

Configuring Multicast Parameters with CLI

This section provides information to configure multicast, IGMP, and PIM.

Topics in this section include:

- [Multicast Configuration Overview on page 62](#)
- [Basic Configuration on page 63](#)
- [Common Configuration Tasks on page 66](#)
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Multicast Configuration Overview

The routers use IGMP to manage membership for a given multicast session. IGMP is not enabled by default. When enabled, at least one interface must be specified in the IGMP context as IGMP is an interface function. Creating an interface enables IGMP. Traffic can only flow away from the router to an IGMP interface and to and from a PIM interface. A router directly connected to a source must have PIM enabled on the interface to that source. The traffic travels in a network from PIM interface to PIM interface and arrives finally on an IGMP enabled interface.

The IGMP CLI context allows you to specify an existing IP interface and modify the interface-specific parameters. Static IGMP group memberships can be configured to test multicast forwarding without a receiver host. When IGMP static group membership is enabled, data is forwarded to an interface without receiving membership reports from host members.

When static IGMP group entries on point-to-point links that connect routers to a rendezvous point (RP) are configured, the static IGMP group entries do not generate join messages toward the RP. When a host wants to receive multicast sessions it sends a join message for each multicast group it wants to join. Then, a leave message may be sent for each multicast group it no longer wishes to participate with.

A multicast router keeps a list of multicast group memberships for each attached network, and an interval timer for each membership. Hosts issue a Multicast Group Membership Report when they want to receive a multicast session. The reports are sent to all multicast routers.

PIM is not enabled by default. When PIM is enabled, data is forwarded to network segments with active receivers that have explicitly requested the multicast group. When enabled, at least one interface must be specified in the PIM context as PIM is an interface function. Creating an interface enables PIM.

Basic Configuration

Perform the following basic multicast configuration tasks:

For IGMP:

- Enable IGMP (required)
- Configure IGMP interfaces (required)
- Specify IGMP version on the interface (optional)
- Configure static (S,G)/(*,G) (optional)
- Configure SSM translation (optional)

For PIM:

- Enable PIM (required)
- Add interfaces so the protocol establishes adjacencies with the neighboring routers (required)
- Configure a way to calculate group-to-RP mapping (required) by either:
 - Static group-to-RP mapping
 - Enable Candidate RP/Bootstrap mechanism on some routers.
- Enable unicast routing protocols to learn routes towards the RP/source for reverse path forwarding (required)
- Add SSM ranges (optional)
- Enable Candidate BSR (optional)
- Enable Candidate RP (optional)
- Change hello interval (optional)
- Configure route policies (bootstrap-export, bootstrap-import, import join and register)

For MSDP:

- Enable MSDP (required)
- Configure peer
- Configure local address

For MCAC:

- Configure policy name
- Configure bundle parameters
- Specify default action

The following example displays the enabled IGMP and PIM configurations:

```
A:LAX>config>router>igmp# info
-----
interface "lax-vls"
  exit
interface "pl-ix"
  exit
-----
A:LAX>config>router>igmp# info detail
-----
interface "lax-vls"
  no import
  version 3
  no shutdown
exit
interface "pl-ix"
  no import
  version 3
  no shutdown
exit
query-interval 125
query-last-member-interval 1
query-response-interval 10
robust-count 2
no shutdown
-----
A:LAX>config>router>igmp# exit
A:LAX>config>router# pim
A:LAX>config>router>pim# info
-----
interface "system"
  exit
interface "lax-vls"
  exit
interface "lax-sjc"
  exit
interface "pl-ix"
  exit
rp
  static
    address 2.22.187.237
    group-prefix 224.24.24.24/32
  exit
  bsr-candidate
    shutdown
  exit
  rp-candidate
    shutdown
  exit
rp
  exit
-----
A:LAX>config>router>pim# info detail
-----
no import join-policy
no import register-policy
interface "system"
```

```

    priority 1
    hello-interval 30
    multicast-senders auto
    no tracking-support
    bsm-check-rtr-alert
    no shutdown
exit
interface "lax-vls"
    priority 1
    hello-interval 30
    multicast-senders auto
    no tracking-support
    bsm-check-rtr-alert
    no shutdown
exit
interface "lax-sjc"
    priority 1
    hello-interval 30
    multicast-senders auto
    no tracking-support
    bsm-check-rtr-alert
    no shutdown
exit
interface "p1-ix"
    priority 1
    hello-interval 30
    multicast-senders auto
    no tracking-support
    bsm-check-rtr-alert
    no shutdown
exit
apply-to none
rp
    no bootstrap-import
    no bootstrap-export
    static
        address 2.22.187.237
        no override
        group-prefix 224.24.24.24/32
    exit
exit
bsr-candidate
    shutdown
    priority 0
    hash-mask-len 30
    no address
exit
rp-candidate
    shutdown
    no address
    holdtime 150
    priority 192
exit
exit
no shutdown

