



ISP1—Device Characteristics and Complete Configuration Files

This document includes the device characteristics and configuration files for the following host names in ISP1 and ISP1-POP:

- ISP1BB1
- ISP1BB2
- ISP1BB3
- ISP1BB4
- ISP1BB5
- ISP1BB6
- ISP1BB7
- ISP1DA1
- ISP1DA2
- ISP1DA3
- ISP1AC1
- ISP1AC2



Note

The multicast solutions in this document were tested with valid IP addresses. In the example configurations provided in the following sections, the first octet of these reserved IP addresses has been replaced with the letter “J” or the letter “K” for privacy reasons. The letter “J” always represents one unique number, and the letter “K” always represents one unique number that is different from “J.”

The example configurations are intended for illustrative purposes only. The letters “J” and “K” must be replaced with valid numbers when these IP addresses are configured in an actual network.



Note

The example configurations provided in the following sections use boldface text to indicate pertinent configuration commands used for deploying the IP multicast solutions described in this document.

ISP1BB1

Device Characteristics

Table 1 shows the device characteristics for ISP1BB1.

Table 1 *Hardware and Software Device Characteristics for ISP1BB1*

Host name	ISP1BB1
Chassis type	Cisco 12012 Gigabit Switch Router (GSR)
Physical interfaces	• 1 Ethernet/IEEE 802.3 • 12 Packet Over SONET (POS)
Hardware components	• Cisco 12012/GRP (R5000) processor (revision 0x00) • 2 Route Processor cards • 2 clock scheduler cards • 3 switch fabric cards • 3 four-port OC-2 POS controllers (12 POS)
Software loaded	Cisco IOS Release 12.0(10)S
Memory	Cisco 12012/GRP (R5000) processor (revision 0x00): 128 MB
IP addresses	• Loopback0: J.1.0.201 255.255.255.255 • POS0/0: J.1.0.5 255.255.255.252 • POS0/1: J.1.71.2 255.255.255.252 • POS0/2: J.1.71.26 255.255.255.252 • POS0/3: J.1.71.18 255.255.255.252 • POS1/0: J.1.64.1 255.255.255.252 • POS1/1: J.1.0.5 255.255.255.252 • POS1/2: J.1.0.1 255.255.255.252 • POS1/3: J.1.71.9 255.255.255.252

Configuration File

```

version 12.0
no service pad
service timestamps debug uptime
service timestamps log datetime localtime show-timezone
no service password-encryption
service udp-small-servers
service tcp-small-servers
service download-fl
!
hostname ISP1BB1
!
logging buffered 100000 debugging
no logging console

```

```
enable password lab
!
clock timezone PDT -8
clock summer-time PDT recurring
redundancy
  main-cpu
    auto-sync startup-config
!
!
!
!
!
!
ip subnet-zero
no ip domain-lookup
ip multicast-routing distributed
ip multicast multipath
clns routing
no tag-switching ip
no tag-switching advertise-tags
!
!
interface Loopback0
  ip address J.1.0.201 255.255.255.255
  ip directed-broadcast
  ip pim sparse-mode
  ip router isis
  ip mroute-cache distributed
!
interface POS0/0
  description to ISP1BB2, POS 0/0
  ip address J.1.0.5 255.255.255.252
  no ip directed-broadcast
  ip pim sparse-mode
  ip router isis
  ip mroute-cache distributed
  crc 32
  clock source internal
  pos ais-shut
  aps revert 1
  aps protect 1 J.1.0.201
!
interface POS0/1
  description TO ISP1DA1, POS 1/0/0
  ip address J.1.71.2 255.255.255.252
  no ip directed-broadcast
  ip pim sparse-mode
  ip router isis
  ip mroute-cache distributed
  tag-switching ip
  crc 16
  clock source internal
!
interface POS0/2
  description TO ISP1DA2, POS 1/0/0
  ip address J.1.71.26 255.255.255.252
  no ip directed-broadcast
  ip pim sparse-mode
  ip router isis
  ip mroute-cache distributed
  tag-switching ip
  crc 16
  clock source internal
!
```

```

interface POS0/3
description TO ISP1DA3, POS 2/0/0
ip address J.1.71.18 255.255.255.252
no ip directed-broadcast
ip pim sparse-mode
ip router isis
ip mroute-cache distributed
tag-switching ip
crc 16
clock source internal
!
interface POS1/0
description TO ISP1FDR, POS 1/0/0
ip address J.1.64.1 255.255.255.252
no ip directed-broadcast
ip pim sparse-mode
ip router isis
ip mroute-cache distributed
tag-switching ip
crc 16
clock source internal
!
interface POS1/1
description TO ISP1BB2, POS 1/1
ip address J.1.0.5 255.255.255.252
no ip directed-broadcast
ip pim sparse-mode
ip router isis
ip mroute-cache distributed
crc 32
clock source internal
pos ais-shut
aps working 1
!
interface POS1/2
description to ISP1BB3, POS 1/0/0
ip address J.1.0.1 255.255.255.252
no ip directed-broadcast
ip pim sparse-mode
ip router isis
ip mroute-cache distributed
crc 16
clock source internal
!
router isis
net 49.0001.0000.0000.0001.00
is-type level-1
!
router bgp 1
no synchronization
redistribute connected route-map connected-bgp
neighbor ISP1INTERNAL peer-group nlri unicast multicast
neighbor ISP1INTERNAL remote-as 1
neighbor ISP1INTERNAL update-source Loopback0
neighbor J.1.0.200 peer-group ISP1INTERNAL
neighbor J.1.0.202 peer-group ISP1INTERNAL
neighbor J.1.0.203 peer-group ISP1INTERNAL
neighbor J.1.0.204 peer-group ISP1INTERNAL
neighbor J.1.0.205 peer-group ISP1INTERNAL
neighbor J.1.0.208 peer-group ISP1INTERNAL
neighbor J.1.0.209 peer-group ISP1INTERNAL
neighbor J.1.0.210 peer-group ISP1INTERNAL
no auto-summary
!

```

```

no ip classless
ip http server
ip pim rp-address J.1.0.100
!
access-list 112 permit ip J.1.0.0 0.0.255.255 255.255.0.0 0.0.255.255
access-list 112 deny ip any any
route-map connected-bgp permit 10
match ip address 112
set ip next-hop J.1.0.201
set origin igp
!
snmp-server engineID local 0000000902000010F60873FF
snmp-server community public RO
snmp-server community STSS RW
snmp-server contact sysadmin
snmp-server chassis-id ISP1BB1
!
!
line con 0
exec-timeout 0 0
login authentication NOTACACS
length 40
transport input none
line aux 0
line vty 0 4
exec-timeout 0 0
password lab
!
end

```

ISP1BB2

Device Characteristics

Table 2 shows the device characteristics for ISP1BB2.

Table 2 *Hardware and Software Device Characteristics for ISP1BB2*

Host name	ISP1BB2
Chassis type	Cisco 12012 Gigabit Switch Router (GSR)
Physical interfaces	• 1 Ethernet/IEEE 802.3 • 16 Packet Over SONET (POS)
Hardware components	• Cisco 12012/GRP (R5000) processor (revision 0x00) • 2 Route Processor cards • 2 clock scheduler cards • 3 switch fabric cards • 4 four-port OC-2 POS controllers (16 POS)
Software loaded	Cisco IOS Release 12.0(10)S

Table 2 *Hardware and Software Device Characteristics for ISP1BB2 (continued)*

Memory	Cisco 12012/GRP (R5000) processor (revision 0x00): 128 MB
IP addresses	• Loopback0: J.1.0.202 255.255.255.255 • POS0/0: J.1.0.6 255.255.255.252 • POS0/1: J.1.71.6 255.255.255.252 • POS0/2: J.1.71.14 255.255.255.252 • POS0/3: J.1.71.22 255.255.255.252 • POS1/0: J.1.64.9 255.255.255.252 • POS1/1: J.1.0.6 255.255.255.252 • POS1/2: J.1.0.9 255.255.255.252 • POS1/3: J.1.71.37 255.255.255.252 • POS2/0: J.1.0.13 255.255.255.252

Configuration File

```

version 12.0
no service pad
service timestamps debug datetime localtime show-timezone
service timestamps log datetime localtime show-timezone
no service password-encryption
service udp-small-servers
service tcp-small-servers
!
hostname ISP1BB2
!
logging buffered 10000 debugging
no logging console
enable password lab
!
clock timezone PDT -8
clock summer-time PDT recurring
redundancy
  main-cpu
    auto-sync startup-config
!
!
!
!
!
!
ip subnet-zero
no ip domain-lookup
ip multicast-routing distributed
clns routing
no tag-switching ip
no tag-switching advertise-tags
!
!
interface Loopback0
  ip address J.1.0.202 255.255.255.255
  ip directed-broadcast
  ip pim sparse-mode
  ip router isis

