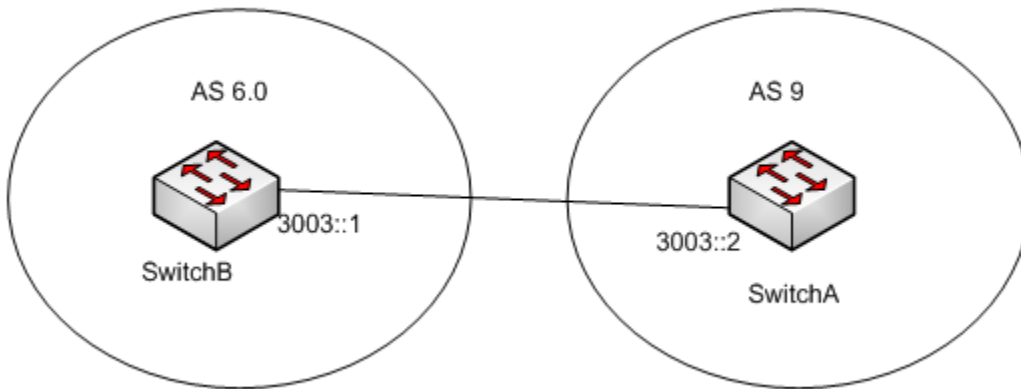


Establish BGP Peer Use 4-byte-AS-Number

Case 1

One Peer Enable 4-byte-as-number. Another Peer Didn't Enable 4-byte-as-number.

Figure 1-7



Step 1: Enable 4-Byte-AS-Number on Switch B

Switch B:

```
admin@XorPlus# set protocols bgp enable-4byte-as-numbers true
```

Step 2: Configure BGP-ID and Local-AS

Switch A:

```
admin@XorPlus# set protocols bgp bgp-id 9.9.9.9
admin@XorPlus# set protocols bgp local-as "9"
```

Switch B:

```
admin@XorPlus# set protocols bgp bgp-id 6.6.6.6
admin@XorPlus# set protocols bgp local-as "6.0"
```

Step 3: Configure BGP Peer

Note: User must use a special as number 23456 if local didn't enable 4-Byte-AS-Number but its peer already enabled 4-Byte-AS-Number.

Switch A:

```
admin@XorPlus# set protocols bgp peer 3003::1 local-ip "3003::2"
admin@XorPlus# set protocols bgp peer 3003::1 as "23456"
admin@XorPlus# set protocols bgp peer 3003::1 ipv6-unicast true
```

Switch B:

```
admin@XorPlus# set protocols bgp peer 3003::2 local-ip "3003::1"
admin@XorPlus# set protocols bgp peer 3003::2 as "9"
admin@XorPlus# set protocols bgp peer 3003::2 ipv6-unicast true
```

Step 4: Check BFP Peer Status

Switch A:

```
admin@XorPlus# run show bgp peers detail 3003::1
Peer 1: local 3003::2/56968 remote 3003::1/179
Peer ID: 6.6.6.6
Peer State: ESTABLISHED
Admin State: START
Negotiated BGP Version: 4
Peer AS Number: 23456
Updates Received: 0, Updates Sent: 0
Messages Received: 5, Messages Sent: 5
Time since last received update: n/a
Number of transitions to ESTABLISHED: 5
Time since last entering ESTABLISHED state: 87 seconds
Retry Interval: 120 seconds
Hold Time: 90 seconds, Keep Alive Time: 30 seconds
Configured Hold Time: 90 seconds, Configured Keep Alive Time: 30 seconds
Minimum AS Origination Interval: 0 seconds
Minimum Route Advertisement Interval: 0 seconds
```