```

```
-----
A:LAX>config>router>pim#
```

Common Configuration Tasks

The following sections describe basic multicast configuration tasks.

- [Configuring IGMP Parameters on page 66](#)
 - [Enabling IGMP on page 66](#)
 - [Configuring an IGMP Interface on page 68](#)
 - [Configuring Static Parameters on page 69](#)
 - [Configuring SSM Translation on page 71](#)
- [Configuring PIM Parameters on page 72](#)
 - [Enabling PIM on page 72](#)
 - [Configuring PIM Interface Parameters on page 73](#)
 - [Importing PIM Join/Register Policies on page 78](#)
- [Configuring Multicast Source Discovery Protocol \(MSDP\) Parameters on page 80](#)
- [Configuring MCAC Parameters on page 81](#)
- [Disabling IGMP or PIM on page 84](#)

Configuring IGMP Parameters

Enabling IGMP

Use the following CLI syntax to enable IGMP.

CLI Syntax: `config>router# igmp`

The following example displays the detailed output when IGMP is enabled.

```
A:LAX>>config>router# info detail
...
#-----
echo "IGMP Configuration"
#-----
      igmp
        query-interval 125
        query-last-member-interval 1
```

```
        query-response-interval 10
        robust-count 2
        no shutdown
    exit
#-----
A:LAX>>config>system#
```

Configuring an IGMP Interface

To configure an IGMP interface:

CLI Syntax: config>router# igmp
 interface *ip-int-name*
 max-groups *value*
 import *policy-name*
 version *version*
 no shutdown

Use the following CLI syntax to configure IGMP interfaces:

Example: config>router#
config>router>igmp# interface "lax-vls"
config>router>igmp>if? no shutdown
config>router>igmp>if# exit
config>router>igmp# interface "pl-ix"
config>router>igmp>if? no shutdown
config>router>igmp>if# exit
config>router>igmp# interface "lax-sjc"
config>router>igmp>if? no shutdown
config>router>igmp>if# exit

The following example displays the IGMP configuration:

```
A:LAX>config>router>igmp# info
-----
      interface "lax-sjc"
      exit
      interface "lax-vls"
      exit
      interface "pl-ix"
      exit
-----
A:LAX>config>router>igmp# exit
```


Configuring Static Parameters

To add an IGMP static multicast source:

CLI Syntax:

```
config>router# igmp
    interface ip-int-name
        no shutdown
        static
            group grp-ip-address
            source ip-address
```

Use the following CLI syntax to configure static group addresses and source addresses for the SSM translate group ranges:

Example:

```
config>router>igmp# interface lax-vls
config>router>igmp>if# static
config>router>igmp>if>static# group 229.255.0.2
config>router>igmp>if>static>group# source 172.22.184.197
config>router>igmp>if>static>group# exit
config>router>igmp>if>static# exit
config>router>igmp>if# exit
```

The following example displays the configuration:

```
A:LAX>config>router>igmp# info
-----
    interface "lax-sjc"
    exit
    interface "lax-vls"
        static
            group 229.255.0.2
            source 172.22.184.197
        exit
    exit
    exit
    interface "pl-ix"
    exit
-----
A:LAX>config>router>igmp#
```

Configuring IGMP Parameters

To add an IGMP static starg entry:

CLI Syntax: config>router# igmp
 interface *ip-int-name*
 no shutdown
 static
 group *grp-ip-address*
 starg

Use the following CLI syntax to configure static group addresses and add a static (*,G) entry:

Example: config>router>igmp# interface lax-sjc
config>router>igmp>if# static
config>router>igmp>if>static# group 230.1.1.1
config>router>igmp>if>static>group# starg
config>router>igmp>if>static>group# exit
config>router>igmp>if>static# exit
config>router>igmp>if# exit
config>router>igmp#