```

```
    ip mroute-cache distributed
!
interface POS0/0
  description TO ISP1BB1, POS 0/0
  ip address J.1.0.6 255.255.255.252
  no ip directed-broadcast
  ip pim sparse-mode
  ip router isis
  ip mroute-cache distributed
  crc 32
  clock source internal
  pos ais-shut
  aps revert 1
  aps protect 1 J.1.0.202
!
interface POS0/1
  description TO ISP1DA1, POS 2/0/0
  ip address J.1.71.6 255.255.255.252
  no ip directed-broadcast
  ip pim sparse-mode
  ip router isis
  ip mroute-cache distributed
  load-interval 30
  tag-switching ip
  crc 16
  clock source internal
!
interface POS0/2
  description TO ISP1DA2, POS 2/0/0
  ip address J.1.71.14 255.255.255.252
  no ip directed-broadcast
  ip pim sparse-mode
  ip router isis
  ip mroute-cache distributed
  tag-switching ip
  crc 16
  clock source internal
!
interface POS0/3
  description TO ISP1DA3, POS 3/0/0
  ip address J.1.71.22 255.255.255.252
  no ip directed-broadcast
  ip pim sparse-mode
  ip router isis
  ip mroute-cache distributed
  tag-switching ip
  crc 16
  clock source internal
!
interface POS1/0
  description TO ISP1FDR, POS 2/0/0
  ip address J.1.64.9 255.255.255.252
  no ip directed-broadcast
  ip pim sparse-mode
  ip router isis
  ip mroute-cache distributed
  tag-switching ip
  crc 16
  clock source internal
!
interface POS1/1
  description TO ISP1BB1, POS 1/1
  ip address J.1.0.6 255.255.255.252
  no ip directed-broadcast
```

```

ip pim sparse-mode
ip router isis
ip mroute-cache distributed
crc 32
clock source internal
pos ais-shut
aps working 1
!
interface POS1/2
description TO ISP1BB4, POS 1/0/0
ip address J.1.0.9 255.255.255.252
no ip directed-broadcast
ip pim sparse-mode
ip router isis
ip mroute-cache distributed
load-interval 30
crc 16
clock source internal
!
interface POS2/0
description TO ISP1BB3, POS2/0/0
ip address J.1.0.13 255.255.255.252
no ip directed-broadcast
ip pim sparse-mode
ip router isis
ip mroute-cache distributed
crc 16
clock source internal
!
router isis
net 49.0001.0000.0000.0002.00
is-type level-1
!
router bgp 1
no synchronization
redistribute connected route-map connected-bgp
neighbor ISP1INTERNAL peer-group nlri unicast multicast
neighbor ISP1INTERNAL remote-as 1
neighbor ISP1INTERNAL update-source Loopback0
neighbor J.1.0.200 peer-group ISP1INTERNAL
neighbor J.1.0.201 peer-group ISP1INTERNAL
neighbor J.1.0.203 peer-group ISP1INTERNAL
neighbor J.1.0.204 peer-group ISP1INTERNAL
neighbor J.1.0.205 peer-group ISP1INTERNAL
neighbor J.1.0.208 peer-group ISP1INTERNAL
neighbor J.1.0.209 peer-group ISP1INTERNAL
neighbor J.1.0.210 peer-group ISP1INTERNAL
no auto-summary
!
no ip classless
ip http server
ip pim rp-address J.1.0.100
!
access-list 112 permit ip J.1.0.0 0.0.255.255 255.255.0.0 0.0.255.255
access-list 112 deny ip any any
route-map connected-bgp permit 10
match ip address 112
set ip next-hop J.1.0.202
set origin igp
!
snmp-server engineID local 0000000902000010F6087FFF
snmp-server community public RO
snmp-server community STSS RW
snmp-server contact sysadmin

```

```

snmp-server chassis-id ISP1BB2
!
!
line con 0
  exec-timeout 0 0
  login authentication NOTACACS
  transport input none
line aux 0
line vty 0 4
  exec-timeout 0 0
  password lab
!
end

```

ISP1BB3

Device Characteristics

Table 3 shows the device characteristics for ISP1BB3.

Table 3 *Hardware and Software Device Characteristics for ISP1BB3*

Host name	ISP1BB3
Chassis type	Cisco 7513 router
Physical interfaces	• 4 Ethernet/IEEE 802.3 • 1 FastEthernet/IEEE 802.3 • 5 Packet Over SONET (POS)
Hardware components	• Cisco Route/Switch Processor Version 2 (RSP2) (R4700) • 6 Versatile Interface Processor Version 2 (VIP2) controllers (1 Fast Ethernet) (4 Ethernet) (5 POS)
Software loaded	Cisco IOS Release 12.1(3.3)
Memory	Cisco RSP2 (R4700) processor: 128 MB
IP addresses	• Loopback0: J.1.0.203 255.255.255.255 • Loopback1: J.1.0.100 255.255.255.255 • Ethernet0/0/0: J.1.4.1 255.255.255.0 • Ethernet0/0/2: J.1.6.1 255.255.255.248 • FastEthernet0/1/0: J.1.7.1 255.255.255.248 • POS1/0/0: J.1.0.2 255.255.255.252 • POS2/0/0: J.1.0.14 255.255.255.252 • POS3/0/0: J.1.0.17 255.255.255.252 • POS8/0/0: J.1.5.1 255.255.255.252 • POS9/0/0: J.4.0.34 255.255.255.252

Configuration File

```

version 12.1
no service pad
service timestamps debug datetime localtime
service timestamps log datetime localtime
no service password-encryption
service udp-small-servers
service tcp-small-servers
!
hostname ISP1BB3
!
logging buffered 10000 debugging
no logging console
enable password lab
!
!
!
!
!
clock timezone PDT -8
clock summer-time PDT recurring
ip subnet-zero
ip cef distributed
ip domain-name isp1.com
ip name-server J.4.7.10
!
ip multicast-routing distributed
clns routing
no tag-switching ip
no tag-switching advertise-tags
!
!
interface Loopback0
 ip address J.1.0.203 255.255.255.255
 ip directed-broadcast
 ip router isis
 ip pim sparse-mode
!
interface Loopback1
 ip address J.1.0.100 255.255.255.255
 ip router isis
 ip pim sparse-mode
!
interface Ethernet0/0/0
 description TO RVT100, E3
 ip address J.1.4.1 255.255.255.0
 ip router isis
 ip route-cache distributed
 no ip mroute-cache
!
interface Ethernet0/0/2
 description TO ISP1BB3CL1
 ip address J.1.6.1 255.255.255.248
 ip router isis
 ip pim sparse-mode
 ip route-cache distributed
 ip mroute-cache distributed
 load-interval 30
!
interface POS1/0/0
 description TO ISP1BB1, POS 1/2
 ip address J.1.0.2 255.255.255.252

```

```
ip router isis
ip pim sparse-mode
ip route-cache distributed
ip mroute-cache distributed
clock source internal
!
interface POS2/0/0
description TO ISP1BB2, POS 2/0
ip address J.1.0.14 255.255.255.252
ip router isis
ip pim sparse-mode
ip route-cache distributed
ip mroute-cache distributed
clock source internal
!
interface POS3/0/0
description TO ISP1BB4, POS 2/0/0
ip address J.1.0.17 255.255.255.252
ip router isis
ip pim sparse-mode
ip route-cache distributed
ip mroute-cache distributed
load-interval 30
clock source internal
!
interface POS9/0/0
description TO ISP4BB4, POS 12/0/0
ip address J.4.0.34 255.255.255.252
ip router isis
ip pim bsr-border
ip pim sparse-mode
ip multicast boundary 10
ip route-cache distributed
ip mroute-cache distributed
clock source internal
!
router isis
net 49.0001.0000.0000.0003.00
is-type level-1
!
router bgp 1
no synchronization
bgp log-neighbor-changes
redistribute connected route-map connected-bgp
neighbor ISP1INTERNAL peer-group
neighbor ISP1INTERNAL remote-as 1
neighbor ISP1INTERNAL update-source Loopback0
neighbor ISP4ISP1PEER peer-group
neighbor ISP4ISP1PEER remote-as 4
neighbor J.1.0.200 peer-group ISP1INTERNAL
neighbor J.1.0.201 peer-group ISP1INTERNAL
neighbor J.1.0.202 peer-group ISP1INTERNAL
neighbor J.1.0.204 peer-group ISP1INTERNAL
neighbor J.1.0.205 peer-group ISP1INTERNAL
neighbor J.1.0.208 peer-group ISP1INTERNAL
neighbor J.1.0.209 peer-group ISP1INTERNAL
neighbor J.1.0.210 peer-group ISP1INTERNAL
neighbor J.4.0.33 peer-group ISP4ISP1PEER
no auto-summary
!
address-family ipv4 multicast
redistribute connected route-map connected-bgp
neighbor ISP1INTERNAL activate
neighbor ISP4ISP1PEER activate
```

```

neighbor J.1.0.200 activate
neighbor J.1.0.201 activate
neighbor J.1.0.202 activate
neighbor J.1.0.204 activate
neighbor J.1.0.205 activate
neighbor J.1.0.208 activate
neighbor J.1.0.209 activate
neighbor J.1.0.210 activate
neighbor J.4.0.33 activate
exit-address-family
!
no ip classless
ip http server
ip pim rp-address J.1.0.100
ip msdp peer K.250.1.2 connect-source Loopback0
ip msdp sa-filter in K.250.1.2 list 124
ip msdp sa-filter out K.250.1.2 list 124
ip msdp peer J.4.0.203 connect-source Loopback0 remote-as 4
ip msdp sa-filter in J.4.0.203 list 124
ip msdp sa-filter out J.4.0.203 list 124
ip msdp peer J.1.0.204 connect-source Loopback0
ip msdp cache-sa-state
ip msdp originator-id Loopback0
!
access-list 10 deny 224.0.1.39
access-list 10 deny 224.0.1.40
access-list 10 deny 239.0.0.0 0.255.255.255
access-list 10 permit any
access-list 112 permit ip J.1.0.0 0.0.255.255 255.255.0.0 0.0.255.255
access-list 112 deny ip any any
access-list 124 deny ip any host 224.0.2.2
access-list 124 deny ip any host 224.0.1.3
access-list 124 deny ip any host 224.0.1.24
access-list 124 deny ip any host 224.0.1.22
access-list 124 deny ip any host 224.0.1.2
access-list 124 deny ip any host 224.0.1.35
access-list 124 deny ip any host 224.0.1.60
access-list 124 deny ip any host 224.0.1.39
access-list 124 deny ip any host 224.0.1.40
access-list 124 deny ip any 239.0.0.0 0.255.255.255
access-list 124 deny ip 10.0.0.0 0.255.255.255 any
access-list 124 deny ip 127.0.0.0 0.255.255.255 any
access-list 124 deny ip 172.16.0.0 0.15.255.255 any
access-list 124 deny ip K.168.0.0 0.0.255.255 any
access-list 124 permit ip any any
route-map connected-bgp permit 10
 match ip address 112
 set origin igp
!
snmp-server engineID local 00000009020000100DDEE000
snmp-server community public RO
snmp-server community STSS RW
snmp-server packetsize 2048
snmp-server contact sysadmin
snmp-server chassis-id ISP1BB3
!
!
line con 0
 exec-timeout 0 0
 login authentication NOTACACS
 length 40
 transport input none
line aux 0
line vty 0 4