Switch B:

```
admin@XorPlus# run show bgp peers detail 3003::2
Peer 1: local 3003::1/179 remote 3003::2/56968
Peer ID: 9.9.9.9
Peer State: ESTABLISHED
Admin State: START
Negotiated BGP Version: 4
Peer AS Number: 9
Updates Received: 0, Updates Sent: 0
Messages Received: 5, Messages Sent: 6
Time since last received update: n/a
Number of transitions to ESTABLISHED: 5
Time since last entering ESTABLISHED state: 100 seconds
Retry Interval: 120 seconds
Hold Time: 90 seconds, Keep Alive Time: 30 seconds
Configured Hold Time: 90 seconds, Configured Keep Alive Time: 30 seconds
Minimum AS Origination Interval: 0 seconds
Minimum Route Advertisement Interval: 0 seconds
```

Step 5: Switch B Distribute a BGP route entry, then check the BGP route table on Switch A

Switch B BGP route table:

```

admin@XorPlus# run show bgp routes ipv6
Status Codes: * valid route, > best route
Origin Codes: i IGP, e EGP, ? incomplete

  Prefix                Nexthop                Peer                AS Path
  -----                -
*> 9999::9/128          3003::2                0.0.0.0             ?
admin@XorPlus# run show bgp routes ipv6 detail
9999::9/128
  From peer: 0.0.0.0
  Route: Winner
  Origin: INCOMPLETE
  AS Path:
  Nexthop: 3003::2
  Local Preference: 100
admin@XorPlus#

```

Switch A BGP route table:

```

admin@XorPlus# run show bgp routes ipv6
Status Codes: * valid route, > best route
Origin Codes: i IGP, e EGP, ? incomplete

  Prefix                Nexthop                Peer                AS Path
  -----                -
*> 9999::9/128          3003::1                6.6.6.6             23456 ?
admin@XorPlus# run show bgp routes ipv6 detail
9999::9/128
  From peer: 6.6.6.6
  Route: Winner
  Origin: INCOMPLETE
  AS Path: 23456
  Nexthop: 3003::1
  Multiple Exit Discriminator: 0
  Local Preference: 100
  AS4 Path: 6.0
admin@XorPlus#

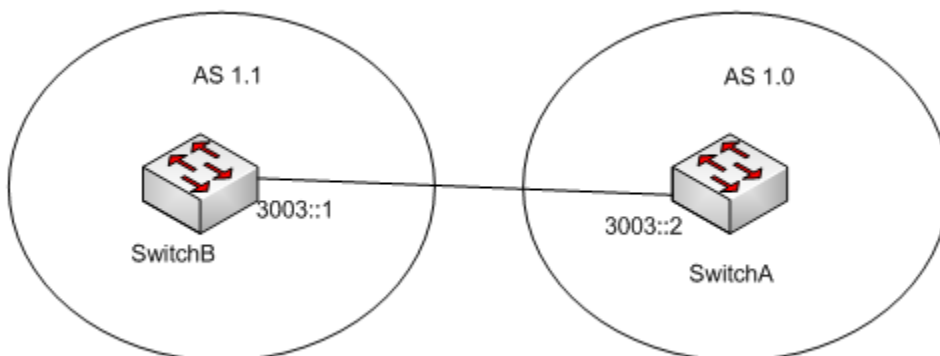
```

Note: User can see that the AS-path is 23456. The BGP route entry came from Switch B, as Switch A didn't support 4-Byte-AS-Number.

Case 2

Two Peer All Enable 4-byte-as-number

Figure 1-8



Step 1: Enable 4-Byte-AS-Number on Switch A and Switch B

Switch A:

```
admin@XorPlus# set protocols bgp enable-4byte-as-numbers true
```

Switch B:

```
admin@XorPlus# set protocols bgp enable-4byte-as-numbers true
```

Step 2: Configure BGP-ID and 4-Byte-AS-Number

Switch A:

```
admin@XorPlus# set protocols bgp bgp-id 9.9.9.9  
admin@XorPlus# set protocols bgp local-as "1.0"
```

Switch B:

```
admin@XorPlus# set protocols bgp bgp-id 6.6.6.6  
admin@XorPlus# set protocols bgp local-as "1.1"
```

