Chapter 24
Route Filtering

all

Name

all - matches anything

Syntax

[inet6 | inet] all [exact | refines | (between *lower* **and** *upper* **)]**

Parameters

none

Description

all matches anything. **all** is equivalent to:

0.0.0.0 mask 0.0.0.0

and

::/0 if in an IPv6 context or if **inet6 all** is specified.

It includes **default**.

Defaults

none

Context

route filter statement

Examples

```
import proto bgp as 201 {
    all;
};
```

The above example is equivalent to:

```
import proto bgp as 201 {
    inet all ;
```

```
        inet6 all ;
    } ;
```

See Also

“Chapter 28 Route Filtering” on page 129 of *Configuring GateD*

network on page 583

between

Name

between - specifies that the mask of the destination must be as or more specific than the lower limit and no more specific than the upper limit

Syntax

between *lower* **and** *upper*

Parameters

lower **-** the lower bound on matched mask lengths

upper **-** the upper bound on matched mask lengths

Description

between specifies that the mask of the prefix to match must be as or more specific (for example, as long as or longer) than the lower limit and no more specific (for example, as long as or shorter) than the upper limit. *lower* must be greater than or equal to the filter masklen, and lower must be greater than or equal to upper. Both must be less than or equal to the maximum mask length for the address family. Note that **exact** and **refines** are both special cases of **between**.

between cannot be used with **all** in contexts where **all** refers to both IPv4 and IPv6 addresses. In such cases, **inet all between** and/or **inet6 all between** must be specified.

Defaults

none

Context

route filter statement

Examples

```
import proto bgp as 201 {
    0.0.0.0 between 24 and 25 restrict;
    inet all;
};
```

See Also

"Chapter 28 Route Filtering" on page 129 of *Configuring GateD*

network on page 583

default

Name

default - matches the **default** route

Syntax

[inet6 | inet] default

Parameters

none

Description

default matches the **default** route. To match, the address must be the default address and the mask must be all zeros. **default** is equivalent to:

0.0.0.0 mask 0.0.0.0 exact

and

:: mask :: exact in an IPv6 context or if **inet6 all** is specified.

Defaults

none

Context

route filter statement

Examples

```
import proto rip {
    all ;
    default restrict ;
};
```

See Also

"Chapter 28 Route Filtering" on page 129 of *Configuring GateD*

network on page 583

exact

Name

exact - specifies that the mask of the destination must match the supplied mask exactly

Syntax

exact

Parameters

none

Description

exact specifies that the mask of the destination must match the supplied mask exactly. **exact** is used to match a network, but no subnets or hosts of that network.

Defaults

none

Context

route filter statement

Examples

The following example aggregates only the single subnet route to 223.1/25 and all routes more specific than 223.2/24, but not 223.2/24 itself.

```
aggregate 223.0.0.0/8 {
    proto static {
        223.1/25 exact;
        223.2/24 refines;
    };
};
```

See Also

"Chapter 28 Route Filtering" on page 129 of *Configuring GateD*

network on page 583

host

Name

host - matches the specific host

Syntax

host [inet6 | inet] *host*

Parameters

host - the DNS name or IP address of a host (a maximum length prefix). If a DNS name is specified, GateD attempts to resolve the name to an IP address. **inet6** indicates that a host name is to be resolved as an IPv6 address.

Description

host matches the specific host. To match, the address must exactly match the specified *host* and the network mask must be a host mask (for example, all 1's). **host** is equivalent to:

host **mask 255.255.255.255**

or in the IPv6 case:

host **masklen 128**

Defaults

none

Context

route filter statement

Examples

The example below imports a RIP route to all addresses except the single address, 10.1.2.3/32.

```
import proto rip {
    all;
    host 10.1.2.3 restrict;
};
```

See Also

"Chapter 28 Route Filtering" on page 129 of *Configuring GateD*

network on page 583

network

Name

network - matches subnets of the specified address and mask

Syntax

[inet6 | inet] *network* **[mask** *mask* **| masklen** *number* **]**
[exact | refines | (between *lower* **and** *upper***)]**

Parameters

network **-** the network address to match

mask *mask* **-** the network mask to use for the match

masklen *number* **-** the length of the network mask to use for the match

lower **-** the lower bound on matched mask lengths

upper **-** the upper bound on matched mask lengths

Description

A route matches the configured filter if the route's address matches that of the filter up to the length of the filter's mask. The route's mask must be at least as long as that of the filter in order to match. Furthermore, **exact** indicates that a matched address mask must be equal to that of the filter. **refines** indicates that a matched route's mask must be longer than the filter's. **between** indicates that a matched route's length must be within the specified *lower* and *upper* bounds.

Defaults

If a network is specified without a **mask** or **masklen**, and the address type is **inet**, the mask defaults to the natural mask for the network.

Context

route filter statement

Examples

The following example aggregates only the single subnet route to 223.1/25 and all routes more specific than 223.2/24, but not 223.2/24 itself.

```
aggregate 223.0.0.0/8 {
    proto static {
        223.1/25 exact;
        223.2/24 refines;
    };
};
```

See Also

"Chapter 28 Route Filtering" on page 129 of *Configuring GateD*

martians on page 90

refines

Name

refines - specifies that the mask of the destination must be more specific than the filter mask

Syntax

refines

Parameters

none

Description

refines specifies that the mask of the destination must be more specific (i.e., longer) than the filter mask. **refines** is used to match subnets and/or hosts of a network, but not the network.

Defaults

none

Context

route filter statement

Examples

The following example imports all routes except default (0.0.0.0/0) and 10.1.2.3 via RIP.

```
import proto rip {
    all refines;
    host 10.1.2.3 restrict;
};
```

See Also

all on page 577

"Chapter 28 Route Filtering" on page 129 of *Configuring GateD*

network on page 583

route filter

Name

route filter - matches route filters

Syntax

```
network [ ( mask mask ) | ( masklen number ) ]
    [ exact | refines | ( between lower and upper ) ]
[ inet6 | inet ] all [ exact | refines | ( between lower and upper ) ]
[ inet6 | inet ] default
host [ inet6 | inet ] host
```

Parameters

includes all those parameters discussed in this chapter

Description

Routes are filtered by specifying configuration language that will match a certain set of routes by destination, or by destination and mask. Among other places, route filters are used on **martians**, and in **import** and **export** statements.

In most cases, you can specify additional parameters relevant to the context of the filter. For example, on a **martian** statement you can specify the **allow** keyword; on an **import** statement you can specify a **preference**; and on an **export** statement you can specify a **metric**.

Three optional types of matching used to filter routes are **exact**, **refines**, and **between**.

Defaults

If a network is specified without a **mask** or **masklen**, and the address type is **inet**, the mask defaults to the natural mask for the network.

Context

aggregate statement

martians statement

import statement

export statement

Examples

The following example shows how to set up a route filter for BGP-import that allows all IPv4 networks with a masklen less than 19 to pass.

```
import proto bgp autonmoussystem 12345 {
    0.0.0.0 between 0 and 18;
};
```

See Also

"Chapter 28 Route Filtering" on page 129 of *Configuring GateD*

martians on page 90