```

```

exec-timeout 0 0
password lab
!
end

```

ISP1BB4

Device Characteristics

Table 4 shows the device characteristics for ISP1BB4.

Table 4 *Hardware and Software Device Characteristics for ISP1BB4*

Host name	ISP1BB4
Chassis type	Cisco 7513 router
Physical interfaces	• 4 Ethernet/IEEE 802.3 • 6 Packet Over SONET (POS)
Hardware components	• Cisco RSP4 (R5000) processor • 7 VIP2 controllers (4 Ethernet) (6 POS)
Software loaded	Cisco IOS Release 12.1(3.3)
Memory	Cisco RSP4 (R5000) processor: 256 MB
IP addresses	• Loopback0: J.1.0.204 255.255.255.255 • Ethernet0/0/0: J.1.8.1 255.255.255.0 • Ethernet0/0/2: J.1.10.1 255.255.255.248 • Ethernet0/0/3: J.1.10.129 255.255.255.128 • POS1/0/0: J.1.0.10 255.255.255.252 • POS2/0/0: J.1.0.18 255.255.255.252 • POS3/0/0: J.1.0.21 255.255.255.252 • POS8/0/0: J.1.9.1 255.255.255.252 • POS9/0/0: J.1.0.25 255.255.255.252 • POS10/0/0: J.1.0.29 255.255.255.252

Configuration File

```

version 12.1
no service pad
service timestamps debug datetime localtime show-timezone
service timestamps log datetime localtime show-timezone
no service password-encryption
service udp-small-servers
service tcp-small-servers
!
hostname ISP1BB4
!

```

```

logging buffered 10000 debugging
enable password lab
!
!
!
!
!
clock timezone PDT -8
clock summer-time PDT recurring
ip subnet-zero
ip cef distributed
ip domain-name ispl.com
ip name-server J.4.7.10
!
ip multicast-routing distributed
clns routing
no tag-switching ip
no tag-switching advertise-tags
!
!
interface Loopback0
 ip address J.1.0.204 255.255.255.255
 ip router isis
!
interface Ethernet0/0/0
 description TO RVT100, E4
 ip address J.1.8.1 255.255.255.0
 ip router isis
 ip pim sparse-mode
 ip route-cache distributed
 ip mroute-cache distributed
!
interface Ethernet0/0/2
 description TO ISP1BB4CL1
 ip address J.1.10.1 255.255.255.248
 ip router isis
 ip pim sparse-mode
 ip route-cache distributed
 ip mroute-cache distributed
 tag-switching ip
!
interface Ethernet0/0/3
 description TO ISP1BB4LINUX
 ip address J.1.10.129 255.255.255.128
 ip router isis
 ip pim sparse-mode
 ip route-cache distributed
 ip mroute-cache distributed
!
interface POS1/0/0
 description TO ISP1BB2, POS 1/2
 ip address J.1.0.10 255.255.255.252
 ip router isis
 ip pim sparse-mode
 ip route-cache distributed
 ip mroute-cache distributed
 load-interval 30
 clock source internal
!
interface POS2/0/0
 description TO ISP1BB3, POS 3/0/0
 ip address J.1.0.18 255.255.255.252
 ip router isis
 ip pim sparse-mode

```

```
ip route-cache distributed
ip mroute-cache distributed
load-interval 30
clock source internal
!
interface POS3/0/0
description TO ISP1BB5, POS 1/0/0
ip address J.1.0.21 255.255.255.252
ip router isis
ip pim sparse-mode
ip route-cache distributed
ip mroute-cache distributed
load-interval 120
clock source internal
!
interface POS9/0/0
description TO ISP1BB6, POS 1/0/0
ip address J.1.0.25 255.255.255.252
ip router isis
ip pim sparse-mode
ip route-cache distributed
ip mroute-cache distributed
load-interval 120
clock source internal
!
interface POS10/0/0
description TO ISP1BB7, POS 1/0/0
ip address J.1.0.29 255.255.255.252
ip router isis
ip pim sparse-mode
ip route-cache distributed
ip mroute-cache distributed
clock source internal
!
router isis
net 49.0001.0000.0000.0004.00
is-type level-1
!
router bgp 1
no synchronization
bgp cluster-id 1111
bgp log-neighbor-changes
redistribute connected route-map connected-bgp
neighbor ISP1INTERNAL peer-group
neighbor ISP1INTERNAL remote-as 1
neighbor ISP1INTERNAL update-source Loopback0
neighbor J.1.0.200 peer-group ISP1INTERNAL
neighbor J.1.0.201 peer-group ISP1INTERNAL
neighbor J.1.0.202 peer-group ISP1INTERNAL
neighbor J.1.0.203 peer-group ISP1INTERNAL
neighbor J.1.0.205 peer-group ISP1INTERNAL
neighbor J.1.0.206 remote-as 1
neighbor J.1.0.206 update-source Loopback0
neighbor J.1.0.206 route-reflector-client
neighbor J.1.0.207 remote-as 1
neighbor J.1.0.207 update-source Loopback0
neighbor J.1.0.207 route-reflector-client
neighbor J.1.0.208 peer-group ISP1INTERNAL
neighbor J.1.0.209 peer-group ISP1INTERNAL
neighbor J.1.0.210 peer-group ISP1INTERNAL
no auto-summary
!
address-family ipv4 multicast
redistribute connected route-map connected-bgp
```

```
neighbor ISP1INTERNAL activate
neighbor J.1.0.200 activate
neighbor J.1.0.201 activate
neighbor J.1.0.202 activate
neighbor J.1.0.203 activate
neighbor J.1.0.205 activate
neighbor J.1.0.206 activate
neighbor J.1.0.207 activate
neighbor J.1.0.208 activate
neighbor J.1.0.209 activate
neighbor J.1.0.210 activate
exit-address-family
!
no ip classless
ip http server
ip pim rp-address J.1.0.100
ip msdp peer J.1.0.203 connect-source Loopback0
ip msdp peer J.1.0.207 connect-source Loopback0
ip msdp cache-sa-state
!
access-list 112 permit ip J.1.0.0 0.0.255.255 255.255.0.0 0.0.255.255
access-list 112 deny ip any any
route-map connected-bgp permit 10
  match ip address 112
  set origin igp
!
snmp-server engineID local 0000000902000060700F9800
snmp-server community public RO
snmp-server community STSS RW
snmp-server packetsize 2048
snmp-server contact sysadmin
snmp-server chassis-id ISP1BB4
!
!
line con 0
  exec-timeout 0 0
  login authentication NOTACACS
  transport input none
line aux 0
line vty 0 4
  exec-timeout 0 0
  password lab
!
end
```

ISP1BB5

Device Characteristics

Table 5 shows the device characteristics for ISP1BB5.