Step 3: Configure BGP Peer

Switch A:

```
admin@XorPlus# set protocols bgp peer 3003::1 local-ip "3003::2"  
admin@XorPlus# set protocols bgp peer 3003::1 as "1.1"  
admin@XorPlus# set protocols bgp peer 3003::1 ipv6-unicast true
```

Switch B:

```
admin@XorPlus# set protocols bgp peer 3003::2 local-ip "3003::1"  
admin@XorPlus# set protocols bgp peer 3003::2 as "1.0"  
admin@XorPlus# set protocols bgp peer 3003::2 ipv6-unicast true
```

Step 4: Check BGP Peer Status

Switch A:

```

admin@XorPlus# run show bgp peers detail 3003::1
Peer 1: local 3003::2/50552 remote 3003::1/179
  Peer ID: 6.6.6.6
  Peer State: ESTABLISHED
  Admin State: START
  Negotiated BGP Version: 4
  Peer AS Number: 65537
  Updates Received: 0, Updates Sent: 0
  Messages Received: 5, Messages Sent: 5
  Time since last received update: n/a
  Number of transitions to ESTABLISHED: 7
  Time since last entering ESTABLISHED state: 89 seconds
  Retry Interval: 120 seconds
  Hold Time: 90 seconds, Keep Alive Time: 30 seconds
  Configured Hold Time: 90 seconds, Configured Keep Alive Time: 30 seconds
  Minimum AS Origination Interval: 0 seconds
  Minimum Route Advertisement Interval: 0 seconds

```

Switch B:

```

admin@XorPlus# run show bgp peers detail 3003::2
Peer 1: local 3003::1/179 remote 3003::2/50552
  Peer ID: 9.9.9.9
  Peer State: ESTABLISHED
  Admin State: START
  Negotiated BGP Version: 4
  Peer AS Number: 65536
  Updates Received: 0, Updates Sent: 0
  Messages Received: 6, Messages Sent: 7
  Time since last received update: n/a
  Number of transitions to ESTABLISHED: 7
  Time since last entering ESTABLISHED state: 120 seconds
  Retry Interval: 120 seconds
  Hold Time: 90 seconds, Keep Alive Time: 30 seconds
  Configured Hold Time: 90 seconds, Configured Keep Alive Time: 30 seconds
  Minimum AS Origination Interval: 0 seconds
  Minimum Route Advertisement Interval: 0 seconds

```

Step 5: Switch B distribute one BGP route entry to Switch B, then check the BGP route table:

Switch B BGP route table:

```

admin@XorPlus# run show bgp routes ipv6
Status Codes: * valid route, > best route
Origin Codes: i IGP, e EGP, ? incomplete

  Prefix                Nexthop                Peer                AS Path
  -----                -
*> 9999::9/128          3003::2                0.0.0.0            ?
admin@XorPlus# run show bgp routes ipv6 detail
9999::9/128
  From peer: 0.0.0.0
  Route: Winner
  Origin: INCOMPLETE
  AS Path:
  Nexthop: 3003::2
  Local Preference: 100
admin@XorPlus#

```

Switch A BGP route table:

```

admin@XorPlus# run show bgp routes ipv6
Status Codes: * valid route, > best route
Origin Codes: i IGP, e EGP, ? incomplete

  Prefix                Nexthop                Peer                AS Path
  -----                -
*> 9999::9/128          3003::1                6.6.6.6             1.1 ?
admin@XorPlus# run show bgp routes ipv6 detail
9999::9/128
  From peer: 6.6.6.6
  Route: Winner
  Origin: INCOMPLETE
  AS Path: 1.1
  Nexthop: 3003::1
  Multiple Exit Discriminator: 0
  Local Preference: 100