The following example displays the configuration:

```
A:LAX>config>router>igmp# info
-----
interface "lax-sjc"
  static
    group 230.1.1.1
    starg
  exit
exit
interface "lax-vls"
  static
    group 229.255.0.2
    source 172.22.184.197
  exit
exit
interface "p1-ix"
  exit
-----
A:LAX>config>router>igmp#
```

Configuring SSM Translation

To configure IGMP parameters:

CLI Syntax: config>router# igmp
 ssm-translate
 grp-range *start end*
 source *ip-address*

The following example displays the command usage to configure IGMP parameters:

Example: config>router# igmp
 config>router>igmp# ssm-translate
 config>router>igmp>ssm# grp-range 229.255.0.1 231.2.2.2
 config>router>igmp>ssm>grp-range# source 10.1.1.1

The following example displays the SSM translation configuration:

```
A:LAX>config>router>igmp# info
-----
    ssm-translate
      grp-range 229.255.0.1 231.2.2.2
        source 10.1.1.1
      exit
    exit
  interface "lax-sjc"
    static
      group 230.1.1.1
      starg
    exit
  exit
  interface "lax-vls"
    static
      group 229.255.0.2
      source 172.22.184.197
    exit
  exit
  interface "p1-ix"
  exit
-----
A:LAX>config>router>igmp# exit
```

Configuring PIM Parameters

- [Enabling PIM on page 72](#)
 - [Configuring PIM Interface Parameters on page 73](#)
 - [Importing PIM Join/Register Policies on page 78](#)
-

Enabling PIM

When configuring PIM, make sure to enable PIM on all interfaces for the routing instance, otherwise multicast routing errors can occur.

Use the following CLI syntax to enable PIM.

CLI Syntax:config>router# pim

The following example displays the detailed output when PIM is enabled.

```
A:LAX>>config>router# info detail
...
#-----
echo "PIM Configuration"
#-----
    pim
        no import join-policy
        no import register-policy
        apply-to none
        rp
            no bootstrap-import
            no bootstrap-export
            static
            exit
        bsr-candidate
            shutdown
            priority 0
            hash-mask-len 30
            no address
        exit
        rp-candidate
            shutdown
            no address
            holdtime 150
            priority 192
        exit
    exit
    no shutdown
exit
#-----
...
A:LAX>>config>system#
```

Configuring PIM Interface Parameters

The following example displays the command usage to configure PIM interface parameters:

```

Example:A:LAX>config>router# pim
A:LAX>config>router>pim# interface "system"
A:LAX>config>router>pim>if# exit
A:LAX>config>router>pim# interface "lax-vls"
A:LAX>config>router>pim>if# exit
A:LAX>config>router>pim# interface "lax-sjc"
A:LAX>config>router>pim>if# exit
A:LAX>config>router>pim# interface "p1-ix"
A:LAX>config>router>pim>if# exit
A:LAX>config>router>pim# rp
A:LAX>config>router>pim>rp# static
A:LAX>config>router>pim>rp>static# address 2.22.187.237
A:LAX>config>router>..>address# group-prefix 224.24.24.24/32
A:LAX>config>router>pim>rp>static>address# exit
A:LAX>config>router>pim>rp>static# exit
A:LAX>config>router>pim>rp# exit
A:LAX>config>router>pim#

```

The following example displays the PIM configuration:

```

A:LAX>config>router>pim# info
-----
      interface "system"
      exit
      interface "lax-vls"
      exit
      interface "lax-sjc"
      exit
      interface "p1-ix"
      exit
      rp
        static
          address 2.22.187.237
          group-prefix 224.24.24.24/32
          exit
          address 10.10.10.10
          exit
        exit
      bsr-candidate
        shutdown
      exit
      rp-candidate
        shutdown
      exit
    exit
-----
A:LAX>config>router>pim#