Table 5 *Hardware and Software Device Characteristics for ISP1BB5*

Host name	ISP1BB5
Chassis type	Cisco 7513 router

Table 5 *Hardware and Software Device Characteristics for ISP1BB5 (continued)*

Physical interfaces	• 4 Ethernet/IEEE 802.3 • 1 FDDI • 4 Packet Over SONET (POS)
Hardware components	• Cisco RSP4 (R5000) processor • 5 VIP2 controllers (4 Ethernet) (1 FDDI) (4 POS)
Software loaded	Cisco IOS Release 12.1(3.3)
Memory	Cisco RSP4 (R5000) processor: 256 MB
IP addresses	• Loopback0: J.1.0.205 255.255.255.255 • Ethernet0/0/0: J.1.12.1 255.255.255.0 • Ethernet0/0/2: J.1.14.1 255.255.255.248 • Ethernet0/0/3: J.1.15.1 255.255.255.128 • Fddi0/1/0: J.5.0.1 255.255.255.248 • POS1/0/0: J.1.0.22 255.255.255.252 • POS2/0/0: J.1.0.33 255.255.255.252 • POS8/0/0: J.1.13.1 255.255.255.252 • POS9/0/0: J.1.0.37 255.255.255.252

Configuration File

```

version 12.1
no service pad
service timestamps debug datetime localtime show-timezone
service timestamps log datetime localtime show-timezone
no service password-encryption
service udp-small-servers
service tcp-small-servers
!
hostname ISP1BB5
!
logging buffered 10000 debugging
no logging console
enable password lab
!
!
!
!
!
clock timezone PDT -8
clock summer-time PDT recurring
ip subnet-zero
ip cef distributed
ip domain-name isp1.com
ip name-server J.4.7.10
!
ip multicast-routing distributed
clns routing
no tag-switching ip
no tag-switching advertise-tags
!

```

```

!
interface Loopback0
 ip address J.1.0.205 255.255.255.255
 ip router isis
!
interface Ethernet0/0/0
 description TO RVT100, E5
 ip address J.1.12.1 255.255.255.0
 ip router isis
 ip pim sparse-mode
 ip route-cache distributed
 ip mroute-cache distributed
!
interface Ethernet0/0/2
 description TO ISP1BB5CL1
 ip address J.1.14.1 255.255.255.248
 ip router isis
 ip pim sparse-mode
 ip route-cache distributed
 ip igmp version 1
 ip mroute-cache distributed
!
interface Ethernet0/0/3
 description TO I1EBGP1
 ip address J.1.15.1 255.255.255.128
 ip router isis
 ip pim sparse-mode
 ip route-cache distributed
 ip mroute-cache distributed
!
interface Fddi0/1/0
 description TO NAP
 ip address J.5.0.1 255.255.255.248
 ip router isis
 ip pim sparse-mode
 ip route-cache distributed
 ip mroute-cache distributed
 no keepalive
!
interface POS1/0/0
 description TO ISP1BB4, POS 3/0/0
 ip address J.1.0.22 255.255.255.252
 ip router isis
 ip pim sparse-mode
 ip route-cache distributed
 ip mroute-cache distributed
 load-interval 120
 clock source internal
!
interface POS2/0/0
 description TO ISP1BB6, POS 2/0/0
 ip address J.1.0.33 255.255.255.252
 ip router isis
 ip pim sparse-mode
 ip route-cache distributed
 ip mroute-cache distributed
 clock source internal
!
interface POS9/0/0
 description TO ISP1BB7, POS 2/0/0
 ip address J.1.0.37 255.255.255.252
 ip router isis
 ip pim sparse-mode
 ip route-cache distributed

```

```
ip mroute-cache distributed
clock source internal
!
router isis
net 49.0001.0000.0000.0005.00
is-type level-1
!
router bgp 1
no synchronization
bgp cluster-id 1111
bgp log-neighbor-changes
redistribute connected route-map connected-bgp
redistribute static route-map connected-bgp
neighbor ISP1INTERNAL peer-group
neighbor ISP1INTERNAL remote-as 1
neighbor ISP1INTERNAL update-source Loopback0
neighbor I1EBGP1 peer-group
neighbor J.1.0.200 peer-group ISP1INTERNAL
neighbor J.1.0.201 peer-group ISP1INTERNAL
neighbor J.1.0.202 peer-group ISP1INTERNAL
neighbor J.1.0.203 peer-group ISP1INTERNAL
neighbor J.1.0.204 peer-group ISP1INTERNAL
neighbor J.1.0.206 route-reflector-client
neighbor J.1.0.207 remote-as 1
neighbor J.1.0.207 update-source Loopback0
neighbor J.1.0.207 route-reflector-client
neighbor J.1.0.208 peer-group ISP1INTERNAL
neighbor J.1.0.209 peer-group ISP1INTERNAL
neighbor J.1.0.210 peer-group ISP1INTERNAL
neighbor J.1.15.2 remote-as 100
neighbor J.1.15.2 peer-group I1EBGP1
neighbor J.1.15.3 remote-as 101
neighbor J.1.15.3 peer-group I1EBGP1
neighbor J.1.15.4 remote-as 102
neighbor J.1.15.4 peer-group I1EBGP1
neighbor J.1.15.5 remote-as 103
neighbor J.1.15.5 peer-group I1EBGP1
neighbor J.1.15.6 remote-as 104
neighbor J.1.15.6 peer-group I1EBGP1
neighbor J.1.15.7 remote-as 105
neighbor J.1.15.7 peer-group I1EBGP1
neighbor J.1.15.8 remote-as 106
neighbor J.1.15.8 peer-group I1EBGP1
neighbor J.1.15.9 remote-as 107
neighbor J.1.15.9 peer-group I1EBGP1
neighbor J.1.15.10 remote-as 108
neighbor J.1.15.11 remote-as 109
neighbor J.1.15.11 peer-group I1EBGP1
neighbor J.1.15.12 remote-as 110
neighbor J.1.15.12 peer-group I1EBGP1
neighbor J.1.15.13 remote-as 111
neighbor J.1.15.13 peer-group I1EBGP1
neighbor J.1.15.14 remote-as 112
neighbor J.1.15.14 peer-group I1EBGP1
neighbor J.1.15.15 remote-as 113
neighbor J.1.15.15 peer-group I1EBGP1
neighbor J.1.15.16 remote-as 114
neighbor J.1.15.16 peer-group I1EBGP1
neighbor J.1.15.17 remote-as 115
neighbor J.1.15.17 peer-group I1EBGP1
neighbor J.1.15.18 remote-as 116
neighbor J.1.15.18 peer-group I1EBGP1
neighbor J.1.15.19 remote-as 117
neighbor J.1.15.19 peer-group I1EBGP1
```

```

neighbor J.1.15.20 remote-as 118
neighbor J.1.15.20 peer-group I1EBGP1
neighbor J.1.15.21 remote-as 119
neighbor J.1.15.21 peer-group I1EBGP1
neighbor J.1.15.22 remote-as 120
neighbor J.1.15.22 peer-group I1EBGP1
neighbor J.1.15.23 remote-as 121
neighbor J.1.15.23 peer-group I1EBGP1
neighbor J.1.15.24 remote-as 122
neighbor J.1.15.24 peer-group I1EBGP1
neighbor J.1.15.24 shutdown
neighbor J.1.15.25 remote-as 123
neighbor J.1.15.25 peer-group I1EBGP1
neighbor J.1.15.25 shutdown
neighbor J.1.15.26 remote-as 124
neighbor J.1.15.26 peer-group I1EBGP1
neighbor J.1.15.26 shutdown
neighbor J.1.15.27 remote-as 125
neighbor J.1.15.27 peer-group I1EBGP1
neighbor J.1.15.27 shutdown
neighbor J.1.15.28 remote-as 126
neighbor J.1.15.28 peer-group I1EBGP1
neighbor J.1.15.28 shutdown
neighbor J.1.15.29 remote-as 127
neighbor J.1.15.29 peer-group I1EBGP1
neighbor J.1.15.29 shutdown
neighbor J.1.15.30 remote-as 128
neighbor J.1.15.30 peer-group I1EBGP1
neighbor J.1.15.30 shutdown
neighbor J.1.15.31 remote-as 129
neighbor J.1.15.31 peer-group I1EBGP1
neighbor J.1.15.31 shutdown
neighbor J.1.15.32 remote-as 130
neighbor J.1.15.32 peer-group I1EBGP1
neighbor J.1.15.32 shutdown
neighbor J.1.15.33 remote-as 131
neighbor J.1.15.33 peer-group I1EBGP1
neighbor J.1.15.33 shutdown
neighbor J.1.15.100 remote-as 190
neighbor J.1.15.100 peer-group I1EBGP1
neighbor J.1.15.101 remote-as 191
neighbor J.1.15.101 peer-group I1EBGP1
neighbor J.1.15.102 remote-as 192
neighbor J.1.15.102 peer-group I1EBGP1
no auto-summary
!
address-family ipv4 multicast
redistribute connected route-map connected-bgp
redistribute static route-map connected-bgp
neighbor ISP1INTERNAL activate
neighbor J.1.0.200 peer-group ISP1INTERNAL
neighbor J.1.0.201 peer-group ISP1INTERNAL
neighbor J.1.0.202 peer-group ISP1INTERNAL
neighbor J.1.0.203 peer-group ISP1INTERNAL
neighbor J.1.0.204 peer-group ISP1INTERNAL
neighbor J.1.0.206 peer-group ISP1INTERNAL
neighbor J.1.0.208 peer-group ISP1INTERNAL
neighbor J.1.0.209 peer-group ISP1INTERNAL
neighbor J.1.0.210 peer-group ISP1INTERNAL
exit-address-family
!
no ip classless
ip route K.50.0.0 255.255.255.0 J.5.0.5
ip http server

```

```

ip pim rp-address J.1.0.100
!
access-list 112 permit ip J.1.0.0 0.0.255.255 255.255.0.0 0.0.255.255
access-list 112 permit ip K.50.0.0 0.0.255.255 255.255.0.0 0.0.255.255
access-list 112 deny ip any any
route-map connected-bgp permit 10
  match ip address 112
  set origin igp
!
snmp-server engineID local 0000000902000010F6A40000
snmp-server community public RO
snmp-server community STSS RW
snmp-server packetsize 2048
snmp-server contact sysadmin
snmp-server chassis-id ISP1BB5
!
alias exec cpu show proc cpu | include CPU utilization
!
line con 0
  exec-timeout 0 0
  login authentication NOTACACS
  transport input none
line aux 0
line vty 0 4
  exec-timeout 0 0
  password lab
!
end

```

ISP1BB6

Device Characteristics

Table 6 shows the device characteristics for ISP1BB6.

