NAME

radvd.conf – configuration file of the router advertisement daemon **radvd**

DESCRIPTION

This file describes the information which is included in the router advertisement (RA) of a specific interface.

The file contains one or more interface definitions of the form:

interface name **{**
    list of interface specific options
    list of prefix definitions
    list of route definitions
};

All the possible interface specific options are detailed below. Each option has to be terminated by a semicolon.

Prefix definitions are of the form:

prefix prefix**/**length **{**
    list of prefix specific options
};

Prefix can be network prefix or the address of the inferface. The address of interface should be used when using Mobile IPv6 extensions.

All the possible prefix specific options are described below. Each option has to be terminated by a semicolon.

Decimal values are allowed only for MinDelayBetweenRAs, MaxRtrAdvInterval and MinRtrAdvInterval. Decimal values should be used only when using Mobile IPv6 extensions.

Route definitions are of the form:

route prefix**/**length **{**
    list of route specific options
};

The prefix of a route definition should be network prefix; it can be used to advertise more specific routes to the hosts.

INTERFACE SPECIFIC OPTIONS

IgnoreIfMissing on|off

A flag indicating whether or not the interface is ignored if it does not exist. This is useful for dynamic interfaces which are not active when radvd starts, but for which you want to already have configuration -- and when they become active, you send HUP signal to radvd to activate them.

Default: off

AdvSendAdvert on|off

A flag indicating whether or not the router sends periodic router advertisements and responds to router solicitations.

This option no longer has to be specified first, but it needs to be **on** to enable advertisement on this interface.

Default: off

UnicastOnly on|off

Indicates that the interface link type only supports unicast. This will prevent unsolicited advertisements from being sent, and will cause solicited advertisements to be unicast to the soliciting node. This option is necessary for non-broadcast, multiple-access links, such as ISATAP.

Default: off

MaxRtrAdvInterval seconds

The maximum time allowed between sending unsolicited multicast router advertisements from the interface, in seconds.

Must be no less than 4 seconds and no greater than 1800 seconds.

Minimum when using Mobile IPv6 extensions: 0.07.

For values less than 0.2 seconds, 0.02 seconds is added to account for scheduling granularities as specified in RFC3775.

Default: 600 seconds

MinRtrAdvInterval seconds

The minimum time allowed between sending unsolicited multicast router advertisements from the interface, in seconds.

Must be no less than 3 seconds and no greater than 0.75 * MaxRtrAdvInterval.

Minimum when using Mobile IPv6 extensions: 0.03.

Default: 0.33 * MaxRtrAdvInterval

MinDelayBetweenRAs seconds

The minimum time allowed between sending multicast router advertisements from the interface, in seconds.

This applies to solicited multicast RAs. This is defined as the protocol constant MIN_DELAY_BETWEEN_RAS in RFC2461. MIPv6 redefines this parameter to have a minimum of 0.03 seconds.

Minimum when using Mobile IPv6 extensions: 0.03.

Default: 3

AdvManagedFlag on|off

When set, hosts use the administered (stateful) protocol for address autoconfiguration in addition to any addresses autoconfigured using stateless address autoconfiguration. The use of this flag is described in RFC 2462.

Default: off

AdvOtherConfigFlag on|off

When set, hosts use the administered (stateful) protocol for autoconfiguration of other (non-address) information. The use of this flag is described in RFC 2462.

Default: off

AdvLinkMTU integer

The MTU option is used in router advertisement messages to insure that all nodes on a link use the same MTU value in those cases where the link MTU is not well known.

If specified, i.e. not 0, must not be smaller than 1280 and not greater than the maximum MTU allowed for this link (e.g. ethernet has a maximum MTU of 1500. See RFC 2464).

Default: 0

AdvReachableTime milliseconds

The time, in milliseconds, that a node assumes a neighbor is reachable after having received a reachability confirmation. Used by the Neighbor Unreachability Detection algorithm (see Section 7.3 of RFC 2461). A value of zero means unspecified (by this router).

Must be no greater than 3,600,000 milliseconds (1 hour).

Default: 0

AdvRetransTimer milliseconds

The time, in milliseconds, between retransmitted Neighbor Solicitation messages. Used by address resolution and the Neighbor Unreachability Detection algorithm (see Sections 7.2 and 7.3 of RFC 2461). A value of zero means unspecified (by this router).

