

## Chapter 24

# Internet Group Management Protocol (IGMP)

### 24.1 IGMP Overview

IGMP was designed for hosts on multi-access networks to inform locally-attached routers of their multicast group memberships. Hosts inform routers of the groups of which they are members by multicasting IGMP Group Membership Reports. Once multicast routers listen for these reports, they can exchange group membership information with other multicast routers. This reporting system allows distribution trees to be formed to deliver multicast datagrams. The original version of IGMP was defined in RFC 1112, Host Extensions for IP Multicasting. Extensions to IGMP, known as IGMP version 2, include explicit Leave messages for faster pruning and are defined in RFC 2236. GateD implements only IGMP version 2, which includes interoperability with version 1 hosts. The original version of IGMP can be found at:

<http://www.ietf.org/rfc/rfc1112.txt>

IGMP version 2 is described in:

<http://www.ietf.org/rfc/rfc2236.txt>

### 24.2 IGMP Syntax

```
igmp ( on | off ) [ {  
    [ interface interface_list [ {  
        [ enable ; | disable ; ]  
        [ nosend ; ]  
        [ query-interval sec ; ]  
        [ max-response-time sec ; ]  
        [ last-mem-query-intvl sec ; ]  
        [ robustness value ; ]  
    } ; ]  
    [ traceoptions trace_options ; ]  
    [ query-interval sec ; ]  
    [ max-response-time sec ; ]  
    [ last-mem-query-intvl sec ; ]  
    [ robustness value ; ]  
} ] ;
```

More detailed descriptions of these commands can be found on page 521 of the *Command Reference Guide*.

## 24.3 Sample IGMP Configurations

### 24.3.1 Example 1: IGMP and DVMRP

This is a simple IGMP and DVMRP configuration with passive interfaces.

```
interfaces {  
    interface all passive;  
};  
igmp yes;  
dvmrp yes;
```

### 24.3.2 Example 2: IGMP and DVMRP

The following example enables IGMP and DVMRP on interfaces le0 and le1 only.

```
igmp yes {  
    interface le0 { enable; };  
    interface le1 { enable; };  
};  
dvmrp yes {  
    interface le0 { enable; };  
    interface le1 { enable; };  
};
```

### 24.3.3 Example 3: IGMP Only

This example will enable IGMP while leaving all of the fxp interfaces with a default robustness of 2 except fxp2. The fxp2 interface will have a robustness of 3.

```
igmp yes {  
    interface fxp {  
        enable;  
    };  
    interface fxp2 {  
        enable;  
        robustness 3;  
    };  
};
```

### 24.3.4 Example 4: IGMP Only

The following configuration enables IGMP on all fxp interfaces. The interface fxp2 will have a robustness of 4 while all other fxp interfaces will have a robustness of 3.

```
igmp yes {  
    interface fxp {  
        enable;  
    };  
    interface fxp2 {  
        enable;  
        robustness 4;  
    };  
};
```

```

    robustness 3;
};

```

### 24.3.5 Example 5: IGMP Only

In the following configuration, IGMP is enabled on all interfaces.

```

interfaces {
    interface all passive;
};
igmp yes;

```

### 24.3.6 Example 6: IGMP Only

In the following configuration, IGMP is enabled only on interfaces qe0 and qe2.

```

igmp yes {
    interface le0 { disable; };
    interface qe0 { enable; };
    interface qe1 { enable; };
    interface qe2 { disable; };
    interface qe3 { disable; };
};

```

### 24.3.7 Example 7: Per Interface Configuration

The following configuration illustrates how to configure interface-specific options.

```

igmp yes {
    interface all {
        enable;
        query-interval 135;
        last-mem-query-intvl 2;
        max-response-time 10;
        robustness 3;
    };
    interface fxp0 {
        enable;
        query-interval 120;
        last-mem-query-intvl 3;
    }
    interface fxp2 {
        disable;
    }
};

```

Given the configuration above, assume the router has three interfaces fxp0, fxp1, and fxp2. Interface fxp1 will have the following values:

```
query-interval 135;
last-mem-query-intvl 2;
max-response-time 10;
robustness 3;
```

Interface fxp0 will have the following values:

```
query-interval 120;
last-mem-query-intvl 3;
max-response-time 10;
robustness 3;
```

and fxp2 will be disabled.

## 24.4 Defaults

```
igmp yes {
    interface all {
        enable;
        query-interval 125;
        last-mem-query-intvl 1;
        max-response-time 10;
        robustness 2;
    };
    traceoptions none;
    query-interval 125;
    max-response-time 10;
    last-mem-query-intvl 1;
    robustness 2;
};
```

The configuration above is equivalent to:

```
igmp yes {
    interface all {
        enable;
        query-interval 125;
        last-mem-query-intvl 1;
        max-response-time 10;
        robustness 2;
    };
    traceoptions none;
};
```