Table 6 *Hardware and Software Device Characteristics for ISP1BB6*

Host name	ISP1BB6
Chassis type	Cisco 7513 router
Physical interfaces	• 4 Ethernet/IEEE 802.3 • 4 Packet Over SONET (POS)
Hardware components	• Cisco RSP4 (R5000) processor • 5 VIP2 controllers (4 Ethernet) (4 POS)
Software loaded	Cisco IOS Release 12.1(3.5)T

Table 6 *Hardware and Software Device Characteristics for ISP1BB6 (continued)*

Memory	Cisco RSP4 (R5000) processor: 128 MB
IP addresses	• Loopback0: J.1.0.206 255.255.255.255 • Ethernet0/0/0: J.1.16.1 255.255.255.0 • Ethernet0/0/2: J.1.18.1 255.255.255.248 • POS1/0/0: J.1.0.26 255.255.255.252 • POS2/0/0: J.1.0.34 255.255.255.252 • POS8/0/0: J.1.17.1 255.255.255.252 • POS9/0/0: J.3.0.246 255.255.255.252

Configuration File

```

version 12.1
service timestamps debug datetime localtime show-timezone
service timestamps log datetime localtime show-timezone
no service password-encryption
service udp-small-servers
service tcp-small-servers
!
hostname ISP1BB6
!
logging buffered 10000 debugging
no logging console
enable password lab
!
!
!
!
!
clock timezone PDT -8
clock summer-time PDT recurring
ip subnet-zero
ip cef distributed
no ip domain-lookup
ip domain-name cisco.com
!
ip multicast-routing distributed
clns routing
no tag-switching ip
no tag-switching advertise-tags
!
!
interface Loopback0
 ip address J.1.0.206 255.255.255.255
 ip router isis
 ip pim sparse-mode
!
interface Ethernet0/0/0
 description TO RVT100, E6
 ip address J.1.16.1 255.255.255.0
 ip router isis
 ip pim sparse-mode
 ip route-cache distributed
 ip mroute-cache distributed
!

```

```
interface Ethernet0/0/2
description TO ISP1BB6CL1
ip address J.1.18.1 255.255.255.248
ip router isis
ip pim sparse-mode
ip route-cache distributed
ip igmp version 1
ip mroute-cache distributed
!
interface POS1/0/0
description to ISP1BB4, POS 9/0/0
ip address J.1.0.26 255.255.255.252
ip router isis
ip pim sparse-mode
ip route-cache distributed
ip mroute-cache distributed
load-interval 120
clock source internal
!
interface POS2/0/0
description TO ISP1BB5, POS 2/0/0
ip address J.1.0.34 255.255.255.252
ip router isis
ip pim sparse-mode
ip route-cache distributed
ip mroute-cache distributed
load-interval 120
clock source internal
!
interface POS9/0/0
description TO ISP3BB6, POS 12/0/0
ip address J.3.0.246 255.255.255.252
ip router isis
ip pim sparse-mode
ip multicast boundary 1
ip route-cache distributed
ip mroute-cache distributed
clock source internal
pos scramble-atm
!
router isis
net 49.0001.0000.0000.0006.00
is-type level-1
!
router bgp 1
no synchronization
redistribute connected route-map connected-bgp
neighbor ISP3ISP1PEER peer-group
neighbor ISP3ISP1PEER remote-as 3
neighbor ISP3ISP1PEER update-source Loopback0
neighbor ISP1INTERNAL peer-group
neighbor J.1.0.204 remote-as 1
neighbor J.1.0.204 update-source Loopback0
neighbor J.1.0.205 remote-as 1
neighbor J.1.0.205 update-source Loopback0
neighbor J.3.0.245 peer-group ISP3ISP1PEER
no auto-summary
!
address-family ipv4 multicast
redistribute connected route-map connected-bgp
neighbor J.1.0.204 activate
neighbor J.1.0.205 activate
neighbor J.3.0.245 activate
exit-address-family
```

```
!  
no ip classless  
ip http server  
ip pim rp-address J.1.0.100  
!  
access-list 1 deny 224.0.1.39  
access-list 1 deny 224.0.1.40  
access-list 1 deny 239.0.0.0 0.255.255.255  
access-list 1 permit any  
access-list 50 deny 224.0.1.39  
access-list 50 deny 224.0.1.40  
access-list 50 deny 239.0.0.0 0.255.255.255  
access-list 50 permit 224.0.0.0 15.255.255.255  
access-list 112 permit ip J.1.0.0 0.0.255.255 255.255.0.0 0.0.255.255  
access-list 112 deny ip any any  
access-list 124 deny ip any 239.0.0.0 0.255.255.255  
access-list 124 permit ip any any  
route-map connected-bgp permit 10  
match ip address 112  
set ip next-hop J.1.0.206  
set origin igp  
!  
snmp-server engineID local 0000000902000010F6A3B000  
snmp-server community STSS RW  
snmp-server community public RO  
snmp-server packetsize 2048  
snmp-server contact sysadmin  
snmp-server chassis-id ISP1BB6  
!  
!  
line con 0  
exec-timeout 0 0  
login authentication NOTACACS  
transport input none  
line aux 0  
line vty 0 4  
exec-timeout 0 0  
password lab  
!  
end
```

ISP1BB7

Device Characteristics

Table 7 shows the device characteristics for ISP1BB7.

Table 7 Hardware and Software Device Characteristics for ISP1BB7

Host name	ISP1BB7
Chassis type	Cisco 7513 router
Physical interfaces	• 4 Ethernet/IEEE 802.3 • 4 Packet Over SONET (POS)

Table 7 *Hardware and Software Device Characteristics for ISP1BB7 (continued)*

Hardware components	• Cisco RSP4 (R5000) processor • 5 VIP2 controllers (4 Ethernet) (4 POS)
Software loaded	Cisco IOS Release 12.1(3.3)
Memory	Cisco RSP4 (R5000) processor: 128 MB
IP addresses	• Loopback0: J.1.0.207 255.255.255.255 • Loopback1: J.1.0.100 255.255.255.255 • Ethernet0/0/0: J.1.20.1 255.255.255.0 • Ethernet0/0/2: J.1.22.1 255.255.255.248 • POS1/0/0: J.1.0.30 255.255.255.252 • POS2/0/0: J.1.0.38 255.255.255.252 • POS8/0/0: J.1.21.1 255.255.255.252 • POS9/0/0: J.2.0.254 255.255.255.252

Configuration File

```

version 12.1
service timestamps debug datetime localtime show-timezone
service timestamps log datetime localtime show-timezone
no service password-encryption
service udp-small-servers
service tcp-small-servers
!
hostname ISP1BB7
!
logging buffered 10000 debugging
no logging console
enable password lab
!
!
!
!
!
clock timezone PDT -8
clock summer-time PDT recurring
ip subnet-zero
ip cef distributed
no ip domain-lookup
!
ip multicast-routing distributed
clns routing
no tag-switching ip
no tag-switching advertise-tags
!
!
interface Loopback0
 ip address J.1.0.207 255.255.255.255
 ip router isis
 ip pim sparse-mode
!
interface Loopback1
 ip address J.1.0.100 255.255.255.255