Default: 0

AdvCurHopLimit integer

The default value that should be placed in the Hop Count field of the IP header for outgoing (unicast) IP packets. The value should be set to the current diameter of the Internet. The value zero means unspecified (by this router).

Default: 64

AdvDefaultLifetime seconds

The lifetime associated with the default router in units of seconds. The maximum value corresponds to 18.2 hours. A lifetime of 0 indicates that the router is not a default router and should not appear on the default router list. The router lifetime applies only to the router's usefulness as a default router; it does not apply to information contained in other message fields or options. Options that need time limits for their information include their own lifetime fields.

Must be either zero or between MaxRtrAdvInterval and 9000 seconds.

Default: 3 * MaxRtrAdvInterval (Minimum 1 second).

AdvDefaultPreference low|medium|high

The preference associated with the default router, as either "low", "medium", or "high".

Default: medium

AdvSourceLLAddress on|off

When set, the link-layer address of the outgoing interface is included in the RA.

Default: on

AdvHomeAgentFlag on|off

When set, indicates that sending router is able to serve as Mobile IPv6 Home Agent. When set, minimum limits specified by Mobile IPv6 are used for MinRtrAdvInterval and MaxRtrAdvInterval.

Default: off

AdvHomeAgentInfo on|off

When set, Home Agent Information Option (specified by Mobile IPv6) is included in Router Advertisements. AdvHomeAgentFlag must also be set when using this option.

Default: off

HomeAgentLifetime seconds

The length of time in seconds (relative to the time the packet is sent) that the router is offering Mobile IPv6 Home Agent services. A value 0 must not be used. The maximum lifetime is 65520 seconds (18.2 hours). This option is ignored, if AdvHomeAgentInfo is not set.

If both HomeAgentLifetime and HomeAgentPreference are set to their default values, Home Agent Information Option will not be sent.

Default: AdvDefaultLifetime

HomeAgentPreference integer

The preference for the Home Agent sending this Router Advertisement. Values greater than 0 indicate more preferable Home Agent, values less than 0 indicate less preferable Home Agent. This option is ignored, if AdvHomeAgentInfo is not set.

If both HomeAgentLifetime and HomeAgentPreference are set to their default values, Home Agent Information Option will not be sent.

Default: 0

AdvIntervalOpt on|off

When set, Advertisement Interval Option (specified by Mobile IPv6) is included in Router Advertisements. When set, minimum limits specified by Mobile IPv6 are used for MinRtrAdvInterval and MaxRtrAdvInterval.

The advertisement interval is based on the configured MaxRtrAdvInterval parameter except where this is less than 200ms. In this case, the advertised interval is (MaxRtrAdvInterval + 20ms).

Default: off

PREFIX SPECIFIC OPTIONS

AdvOnLink on|off

When set, indicates that this prefix can be used for on-link determination. When not set the advertisement makes no statement about on-link or off-link properties of the prefix. For instance, the prefix might be used for address configuration with some of the addresses belonging to the prefix being on-link and others being off-link.

Default: on

AdvAutonomous on|off

When set, indicates that this prefix can be used for autonomous address configuration as specified in RFC 2462.

Default: on

AdvRouterAddr on|off

When set, indicates that the address of interface is sent instead of network prefix, as is required by Mobile IPv6. When set, minimum limits specified by Mobile IPv6 are used for MinRtrAdvInterval and MaxRtrAdvInterval.

Default: off

AdvValidLifetime seconds|**infinity**

The length of time in seconds (relative to the time the packet is sent) that the prefix is valid for the purpose of on-link determination. The symbolic value **infinity** represents infinity (i.e. a value of all one bits (0xffffffff)). The valid lifetime is also used by RFC 2462.

Default: 2592000 seconds (30 days)

AdvPreferredLifetime seconds|**infinity**

The length of time in seconds (relative to the time the packet is sent) that addresses generated from the prefix via stateless address autoconfiguration remain preferred. The symbolic value **infinity** represents infinity (i.e. a value of all one bits (0xffffffff)). See RFC 2462.

Default: 604800 seconds (7 days)

Base6to4Interface name

If this option is specified, this prefix will be combined with the IPv4 address of interface **name** to produce a valid 6to4 prefix. The first 16 bits of this prefix will be replaced by **2002** and the next 32 bits of this prefix will be replaced by the IPv4 address assigned to interface **name** at configuration time. The remaining 80 bits of the prefix (including the SLA ID) will be advertised as specified in the configuration file. See the next section for an example.