```

Configuring PIM Parameters

```
Example:A:SJC>config>router# pim
A:SJC>config>router>pim# interface "system"
A:SJC>config>router>pim>if# exit
A:SJC>config>router>pim# interface "sjc-lax"
A:SJC>config>router>pim>if# exit
A:SJC>config>router>pim# interface "sjc-nyc"
A:SJC>config>router>pim>if# exit
A:SJC>config>router>pim# interface "sjc-sfo"
A:SJC>config>router>pim>if# exit
A:SJC>config>router>pim# rp
A:SJC>config>router>pim>rp# static
A:SJC>config>router>pim>rp>static# address 2.22.187.237
A:SJC>config>router>pim>rp>static>address# group-prefix
224.24.24.24/32
A:SJC>config>router>pim>rp>static>address# exit
A:SJC>config>router>pim>rp>static# exit
A:SJC>config>router>pim>rp# exit
A:SJC>config>router>pim#
```

```
A:SJC>config>router>pim# info
-----
      interface "system"
      exit
      interface "sjc-lax"
      exit
      interface "sjc-nyc"
      exit
      interface "sjc-sfo"
      exit
      rp
        static
          address 2.22.187.237
          group-prefix 224.24.24.24/32
          exit
        exit
        bsr-candidate
          shutdown
        exit
        rp-candidate
          shutdown
        exit
      exit
-----
A:SJC>config>router>pim#
```

```

Example:A:MV>config>router# pim
A:MV>config>router>pim# interface "system"
A:MV>config>router>pim>if# exit
A:MV>config>router>pim# interface "mv-sfo"
A:MV>config>router>pim>if# exit
A:MV>config>router>pim# interface "mv-vlc"
A:MV>config>router>pim>if# exit
A:MV>config>router>pim# interface "p3-ix"
A:MV>config>router>pim>if# exit
A:MV>config>router>pim# rp
A:MV>config>router>pim>rp# static
A:MV>config>router>pim>rp>static# address 2.22.187.237
A:MV>config>router>pim>rp>static>address# group-prefix
224.24.24.24/32
A:MV>config>router>pim>rp>static>address# exit
A:MV>config>router>pim>rp>static#
A:MV>config>router>pim>rp# exit
A:MV>config>router>pim#

```

```

A:MV>config>router>pim# info
-----
      interface "system"
      exit
      interface "mv-sfo"
      exit
      interface "mv-vlc"
      exit
      interface "p3-ix"
      exit
      rp
        static
          address 2.22.187.237
          group-prefix 224.24.24.24/32
          exit
        exit
        bsr-candidate
          address 2.22.187.236
          no shutdown
        exit
        rp-candidate
          address 2.22.187.236
          no shutdown
        exit
      exit
-----
A:MV>config>router>pim#

```

Configuring PIM Parameters

```
Example:A:SFO>config>router# pim
A:SFO>config>router>pim# interface "system"
A:SFO>config>router>pim>if# exit
A:SFO>config>router>pim# interface "sfo-sfc"
A:SFO>config>router>pim>if# exit
A:SFO>config>router>pim# interface "sfo-was"
A:SFO>config>router>pim>if# exit
A:SFO>config>router>pim# interface "sfo-mv"
A:SFO>config>router>pim>if# exit
A:SFO>config>router>pim# rp
A:SFO>config>router>pim>rp# static
A:SFO>config>router>pim>rp>static# address 2.22.187.237
A:SFO>config>router>pim>rp>static>address# group-prefix
224.24.24.24/32
A:SFO>config>router>pim>rp>static>address# exit
A:SFO>config>router>pim>rp>static# exit
A:SFO>config>router>pim>rp # exit
A:SFO>config>router>pim#
```

```
A:SFO>config>router>pim# info
-----
interface "system"
exit
interface "sfo-sjc"
exit
interface "sfo-was"
exit
interface "sfo-mv"
exit
rp
  static
    address 2.22.187.237
    group-prefix 224.24.24.24/32
    exit
  exit
  bsr-candidate
    address 2.22.187.239
    no shutdown
  exit
  rp-candidate
    address 2.22.187.239
    no shutdown
  exit
exit
-----
A:SFO>config>router>pim#
```



```

Example:A:WAS>config>router# pim
A:WAS>config>router>pim# interface "system"
A:WAS>config>router>pim>if# exit
A:WAS>config>router>pim# interface "was-sfo"
A:WAS>config>router>pim>if# exit
A:WAS>config>router>pim# interface "was-vlc"
A:WAS>config>router>pim>if# exit
A:WAS>config>router>pim# interface "p4-ix"
A:WAS>config>router>pim>if# exit
A:WAS>config>router>pim# rp
A:WAS>config>router>pim>rp# static
A:WAS>config>router>pim>rp>static# address 2.22.187.237
A:WAS>config>router>pim>rp>static>address# group-prefix
224.24.24.24/32
A:WAS>config>router>pim>rp>static>address# exit
A:WAS>config>router>pim>rp>static# exit
A:WAS>config>router>pim>rp# bsr-candidate
A:WAS>config>router>pim>rp>bsr-cand# address 2.22.187.240
A:WAS>config>router>pim>rp>bsr-cand# no shutdown
A:WAS>config>router>pim>rp>bsr-cand# exit
A:WAS>config>router>pim>rp# exit
A:WAS>config>router>pim#