```

```

ip router isis
ip pim sparse-mode
!
interface Ethernet0/0/0
description to RVT100, E7
ip address J.1.20.1 255.255.255.0
ip router isis
ip pim sparse-mode
ip route-cache distributed
ip mroute-cache distributed
!
interface Ethernet0/0/2
description to ISP1BB7CL1
ip address J.1.22.1 255.255.255.248
ip router isis
ip pim sparse-mode
ip route-cache distributed
ip mroute-cache distributed
!
interface Ethernet0/0/3
description NOT CONNECTED
no ip address
ip route-cache distributed
!
interface POS1/0/0
description TO ISP1BB4, POS10/0/0
ip address J.1.0.30 255.255.255.252
ip router isis
ip pim sparse-mode
ip route-cache distributed
ip mroute-cache distributed
clock source internal
!
interface POS2/0/0
description TO ISP1BB5, POS9/0/0
ip address J.1.0.38 255.255.255.252
ip router isis
ip pim sparse-mode
ip route-cache distributed
ip mroute-cache distributed
clock source internal
!
interface POS9/0/0
description TO ISP2BB7, POS 0/0
ip address J.2.0.254 255.255.255.252
ip router isis
ip pim bsr-border
ip pim sparse-mode
ip multicast boundary 1
ip route-cache distributed
ip mroute-cache distributed
clock source internal
!
router isis
net 49.0001.0000.0000.0007.00
is-type level-1
!
router bgp 1
no synchronization
bgp log-neighbor-changes
redistribute connected route-map connected-bgp
neighbor ISP1INTERNAL peer-group
neighbor J.1.0.204 remote-as 1
neighbor J.1.0.204 update-source Loopback0

```

```

neighbor J.1.0.205 remote-as 1
neighbor J.1.0.205 update-source Loopback0
neighbor J.2.0.253 remote-as 2
no auto-summary
!
address-family ipv4 multicast
redistribute connected route-map connected-bgp
neighbor ISP1INTERNAL activate
neighbor J.1.0.204 activate
neighbor J.1.0.205 activate
neighbor J.2.0.253 activate
exit-address-family
!
no ip classless
ip http server
ip pim rp-address J.1.0.100
ip msdp peer J.2.0.204 connect-source Loopback0 remote-as 2
ip msdp sa-filter in J.2.0.204 list 124
ip msdp sa-filter out J.2.0.204 list 124
ip msdp peer J.1.0.204 connect-source Loopback0
ip msdp cache-sa-state
ip msdp originator-id Loopback0
!
access-list 1 deny 224.0.1.39
access-list 1 deny 224.0.1.40
access-list 1 deny 239.0.0.0 0.255.255.255
access-list 1 permit any
access-list 112 permit ip J.1.0.0 0.0.255.255 255.255.0.0 0.0.255.255
access-list 112 deny ip any any
access-list 124 deny ip any host 224.0.2.2
access-list 124 deny ip any host 224.0.1.3
access-list 124 deny ip any host 224.0.1.24
access-list 124 deny ip any host 224.0.1.22
access-list 124 deny ip any host 224.0.1.2
access-list 124 deny ip any host 224.0.1.35
access-list 124 deny ip any host 224.0.1.60
access-list 124 deny ip any host 224.0.1.39
access-list 124 deny ip any host 224.0.1.40
access-list 124 deny ip any 239.0.0.0 0.255.255.255
access-list 124 deny ip 10.0.0.0 0.255.255.255 any
access-list 124 deny ip 127.0.0.0 0.255.255.255 any
access-list 124 deny ip 172.16.0.0 0.15.255.255 any
access-list 124 deny ip K.168.0.0 0.0.255.255 any
access-list 124 permit ip any any
route-map connected-bgp permit 10
match ip address 112
set origin igp
!
snmp-server engineID local 0000000902000010F6A00800
snmp-server community public RO
snmp-server community STSS RW
snmp-server packet-size 2048
snmp-server contact sysadmin
snmp-server chassis-id ISP1BB7
!
!
line con 0
exec-timeout 0 0
login authentication NOTACACS
transport input none
line aux 0
line vty 0 4
exec-timeout 0 0
password lab

```

```
!  
end
```

ISP1DA1

Device Characteristics

Table 8 shows the device characteristics for ISP1DA1.

Table 8 *Hardware and Software Device Characteristics for ISP1DA1*

Host name	ISP1DA1
Chassis type	Cisco 7513 router
Physical interfaces	• 4 Ethernet/IEEE 802.3 • 1 Fast Ethernet/IEEE 802.3 • 1 High-Speed Serial Interface (HSSI) • 5 Packet Over SONET (POS)
Hardware components	• Cisco RSP2 (R4700) processor • 1 HSSI Interface Processor (HIP) controller (1 HSSI) • 7 VIP2 controllers (1 Fast Ethernet) (4 Ethernet) (1 Channelized T3) (5 POS)
Software loaded	Cisco IOS Release 12.1(3)
Memory	Cisco RSP2 (R4700) processor: 128 MB
IP addresses	• Loopback0: J.1.0.208 255.255.255.255 • Ethernet0/0/0: J.1.73.1 255.255.255.0 • Ethernet0/0/2: J.1.74.1 255.255.255.248 • FastEthernet0/1/0: K.250.1.1 255.255.255.248 • POS1/0/0: J.1.71.1 255.255.255.252 • POS2/0/0: J.1.71.5 255.255.255.252 • POS8/0/0: J.1.72.1 255.255.255.252 • POS9/0/0: J.1.72.5 255.255.255.252 • POS10/0/0: J.1.88.5 255.255.255.252

Configuration File

```
version 12.1  
service timestamps debug datetime localtime show-timezone  
service timestamps log datetime localtime show-timezone  
no service password-encryption  
service udp-small-servers  
service tcp-small-servers  
!
```

```
hostname ISP1DA1
!
logging buffered 10000 debugging
no logging console
enable password lab
!
username all
!
!
!
!
clock timezone PDT -8
clock summer-time PDT recurring
ip subnet-zero
ip cef distributed
no ip domain-lookup
!
ip multicast-routing distributed
clns routing
no tag-switching ip
no tag-switching advertise-tags
isdn voice-call-failure 0
!
controller T3 4/0/0
!
!
interface Loopback0
ip address J.1.0.208 255.255.255.255
ip router isis
!
interface Ethernet0/0/0
description TO RVT100, E8
ip address J.1.73.1 255.255.255.0
ip router isis
ip pim sparse-mode
ip route-cache distributed
ip mroute-cache distributed
!
interface Ethernet0/0/2
description TO ISP1DA1CL1
ip address J.1.74.1 255.255.255.248
ip pim sparse-mode
ip route-cache distributed
ip mroute-cache distributed
load-interval 30
!
interface FastEthernet0/1/0
description TO ISP1AC1, FA3/0
ip address K.250.1.1 255.255.255.248
ip pim sparse-mode
ip route-cache distributed
ip mroute-cache distributed
full-duplex
!
interface POS1/0/0
description TO ISP1BB1, POS 0/1
ip address J.1.71.1 255.255.255.252
ip router isis
ip pim sparse-mode
ip route-cache distributed
ip mroute-cache distributed
clock source internal
!
interface POS2/0/0
```

```

description TO ISP1BB2, POS 0/1
ip address J.1.71.5 255.255.255.252
ip router isis
ip pim sparse-mode
ip route-cache distributed
ip mroute-cache distributed
clock source internal
!
interface POS9/0/0
description TO ISP1DA2, POS 9/0/0
ip address J.1.72.5 255.255.255.252
ip router isis
ip pim sparse-mode
ip route-cache distributed
ip mroute-cache distributed
clock source internal
!
interface POS10/0/0
description TO ISP1DA3, POS 9/0/0
ip address J.1.88.5 255.255.255.252
ip router isis
ip pim sparse-mode
ip route-cache distributed
ip mroute-cache distributed
clock source internal
!
router isis
net 49.0001.0000.0000.0011.00
is-type level-1
!
router bgp 1
no synchronization
redistribute connected route-map connected-bgp
redistribute static
neighbor ISP1INTERNAL peer-group
neighbor ISP1INTERNAL remote-as 1
neighbor ISP1INTERNAL update-source Loopback0
neighbor J.1.0.200 peer-group ISP1INTERNAL
neighbor J.1.0.201 peer-group ISP1INTERNAL
neighbor J.1.0.202 peer-group ISP1INTERNAL
neighbor J.1.0.203 peer-group ISP1INTERNAL
neighbor J.1.0.204 peer-group ISP1INTERNAL
neighbor J.1.0.205 peer-group ISP1INTERNAL
neighbor J.1.0.209 peer-group ISP1INTERNAL
neighbor J.1.0.210 peer-group ISP1INTERNAL
no auto-summary
!
address-family ipv4 multicast
redistribute connected route-map connected-bgp
redistribute static
neighbor ISP1INTERNAL activate
neighbor J.1.0.200 activate
neighbor J.1.0.201 activate
neighbor J.1.0.202 activate
neighbor J.1.0.203 activate
neighbor J.1.0.204 activate
neighbor J.1.0.205 activate
neighbor J.1.0.209 activate
neighbor J.1.0.210 activate
exit-address-family
!
no ip classless
ip route J.1.64.4 255.255.255.255 J.4.71.2
ip route J.1.64.14 255.255.255.255 J.4.71.6

```

```

ip route K.250.1.32 255.255.255.224 K.250.1.2
ip http server
ip pim rp-address J.1.0.100
!
access-list 112 permit ip J.1.0.0 0.0.255.255 255.255.0.0 0.0.255.255
access-list 112 permit ip K.250.1.0 0.0.0.255 255.255.0.0 0.0.255.255
route-map connected-bgp permit 10
match ip address 112
set ip next-hop J.1.0.208
set origin igp
!
snmp-server engineID local 0000000902000010F6FAE000
snmp-server community public RO
snmp-server packetsize 2048
snmp-server contact sysadmin
snmp-server chassis-id id ISP1DA1
!
!
line con 0
exec-timeout 0 0
length 35
transport input none
line aux 0
line vty 0 4
exec-timeout 0 0
password lab
!
end

```

ISP1DA2

Device Characteristics

Table 9 shows the device characteristics for ISP1DA2.