If interface **name** is not available at configuration time, a warning will be written to the log and this prefix will be disabled until radvd is reconfigured.

This option enables systems with dynamic IPv4 addresses to update their advertised 6to4 prefixes simply by restarting radvd or sending a SIGHUP signal to cause radvd to reconfigure itself.

Note that 6to4 prefixes derived from dynamically-assigned IPv4 addresses should be advertised with a significantly shorter lifetime (see the **AdvValidLifetime** and **AdvPreferredLifetime** options).

For more information on 6to4, see RFC 3056.

Default: 6to4 is not used

ROUTE SPECIFIC OPTIONS

AdvRouteLifetime seconds|**infinity**

The lifetime associated with the route in units of seconds. The symbolic value **infinity** represents infinity (i.e. a value of all one bits (0xffffffff)).

Default: 3 * MaxRtrAdvInterval

AdvRoutePreference low|medium|high

The preference associated with the default router, as either "low", "medium", or "high".

Default: medium

EXAMPLES

```
interface eth0
{
    AdvSendAdvert on;
    prefix 2001:db8:0:1::/64
    {
```

```
        AdvOnLink on;
        AdvAutonomous on;
    };
};
```

It says that router advertisement daemon should advertise (AdvSendAdvert on;) the prefix 2001:db8:0:1:: which has a lenght of 64 on the interface eth0. Also the prefix should be marked as autonomous (AdvAutonomous on;) and as on-link (AdvOnLink on;). All the other options are left on their default values.

To support movement detection of Mobile IPv6 Mobile Nodes, the address of interface should be used instead of network prefix:

```
interface eth0
{
    AdvSendAdvert on;
    prefix 2001:db8:0:1::4/64
    {
        AdvOnLink on;
        AdvAutonomous on;
        AdvRouterAddr on;
    };
};
```

For 6to4 support, include the **Base6to4Interface** option in each prefix section. When using a dynamic IPv4 address, set small prefix lifetimes to prevent hosts from retaining unreachable prefixes after a new IPv4 address has been assigned. When advertising to on a dynamic interface (e.g., Bluetooth), skip the interface if it is not active yet.

```
interface bnep0
{
    IgnoreIfMissing on;
    AdvSendAdvert on;

    # Advertise at least every 30 seconds
    MaxRtrAdvInterval 30;

    prefix 0:0:0:5678::/64
    {
        AdvOnLink on;
        AdvAutonomous on;
        Base6to4Interface ppp0;

        # Very short lifetimes for dynamic addresses
        AdvValidLifetime 300;
        AdvPreferredLifetime 120;
    };
};
```

Since 6to4 is enabled, the prefix will be advertised as 2002:WWXX:YYZZ:5678::/64, where WW.XX.YY.ZZ is the IPv4 address of ppp0 at configuration time. (IPv6 addresses are written in hexadecimal whereas IPv4 addresses are written in decimal, so the IPv4 address WW.XX.YY.ZZ in the 6to4 prefix will be represented in hex.)

In this specific case, the configuration scripts should send HUP signal to radvd when taking bnep0 up or

down to notify about the status.

FILES

/usr/sbin/radvd
/etc/radvd.conf
/var/run/radvd.pid
/var/log/radvd.log

CREDIT

The description of the different flags and variables is in large parts taken from RFC 2461.

RFCS

Narten, T., E. Nordmark, W. Simpson, "Neighbor Discovery for IP Version 6 (IPv6)", RFC 2461, December 1998

Thomson, S., and T. Narten, "IPv6 Stateless Address Autoconfiguration", RFC 2462, December 1998.

Deering, S., and R. Hinden, Editors, "IP Version 6 Addressing Architecture", RFC 2373, July 1998.

Conta, A., and S. Deering, "Internet Control Message Protocol (ICMPv6) for the Internet Protocol Version 6 (IPv6)", RFC 2463, December 1998.

Crawford, M., "Transmission of IPv6 Packets over Ethernet Networks", RFC 2464, December 1998.

Carpenter B., Moore K., "Connection of IPv6 Domains via IPv4 Clouds", RFC 3056, February 2001. (6to4 specification)

Draves, R., Hinden B., "Default Router Preferences, More-Specific Routes, and Load Sharing", draft-ietf-ipv6-router-selection-02.txt, work-in-progress, June 2002.

SEE ALSO

radvd(8), **radvdump**(8)