

Chapter 8 Definition Statements

8.1 Definition Overview

Definition statements are general configuration statements that relate to all of GateD, or at least to more than one protocol. The four definition statements are **autonomoussystem**, **confed-id**, **routerid**, and **martians**. If used, all of these definition statements must appear before any other type of configuration statement in the `gated.conf` file.

8.2 Autonomous System Syntax

```
autonomoussystem autonomous_system [ loops number ] ;
```

autonomoussystem sets the autonomous system (AS) number of this router to be *autonomous_system*. **autonomoussystem** is required if BGP is in use. The AS number is assigned by the Regional Internet Registries (RIRs). When using the BGP confederation option, the AS number is the internal sub-AS number and should be allocated out of the reserved private AS space, 64512-65534. See RFC 3065, "BGP Confederations" and RFC 1930, "Guidelines for Creation, Selection and Registration of an Autonomous System" for details.

loops is only for protocols supporting AS paths. For example, BGP **loops** controls the number of times this autonomous system can appear in an AS path. It defaults to 1. **loops** should not be used in normal operations.

More detailed descriptions of these commands can be found on page 49 of the *Command Reference Guide*.

8.3 Confed ID Syntax

```
confed-id confederation_number ;
```

confed-id sets the confederation ID for this router to be *confederation_number*. **confed-id** is required if this router will be using the BGP confederations option. Additionally, **autonomoussystem** must also be defined.

The AS number of the *confederation_number* should be selected out of the reserved private AS space, 64512-65534, as specified in RFC 1930, "Guidelines for Creation, Selection and Registration of an Autonomous System." Non-private ASs, however, can also be selected.

More detailed descriptions of these commands can be found on page 51 of the *Command Reference Guide*.

8.4 Router ID Syntax

```
routerid host ;
```

routerid sets the router identifier for use by the BGP and OSPF protocols. **routerid** must be explicitly configured when using BGP. The default is selected by going through the list of interfaces and using the local address of the most preferred interface. The most preferred interface is selected as follows: the address of a non-point-to-point interface is preferred over the local address of a point-to-point interface, and an address on a loopback interface that is not the loopback address (127.0.0.1) is most preferred.

More detailed descriptions of this command can be found on page 55 of the *Command Reference Guide*.

8.5 Martian Syntax

```
martians {  
    host [ inet6 ] host [ allow ] ;  
    network [ ( mask mask ) | ( masklen number ) ]  
        [ exact | refines | ( between lower and upper ) ]  
        [ allow ] ;  
    [ inet | inet6 ] default [ allow ] ;  
};
```

martians allows additions to the list of martian addresses. See the section, "Chapter 28 Route Filtering" on page 129 for more information on specifying ranges. Also, the **allow** parameter may be specified to explicitly allow a subset of a range that was disallowed.

More detailed descriptions of these commands can be found on page 52 of the *Command Reference Guide*.

Martians are networks that are considered illegal to be routed on the internet. RFC 1918 specifies these networks that are part of the private internet space:

- 10.0.0.0 - 10.255.255.255 (10/8 prefix)
- 172.16 - 172.31.255.255 (172.16/12 prefix)
- 192.168.0.0 - 192.168.255.255 (192.168/16 prefix)

The prefixes are considered unroutable. GateD does not treat these as martian addresses, but the **martian** syntax will allow you to treat private address space as illegal for routing within an autonomous system. RFC 1700 specifies common usage for IP numbers.

The default martians are:

8.5.1 IPv4 Defaults

127/8 (127.0.0.0 netmask 255.0.0.0) - 127.x.x.x is specified by RFC 1700 to loop back addresses. RFC 1700 (page 4, item g) states "these addresses should never appear outside a host." Address 127.0.0.1 is normally used as a loopback address.

240.0.0.0/4 (240.0.0.0 netmask 240.0.0.0) - 240.x.x.x are the multicast addresses.

8.5.2 IPv6 Defaults

::1/128 - IPv6 loopback address

fe80::/10 - IPv6 link local addresses

ff00::/8 - IPv6 multicast addresses

::0000: 127.0.0.0/104 and ::ffff: 127.0.0.0/104 - IPv6 embedded IPv4 loopback addresses

::0000: 240.0.0.0/100 and ::ffff 240.0.0.0/100 - IPv6 embedded IPv4 multicast addresses

8.6 Martian Examples

This example `martian` statement prevents routes to 10.0.0.26 from being accepted. It also causes routes to 3ffd:ffff:ffff:1::/64 and any more specific subnets or hosts of this route to not be accepted. It also prevents routes to 0.0.0.0/0 and ::/0 from being accepted.

```
martians {  
    10.0.0.26 ;  
    3ffd:ffff:ffff:1::/64 ;  
    default ;  
} ;
```