Table 9 *Hardware and Software Device Characteristics for ISP1DA2*

Host name	ISP1DA2
Chassis type	Cisco 7513 router
Physical interfaces	• 4 Ethernet/IEEE 802.3 • 1 Fast Ethernet/IEEE 802.3 • 5 Packet Over SONET (POS)
Hardware components	• Cisco RSP2 (R4700) processor • 6 VIP2 controllers (1 Fast Ethernet) (4 Ethernet) (5 POS)
Software loaded	Cisco IOS Release 12.1(3.5)T

Table 9 *Hardware and Software Device Characteristics for ISP1DA2 (continued)*

Memory	Cisco RSP2 (R4700) processor: 128 MB
IP addresses	• Loopback0: J.1.0.209 255.255.255.255 • Ethernet0/0/0: J.1.81.1 255.255.255.0 • Ethernet0/0/2: J.1.82.1 255.255.255.248 • FastEthernet0/1/0: K.250.1.9 255.255.255.248 • POS1/0/0: J.1.71.25 255.255.255.252 • POS2/0/0: J.1.71.13 255.255.255.252 • POS8/0/0: J.1.80.5 255.255.255.252 • POS9/0/0: J.1.72.6 255.255.255.252 • POS10/0/0: J.1.80.1 255.255.255.252

Configuration File

```

version 12.1
service timestamps debug uptime
service timestamps log datetime localtime show-timezone
no service password-encryption
service udp-small-servers
service tcp-small-servers
!
hostname ISP1DA2
!
logging buffered 10000 debugging
enable password lab
!
!
!
!
!
clock timezone PDT -8
clock summer-time PDT recurring
ip subnet-zero
ip cef distributed
no ip domain-lookup
!
ip multicast-routing distributed
clns routing
no tag-switching advertise-tags
no tag-switching ip
!
!
interface Loopback0
ip address J.1.0.209 255.255.255.255
ip router isis
!
interface Ethernet0/0/0
description TO RVT100, E9
ip address J.1.81.1 255.255.255.0
ip router isis
ip pim sparse-mode
ip route-cache distributed
ip mroute-cache distributed
!

```

```
interface Ethernet0/0/2
description TO ISP1DA2CL1
ip address J.1.82.1 255.255.255.248
ip pim sparse-mode
ip route-cache distributed
ip mroute-cache distributed
load-interval 30
!
interface FastEthernet0/1/0
description TO ISP1AC2, FA3/0
ip address K.250.1.9 255.255.255.248
ip pim sparse-mode
ip route-cache distributed
ip mroute-cache distributed
full-duplex
!
interface POS1/0/0
description TO ISP1BB1, POS 0/2
ip address J.1.71.25 255.255.255.252
ip router isis
ip pim sparse-mode
ip route-cache distributed
ip mroute-cache distributed
clock source internal
!
interface POS2/0/0
description TO ISP1BB2, POS 0/2
ip address J.1.71.13 255.255.255.252
ip router isis
ip pim sparse-mode
ip route-cache distributed
ip mroute-cache distributed
clock source internal
!
interface POS9/0/0
description TO ISP1DA1, POS 9/0/0
ip address J.1.72.6 255.255.255.252
ip router isis
ip pim sparse-mode
ip route-cache distributed
ip mroute-cache distributed
clock source internal
!
interface POS10/0/0
description TO ISP1DA3, POS 10/0/0
ip address J.1.80.1 255.255.255.252
ip router isis
ip pim sparse-mode
ip route-cache distributed
ip mroute-cache distributed
clock source internal
!
router isis
net 49.0001.0000.0000.0012.00
is-type level-1
!
router bgp 1
no synchronization
bgp log-neighbor-changes
redistribute connected route-map connected-bgp
neighbor ISP1INTERNAL peer-group
neighbor ISP1INTERNAL remote-as 1
neighbor ISP1INTERNAL update-source Loopback0
neighbor J.1.0.200 peer-group ISP1INTERNAL
```

```

neighbor J.1.0.201 peer-group ISP1INTERNAL
neighbor J.1.0.202 peer-group ISP1INTERNAL
neighbor J.1.0.203 peer-group ISP1INTERNAL
neighbor J.1.0.204 peer-group ISP1INTERNAL
neighbor J.1.0.205 peer-group ISP1INTERNAL
neighbor J.1.0.208 peer-group ISP1INTERNAL
neighbor J.1.0.210 peer-group ISP1INTERNAL
no auto-summary
!
address-family ipv4 multicast
redistribute connected route-map connected-bgp
neighbor ISP1INTERNAL activate
neighbor J.1.0.200 activate
neighbor J.1.0.201 activate
neighbor J.1.0.202 activate
neighbor J.1.0.203 activate
neighbor J.1.0.204 activate
neighbor J.1.0.205 activate
neighbor J.1.0.208 activate
neighbor J.1.0.210 activate
exit-address-family
!
no ip classless
ip http server
ip pim rp-address J.1.0.100
!
access-list 112 permit ip J.1.0.0 0.0.255.255 255.255.0.0 0.0.255.255
access-list 112 permit ip K.250.1.0 0.0.0.255 255.255.0.0 0.0.255.255
access-list 112 deny ip any any
route-map connected-bgp permit 10
match ip address 112
set origin igp
!
snmp-server engineID local 0000000902000010F6A02000
snmp-server community public RO
snmp-server community STSS RW
snmp-server packetsize 2048
snmp-server contact sysadmin
snmp-server chassis-id ISP1DA2
!
!
line con 0
exec-timeout 0 0
length 40
transport input none
line aux 0
line vty 0 4
exec-timeout 0 0
password lab
!
end

```

ISP1DA3

Device Characteristics

Table 10 shows the device characteristics for ISP1DA3.

Table 10 *Hardware and Software Device Characteristics for ISP1DA3*

Host name	ISP1DA3
Chassis type	Cisco 7513 router
Physical interfaces	• 4 Ethernet/IEEE 802.3 • 5 Packet Over SONET (POS)
Hardware components	• Cisco RSP2 (R4700) processor • 1 Ethernet Interface Processor (EIP) controller (4 Ethernet) • 5 VIP2 controllers (5 POS)
Software loaded	Cisco IOS Release 12.1(3)
Memory	Cisco RSP2 (R4700) processor: 128 MB
IP addresses	• Loopback0: J.1.0.210 255.255.255.255 • Ethernet0/0: J.1.89.1 255.255.255.0 • Ethernet0/2: J.1.90.1 255.255.255.248 • POS1/0/0: J.1.71.17 255.255.255.252 • POS2/0/0: J.1.71.21 255.255.255.252 • POS8/0/0: J.1.88.1 255.255.255.252 • POS9/0/0: J.1.88.6 255.255.255.252 • POS10/0/0: J.1.80.2 255.255.255.252

Configuration File

```

version 12.1
service timestamps debug uptime
service timestamps log datetime localtime show-timezone
no service password-encryption
service udp-small-servers
service tcp-small-servers
!
hostname ISP1DA3
!
logging buffered 10000 debugging
no logging console
enable password lab
!
!
!
!
clock timezone PDT -8
clock summer-time PDT recurring
ip subnet-zero
ip cef distributed
no ip domain-lookup
!
ip multicast-routing distributed
clns routing
no tag-switching ip
no tag-switching advertise-tags

```

```

!
!
interface Loopback0
ip address J.1.0.210 255.255.255.255
ip router isis
!
interface Ethernet0/0
description To RVT100 EX
ip address J.1.89.1 255.255.255.0
ip router isis
ip pim sparse-mode
!
interface Ethernet0/2
description TO ISP1DA3CL1
ip address J.1.90.1 255.255.255.0
ip router isis
ip pim sparse-mode
ip route-cache distributed
ip mroute-cache distributed
!
interface Ethernet0/3
description NOT CONNECTED
no ip address
ip pim sparse-mode
load-interval 30
!
interface POS1/0/0
description TO ISP1BB1, POS 0/3
ip address J.1.71.17 255.255.255.252
ip router isis
ip pim sparse-mode
ip route-cache distributed
ip mroute-cache distributed
clock source internal
!
interface POS2/0/0
description TO ISP1BB2, POS 0/3
ip address J.1.71.21 255.255.255.252
ip router isis
ip pim sparse-mode
ip route-cache distributed
ip mroute-cache distributed
clock source internal
!
interface POS9/0/0
description TO ISP1DA1, POS 10/0/0
ip address J.1.88.6 255.255.255.252
ip router isis
ip pim sparse-mode
ip route-cache distributed
ip mroute-cache distributed
clock source internal
!
interface POS10/0/0
description TO ISP1DA2, POS 10/0/0
ip address J.1.80.2 255.255.255.252
ip router isis
ip pim sparse-mode
ip route-cache distributed
ip mroute-cache distributed
clock source internal
!
router isis
net 49.0001.0000.0000.0013.00