```

```

A:WAS>config>router>pim# info
-----
      interface "system"
      exit
      interface "was-sfo"
      exit
      interface "was-vlc"
      exit
      interface "p4-ix"
      exit
      rp
        static
          address 2.22.187.237
          group-prefix 224.24.24.24/32
          exit
        exit
      bsr-candidate
        address 2.22.187.240
        no shutdown
      exit
      rp-candidate
        address 2.22.187.240
        no shutdown
      exit
    exit
-----
A:WAS>config>router>pim#

```

Importing PIM Join/Register Policies

The import command provides a mechanism to control the (*,G) and (S,G) state that gets created on a router. Import policies are defined in the **config>router>policy-options** context.

Note, in the import policy, if an action is not specified in the entry then the default-action takes precedence. If no entry matches then the default-action also takes precedence. If no default-action is specified, then the default default-action is executed.

Use the following commands to configure PIM parameters:

CLI Syntax:

```
config>router# pim
import {join-policy|register-policy} [policy-name]
[..policy-name]
```

The following example displays the command usage to apply the policy statement which does not allow join messages for group 229.50.50.208/32 and source 192.168.0.0/16 but allows join messages for 192.168.0.0/16, 229.50.50.208 (see [Configuring Route Policy Components on page 900](#)):

Example:

```
config>router# pim
config>router>pim# import join-policy "foo"
config>router>pim# no shutdown
```

The following example displays the PIM configuration:

```
A:LAX>config>router>pim# info
-----
import join-policy "foo"
interface "system"
exit
interface "lax-vls"
exit
interface "lax-sjc"
exit
interface "pl-ix"
exit
rp
static
address 2.22.187.237
group-prefix 224.24.24.24/3
exit
address 10.10.10.10
exit
exit
bsr-candidate
shutdown
```

```
    exit  
    rp-candidate  
        shutdown  
    exit  
exit
```

A:LAX>config>router>pim#

Configuring Multicast Source Discovery Protocol (MSDP) Parameters

Use the following commands to configure basic MSDP parameters:

```
CLI Syntax: config>router# msdp
                peer ip-address
                  active-source-limit number
                  authentication-key [authentication-key|hash-key]
                  [hash|hash2]
                  default-peer
                  export policy-name [policy-name...(up to 5 max)]
                  import policy-name [policy-name...(up to 5 max)]
                  local-address ip-address
                  receive-msdp-msg-rate number intervalseconds [threshold
                  threshold]
                  no shutdown
                no shutdown
```

Use the following CLI syntax to configure MSDP parameters.

```
Example:      config>router>msdp# peer 10.20.1.1
config>router>msdp>peer# local-address 10.20.1.6
config>router>msdp>peer# no shutdown
config>router>msdp>peer# exit
config>router>msdp# no shutdown
config>router>msdp#
```

The following example displays the MSDP configuration:

```
ALA-48>config>router>msdp# info
-----
    peer 10.20.1.1
      local-address 10.20.1.6
    exit
-----
ALA-48>config>router>msdp#
```

Configuring MCAC Parameters

The MCAC policies can be added to a SAP, spoke SDP, mesh SDP, an IGMP interface, and a PIM interface.

