local switch on the local port and at the same time the retrans-timer field in the RA message on the local port.

#### Related command

None

### 1.1.8 ipv6 nd other-flag

To set the O flag in the RA message transmitted by the local port, run the following command.

**ipv6 nd other-flag**

#### Parameter

None

#### Default value

The O flag in the transmitted RA message is 0 by default.

#### Command mode

Interface configuration mode

#### Instruction

This command can be used to set the O flag in the RA message, which is transmitted by the local port, to 1, and its “no” form can be used to cancel this settings and resume the default settings.



## Related command

None

## 1.1.9 ipv6 nd prefix

To set the prefix of the RA message, run the first one of the following two commands:

```
ipv6 nd prefix {ipv6-prefix/prefix-length | default} [no-advertise | [valid-lifetime  
preferred-lifetime off-link | no-autoconfig]] ]
```

## Parameter

Parameter	Description
<i>ipv6-prefix</i>	Stands for the prefix of IPv6.
<i>Prefix-length</i>	Stands for the length of the prefix.
<i>Valid-lifetime</i>	Stands for the valid time.
<i>Preferred-lifetime</i>	Stands for the most privileged time.

## Default value

The default valid-lifetime is 2592000 seconds and the default preferred-lifetime is 604800 seconds.

## Command mode

Interface configuration mode

## Instruction

**no-advertise** means that the prefix is not contained in the RA message.

**off-link** means that the ON-Link flag in the prefix of the RA message is 0, and **no-autoconfig** means that the AUTO-CONFIG in the prefix of the RA message is 0.

You can set the prefix on a port by using **ipv6 nd prefix *ipv6-prefix/prefix-length*...** and cancel this prefix by using the “no” form of this command.

You can set the default value of the prefix by using **ipv6 nd prefix default ...** and cancel this settings by running the “no” form of this command.

## Example

```
1. IPv6_config_e1/0#ipv6 nd prefix 1::/64
```

The prefix “1::0/64” is added on a port and the other fields will be attributed with default values. The following RA messages will all be added with this prefix.

## 2. IPv6\_config\_e1/0#ipv6 nd prefix 2::/64 off-link

The prefix “2::/64” is added, the ON-LINK flag is 0, and other protocols are their default values.

## 3. IPv6\_config\_e1/0#ipv6 nd prefix default no-autoconfig

The default value on this port is changed to NO-AUTOCONFIG, and other protocols are their default values. If the three commands are used successively, the third command will not influence the prefix “2::/64” configured by the second command but the prefix “1::/64” configured by the first command will change to NO-AUTOCONFIG.

### Related command

None

## 1.1.10 ipv6 nd ra interval

To set the maximum or minimum interval of RA transmission, run the following command:

**ipv6 nd ra interval *max* [*min*]**

### Parameter

Parameter	Description
<i>max</i>	Sets the maximum interval of RA transmission, whose unit is second.
<i>Min</i>	Sets the minimum interval of RA transmission, whose unit is second.

### Default value

The default maximum interval is 600 seconds and the default minimum interval is only 1/3 of the default maximum interval.

### Command mode

Interface configuration mode

### Instruction

This command is always used to set the range of the RA transmission interval.

### Related command

ipv6 nd ra-interval

ipv6 nd ra-lifetime

### 1.1.11 ipv6 nd ra-interval

To set the interval of RA transmission on the local port, run the following command:

**ipv6 nd ra-interval** *seconds*

#### Parameter

Parameter	Description
<i>seconds</i>	Sets the interval of RA transmission, whose unit is second.

#### Default value

The interval for the local port to transmit the first three messages cannot be more than 16 seconds, while that to transmit the following messages varies between the maximum interval (600 seconds) and the minimum interval (200 seconds).

#### Command mode

Interface configuration mode

#### Instruction

This command is always used to set the range of the RA transmission interval for the local port.

#### Related command

ipv6 nd ra interval

### 1.1.12 ipv6 nd ra-lifetime

To set the router-lifetime field in the RA message transmitted by the local port, run the following command.

**ipv6 nd ra-lifetime** *seconds*

#### Parameter

Parameter	Description
<i>seconds</i>	Stands for the value in the router-lifetime field in the RA message, whose unit is second.

**Default value**

1800 seconds or triple of the maximum RA transmission interval configured by **ipv6 nd ra interval *max***

**Command mode**

Interface configuration mode

**Instruction**

You can use the “no” form of this command to resume the default value.

**Related command**

ipv6 nd ra interval

**1.1.13 ipv6 nd reachable-time**

To set the reachable-time field of the RA message and the reachable time of all automatically configured neighbor caches on the local port, run the following command:

**ipv6 nd reachable-time *milliseconds***

**Parameter**

Parameter	Description
<i>milliseconds</i>	Stands for the time, whose unit is second.

**Default value**

The reachable-time is 0 by default and the default reachable time for the neighbor cache is a value between 15 seconds and 45 seconds.

**Command mode**

Interface configuration mode

**Instruction**

You can use the “no” form of this command to resume the default value.

## Related command

None

### 1.1.14    `ipv6 nd router-preference`

To set the value of the switch preference in the RA message, run the following command:

**`ipv6 nd router-preferenc` *preference***

## Parameter

Parameter	Description
<i>Preference</i>	Stands for the preference of a switch, which can be one of the three values: high, medium and low.

## Default value

medium

## Command mode

Interface configuration mode

## Instruction

You can use the “no” form of this command to resume the default value.

## Related command

None

### 1.1.15    `ipv6 nd suppress-ra`

To stop a port to be the notification port of a switch, run the following command:

**`ipv6 nd suppress-ra`**

## Parameter

None

Default value

The port works as the notification port of the switch.

Command mode

Interface configuration mode

Instruction

You can use the “no” form of this command to resume the default value.

Related command

None