```

```
is-type level-1
!
router bgp 1
no synchronization
redistribute connected route-map connected-bgp
neighbor ISP1INTERNAL peer-group
neighbor ISP1INTERNAL remote-as 1
neighbor ISP1INTERNAL update-source Loopback0
neighbor J.1.0.200 peer-group ISP1INTERNAL
neighbor J.1.0.201 peer-group ISP1INTERNAL
neighbor J.1.0.202 peer-group ISP1INTERNAL
neighbor J.1.0.203 peer-group ISP1INTERNAL
neighbor J.1.0.204 peer-group ISP1INTERNAL
neighbor J.1.0.205 peer-group ISP1INTERNAL
neighbor J.1.0.208 peer-group ISP1INTERNAL
neighbor J.1.0.209 peer-group ISP1INTERNAL
no auto-summary
!
address-family ipv4 multicast
redistribute connected route-map connected-bgp
neighbor ISP1INTERNAL activate
neighbor J.1.0.200 activate
neighbor J.1.0.201 activate
neighbor J.1.0.202 activate
neighbor J.1.0.203 activate
neighbor J.1.0.204 activate
neighbor J.1.0.205 activate
neighbor J.1.0.208 activate
neighbor J.1.0.209 activate
exit-address-family
!
no ip classless
ip http server
ip pim rp-address J.1.0.100
!
access-list 112 permit ip J.1.0.0 0.0.255.255 255.255.0.0 0.0.255.255
access-list 112 deny ip any any
route-map connected-bgp permit 10
match ip address 112
set ip next-hop J.1.0.210
set origin igp
!
snmp-server engineID local 0000000902000009ED110800
snmp-server community public RO
snmp-server community STSS RW
snmp-server packetsize 2048
snmp-server contact sysadmin
snmp-server system-shutdown
snmp-server enable traps snmp
snmp-server enable traps channel
snmp-server enable traps isdn call-information
snmp-server enable traps isdn layer2
snmp-server enable traps config
snmp-server enable traps entity
snmp-server enable traps envmon
snmp-server enable traps bgp
snmp-server enable traps frame-relay
!
!
line con 0
exec-timeout 0 0
transport input none
line aux 0
line vty 0 4
```

```
exec-timeout 0 0
password lab
!
end
```

ISP1AC1

Device Characteristics

Table 11 shows the device characteristics for ISP1AC1.

Table 11 *Hardware and Software Device Characteristics for ISP1AC1*

Host name	ISP1AC1
Chassis type	Cisco 7206VXR
Physical interfaces	• 8 Ethernet/IEEE 802.3 • 3 Fast Ethernet/IEEE 802.3
Hardware components	Cisco 7206VXR (NPE300) processor
Software loaded	Cisco IOS Release 12.1(4.4)PI
Memory	Cisco 7206VXR (NPE300) processor (revision D): 40 MB
IP addresses	• Loopback0: K.250.0.201 255.255.255.255 • FastEthernet3/0: K.250.1.2 255.255.255.248 • Ethernet5/2: K.250.1.33 255.255.255.248 • Ethernet5/3: K.250.1.41 255.255.255.248

Configuration File

```
version 12.1
no service single-slot-reload-enable
service timestamps debug datetime localtime show-timezone
service timestamps log datetime localtime show-timezone
no service password-encryption
service udp-small-servers
service tcp-small-servers
!
hostname ISP1AC1
!
logging buffered 1000000 debugging
logging rate-limit console 10 except errors
no logging console
aaa new-model
aaa authentication login default group tacacs+ enable
aaa authentication login NOTACACS enable
aaa accounting commands 15 default start-stop group tacacs+
aaa accounting system default start-stop group tacacs+
enable password lab
!
clock timezone PST -8
clock summer-time PST recurring
```

```

ip subnet-zero
ip cef
!
!
no ip finger
no ip domain-lookup
!
ip multicast-routing
call rsvp-sync
!
!
!
!
!
!
!
interface Loopback0
  ip address K.250.0.201 255.255.255.255
  ip pim sparse-mode
!
interface FastEthernet3/0
  description To ISP1DA1, FA0/1/0
  ip address K.250.1.2 255.255.255.248
  ip pim bsr-border
  ip pim sparse-mode
  ip multicast boundary 1
  duplex full
!
interface Ethernet5/2
  description TO ISP1AC1IPTV
  ip address K.250.1.33 255.255.255.248
  ip pim sparse-mode
  duplex half
!
interface Ethernet5/3
  description TO ISP1AC1CL1
  ip address K.250.1.41 255.255.255.248
  ip pim sparse-mode
  duplex half
!
ip classless
ip route 0.0.0.0 0.0.0.0 K.250.1.1
no ip http server
ip pim rp-address K.250.0.201
ip msdp peer J.1.0.203 connect-source FastEthernet3/0
ip msdp sa-filter in J.1.0.203 list 124
ip msdp sa-filter out J.1.0.203 list 124
ip msdp cache-sa-state
ip msdp redistribute list 124
!
access-list 1 deny 224.0.1.39
access-list 1 deny 224.0.1.40
access-list 1 deny 239.0.0.0 0.255.255.255
access-list 1 permit any
access-list 124 deny ip any host 224.0.2.2
access-list 124 deny ip any host 224.0.1.3
access-list 124 deny ip any host 224.0.1.24
access-list 124 deny ip any host 224.0.1.22
access-list 124 deny ip any host 224.0.1.2
access-list 124 deny ip any host 224.0.1.35
access-list 124 deny ip any host 224.0.1.60
access-list 124 deny ip any host 224.0.1.39
access-list 124 deny ip any host 224.0.1.40
access-list 124 deny ip any 239.0.0.0 0.255.255.255

```

```
access-list 124 deny ip 10.0.0.0 0.255.255.255 any
access-list 124 deny ip 127.0.0.0 0.255.255.255 any
access-list 124 deny ip 172.16.0.0 0.15.255.255 any
access-list 124 deny ip K.168.0.0 0.0.255.255 any
access-list 124 deny ip any 232.0.0.0 0.255.255.255
access-list 124 permit ip any any
snmp-server engineID local 00000009020000024ADFB800
snmp-server community public RO
snmp-server community STSS RW
snmp-server packetsize 2048
snmp-server contact sysadmin
snmp-server chassis-id ISP1AC1
!
tacacs-server key cisco12345
!
alias exec int_desc show int | include Description
alias exec cpu show proc cpu | include CPU
alias exec mem show mem free | include Processor
!
line con 0
  exec-timeout 0 0
  login authentication NOTACACS
  transport input none
line aux 0
  exec-timeout 0 0
line vty 0 4
  exec-timeout 0 0
  password lab
line vty 5 15
!
exception protocol ftp
exception region-size 36864
exception flash all disk0:
ntp clock-period 17180280
ntp update-calendar
end
```

ISP1AC2

Device Characteristics

Table 12 shows the device characteristics for ISP1AC2.

Table 12 *Hardware and Software Device Characteristics for ISP1AC2*

Host name	ISP1AC2
Chassis type	Cisco 7206 router
Physical interfaces	• 8 Ethernet/IEEE 802.3 • 1 Fast Ethernet/IEEE 802.3
Hardware components	Cisco 7206 (NPE200) processor (revision B)
Software loaded	Cisco IOS Release 12.1(3.4)T

Table 12 Hardware and Software Device Characteristics for ISP1AC2 (continued)

Memory	Cisco 7206 (NPE200) processor (revision B): 112 MB
IP addresses	- FastEthernet3/0: K.250.1.10 255.255.255.248 - Ethernet5/2: K.250.1.49 255.255.255.248

Configuration File

```

version 12.1
no service pad
service timestamps debug datetime localtime show-timezone
service timestamps log datetime localtime show-timezone
no service password-encryption
service udp-small-servers
service tcp-small-servers
!
hostname ISP1AC2
!
logging buffered 1000000 debugging
enable password lab
!
!
!
!
!
clock timezone PST -8
clock summer-time PST recurring
ip subnet-zero
ip cef
no ip domain-lookup
!
ip multicast-routing
!
!
interface FastEthernet3/0
  description TO ISP1DA2, FA0/1/0
  ip address K.250.1.10 255.255.255.248
  ip pim sparse-mode
  full-duplex
!
interface Ethernet5/2
  description TO ISP1AC2CL1
  ip address K.250.1.49 255.255.255.248
  ip pim sparse-mode
!
ip classless
ip route 0.0.0.0 0.0.0.0 K.250.1.9
no ip http server
ip pim rp-address J.1.0.100
!
snmp-server community public RO
snmp-server community STSS RW
snmp-server packetsize 2048
snmp-server chassis-id ISP1AC2
!
alias exec int_desc show int | include Description
alias exec cpu show proc cpu | include CPU
alias exec mem show mem free | include Processor
!
line con 0

```

```
    exec-timeout 0 0
    login authentication NOTACACS
    transport input none
line aux 0
    exec-timeout 0 0
line vty 0 4
    exec-timeout 0 0
    password lab
!
end
```