The following example displays the command usage to create MCAC policies.

```

Example: config>router# mcac
config>router>mcac# policy "btv_fr"
config>router>mcac>policy# description "foreign TV offering"
config>router>mcac>policy# bundle "FOR" create
config>router>mcac>policy>bundle# bandwidth 30000
config>router>mcac>policy>bundle# channel 224.0.3.1 224.0.3.1 bw 4000
config>router>mcac>policy>bundle# channel 224.0.3.2 224.0.3.2 bw 4000
config>router>mcac>policy>bundle# channel 224.0.4.1 224.0.4.1 bw 3500 class high type
mandatory
config>router>mcac>policy>bundle# channel 224.0.4.2 224.0.4.2 bw 3500 class high
config>router>mcac>policy>bundle# channel 224.0.4.3 224.0.4.3 bw 2800 type mandatory
config>router>mcac>policy>bundle# channel 224.0.4.4 224.0.4.4 bw 2800
config>router>mcac>policy>bundle# mc-constraints
config>router>mcac>policy>bundle>mc-constraints# level 1 bw 20000
config>router>mcac>policy>bundle>mc-constraints# level 2 bw 20000
config>router>mcac>policy>bundle>mc-constraints# level 3 bw 20000
config>router>mcac>policy>bundle>mc-constraints# level 4 bw 20000
config>router>mcac>policy>bundle>mc-constraints# level 5 bw 20000
config>router>mcac>policy>bundle>mc-constraints# level 6 bw 20000
config>router>mcac>policy>bundle>mc-constraints# lag-port-down 1 number-down 1 level 1
config>router>mcac>policy>bundle>mc-constraints# lag-port-down 1 number-down 2 level 3
config>router>mcac>policy>bundle>mc-constraints# lag-port-down 1 number-down 3 level 5
config>router>mcac>policy>bundle>mc-constraints# lag-port-down 2 number-down 1 level 1
config>router>mcac>policy>bundle>mc-constraints# lag-port-down 2 number-down 2 level 3
config>router>mcac>policy>bundle>mc-constraints# lag-port-down 2 number-down 3 level 5
config>router>mcac>policy>bundle>mc-constraints# exit
config>router>mcac>policy>bundle# no shutdown
config>router>mcac>policy>bundle# exit
config>router>mcac>policy# exit
config>router>mcac# policy "btv_vl"
config>router>mcac>policy# description "eastern TV offering"
config>router>mcac>policy# bundle "VRT" create
config>router>mcac>policy>bundle# bandwidth 120000
config>router>mcac>policy>bundle# channel 224.1.2.0 224.1.2.4 bw 4000class high type
mandatory
config>router>mcac>policy>bundle# channel 224.1.2.5 224.1.2.5 bw 20000 type mandatory
config>router>mcac>policy>bundle# channel 224.1.2.10 224.1.2.10 bw 8000 type mandatory
config>router>mcac>policy>bundle# channel 224.2.2.0 224.2.2.4 bw 4000
config>router>mcac>policy>bundle# channel 224.2.2.5 224.2.2.5 bw 10000 class high
config>router>mcac>policy>bundle# channel 224.2.2.6 224.2.2.6 bw 10000 class high
config>router>mcac>policy>bundle# channel 224.2.2.7 224.2.2.7 bw 10000
config>router>mcac>policy>bundle# channel 224.2.2.8 224.2.2.8 bw 10000
config>router>mcac>policy>bundle# mc-constraints
config>router>mcac>policy>bundle>mc-constraints# level 1 bw 60000
config>router>mcac>policy>bundle>mc-constraints# level 2 bw 50000
config>router>mcac>policy>bundle>mc-constraints# level 3 bw 40000
config>router>mcac>policy>bundle>mc-constraints# level 4 bw 30000
config>router>mcac>policy>bundle>mc-constraints# level 5 bw 20000

```

Configuring MCAC Parameters

```
config>router>mcac>policy>bundle>mc-constraints# level 6 bw 10000
config>router>mcac>policy>bundle>mc-constraints# lag-port-down 1 number-down 1 level 1
config>router>mcac>policy>bundle>mc-constraints# lag-port-down 1 number-down 2 level 3
config>router>mcac>policy>bundle>mc-constraints# lag-port-down 1 number-down 3 level 5
config>router>mcac>policy>bundle>mc-constraints# lag-port-down 2 number-down 1 level 1
config>router>mcac>policy>bundle>mc-constraints# lag-port-down 2 number-down 2 level 3
config>router>mcac>policy>bundle>mc-constraints# lag-port-down 2 number-down 3 level 5
config>router>mcac>policy>bundle>mc-constraints# exit
config>router>mcac>policy>bundle# no shutdown
config>router>mcac>policy>bundle# exit
config>router>mcac>policy# exit
```

The following example displays the configuration:

```
*A:ALA-48>config>router>mcac# info
-----
policy "btv_fr"
  description "foreign TV offering"
  bundle "FOR" create
    bandwidth 30000
    channel 224.0.3.1 224.0.3.1 bw 4000
    channel 224.0.3.2 224.0.3.2 bw 4000
    channel 224.0.4.1 224.0.4.1 bw 3500 class high type mandatory
    channel 224.0.4.2 224.0.4.2 bw 3500 class high
    channel 224.0.4.3 224.0.4.3 bw 2800 type mandatory
    channel 224.0.4.4 224.0.4.4 bw 2800
  mc-constraints
    level 1 bw 20000
    level 2 bw 20000
    level 3 bw 20000
    level 4 bw 20000
    level 5 bw 20000
    level 6 bw 20000
    lag-port-down 1 number-down 1 level 1
    lag-port-down 1 number-down 2 level 3
    lag-port-down 1 number-down 3 level 5
    lag-port-down 2 number-down 1 level 1
    lag-port-down 2 number-down 2 level 3
    lag-port-down 2 number-down 3 level 5
  exit
  no shutdown
exit
exit
policy "btv_vl"
  description "eastern TV offering"
  bundle "VRT" create
    bandwidth 120000
    channel 224.1.2.0 224.1.2.4 bw 4000 class high type mandatory
    channel 224.1.2.5 224.1.2.5 bw 20000 type mandatory
    channel 224.1.2.10 224.1.2.10 bw 8000 type mandatory
    channel 224.2.2.0 224.2.2.4 bw 4000
    channel 224.2.2.5 224.2.2.5 bw 10000 class high
    channel 224.2.2.6 224.2.2.6 bw 10000 class high
    channel 224.2.2.7 224.2.2.7 bw 10000
    channel 224.2.2.8 224.2.2.8 bw 10000
  mc-constraints
    level 1 bw 60000
```

```
level 2 bw 50000
level 3 bw 40000
level 4 bw 30000
level 5 bw 20000
level 6 bw 10000
lag-port-down 1 number-down 1 level 1
lag-port-down 1 number-down 2 level 3
lag-port-down 1 number-down 3 level 5
lag-port-down 2 number-down 1 level 1
lag-port-down 2 number-down 2 level 3
lag-port-down 2 number-down 3 level 5
exit
no shutdown
exit
exit
-----
*A:ALA-48>config>router>mcac#
```

Disabling IGMP or PIM

Use the following CLI syntax to disable IGMP and PIM:

CLI Syntax:

```
config>router#  
  igmp  
    shutdown  
  msdp  
    shutdown  
  pim  
    shutdown
```

The following example displays the command usage to disable multicast:

Example:

```
config>router# igmp  
config>router>igmp# shutdown  
config>router>igmp# exit  
config>router#  
config>router>msdp# shutdown  
config>router>msdp# exit  
config>router# pim  
config>router>pim# shutdown  
config>router>pim# exit
```


The following example displays the configuration output:

```
A:LAX>config>router# info
-----
...
#-----
echo "IGMP Configuration"
#-----
    igmp
      shutdown
      ssm-translate
        grp-range 229.255.0.1 231.2.2.2
          source 10.1.1.1
        exit
      exit
    interface "lax-sjc"
      static
        group 230.1.1.1
          starg
        exit
      exit
    interface "lax-vls"
      static
        group 229.255.0.2
          source 172.22.184.197
        exit
      exit
    interface "pl-ix"
      exit
    exit
#-----

#-----
echo "MSDP Configuration"
#-----
    msdp
      shutdown
      peer 10.20.1.1
        local-address 10.20.1.6
      exit
      group "test"
        active-source-limit 50000
        receive-msdp-msg-rate 100 interval 300 threshold 5000
        export "LDP-export"
        import "LDP-import"
        local-address 10.10.10.103
        mode mesh-group
        peer 10.10.10.104
      exit
    exit
#-----

echo "PIM Configuration"
#-----
    pim
```

Disabling IGMP or PIM

```
shutdown
import join-policy "foo"
interface "system"
exit
interface "lax-sjc"
exit
interface "lax-vls"
exit
interface "p1-ix"
exit
rp
  static
    address 2.22.187.237
      group-prefix 224.24.24.24/32
    exit
    address 10.10.10.10
    exit
  exit
  bsr-candidate
    shutdown
  exit
  rp-candidate
    shutdown
  exit
exit
exit
#-----
....
-----
A:LAX>config>router#
```