```

Case 3

Two Peer All Enable 4-byte-as-number

Figure 1-9



Step 1: Enable 4-Byte-AS-Number on Switch A and Switch B

Switch A:

```
admin@XorPlus# set protocols bgp enable-4byte-as-numbers true
```

Switch B:

```
admin@XorPlus# set protocols bgp enable-4byte-as-numbers true
```

Step 2: Configure BGP-ID and 4-Byte-AS-Number

Switch A:

```
admin@XorPlus#set protocols bgp bgp-id 9.9.9.9
admin@XorPlus#set protocols bgp local-as "65536"
```

Switch B:

```
admin@XorPlus# set protocols bgp bgp-id 6.6.6.6
admin@XorPlus# set protocols bgp local-as "65537"
```

Step 3: Configure BGP Peer

Switch A:

```
admin@XorPlus# set protocols bgp peer 3003::1 local-ip "3003::2"
admin@XorPlus# set protocols bgp peer 3003::1 as "65537"
admin@XorPlus# set protocols bgp peer 3003::1 ipv6-unicast true
```

Switch B:

```
admin@XorPlus# set protocols bgp peer 3003::2 local-ip "3003::1"
admin@XorPlus# set protocols bgp peer 3003::2 as "65536"
admin@XorPlus# set protocols bgp peer 3003::2 ipv6-unicast true
```

Step 4: Check BGP Peer Status

Switch A:

```
admin@XorPlus# run show bgp peers detail 3003::1
Peer 1: local 3003::2/179 remote 3003::1/52689
  Peer ID: 6.6.6.6
  Peer State: ESTABLISHED
  Admin State: START
  Negotiated BGP Version: 4
  Peer AS Number: 65537
  Updates Received: 1, Updates Sent: 0
  Messages Received: 4, Messages Sent: 4
  Time since last received update: 32 seconds
  Number of transitions to ESTABLISHED: 9
  Time since last entering ESTABLISHED state: 32 seconds
  Retry Interval: 120 seconds
  Hold Time: 90 seconds, Keep Alive Time: 30 seconds
  Configured Hold Time: 90 seconds, Configured Keep Alive Time: 30 seconds
  Minimum AS Origination Interval: 0 seconds
  Minimum Route Advertisement Interval: 0 seconds
```

Switch B:

```

admin@XorPlus# run show bgp peers detail 3003::2
Peer 1: local 3003::1/52689 remote 3003::2/179
Peer ID: 9.9.9.9
Peer State: ESTABLISHED
Admin State: START
Negotiated BGP Version: 4
Peer AS Number: 65536
Updates Received: 0, Updates Sent: 1
Messages Received: 4, Messages Sent: 4
Time since last received update: n/a
Number of transitions to ESTABLISHED: 9
Time since last entering ESTABLISHED state: 53 seconds
Retry Interval: 120 seconds
Hold Time: 90 seconds, Keep Alive Time: 30 seconds
Configured Hold Time: 90 seconds, Configured Keep Alive Time: 30 seconds
Minimum AS Origination Interval: 0 seconds
Minimum Route Advertisement Interval: 0 seconds

```

Step 5: Switch B distribute one BGP route entry to Switch B, then check the BGP route table:

Switch B BGP route table:

```

admin@XorPlus# run show bgp routes ipv6
Status Codes: * valid route, > best route
Origin Codes: i IGP, e EGP, ? incomplete

Prefix                Nexthop                Peer                AS Path
-----
*> 9999::9/128        3003::2                0.0.0.0             ?
admin@XorPlus#
admin@XorPlus#
admin@XorPlus# run show bgp routes ipv6 detail
9999::9/128
  From peer: 0.0.0.0
  Route: Winner
  Origin: INCOMPLETE
  AS Path:
  Nexthop: 3003::2
  Local Preference: 100

```

Switch A BGP route table:

```

admin@XorPlus# run show bgp routes ipv6
Status Codes: * valid route, > best route
Origin Codes: i IGP, e EGP, ? incomplete

Prefix                Nexthop                Peer                AS Path
-----
*> 9999::9/128        3003::1                6.6.6.6             1.1 ?
admin@XorPlus# run show bgp routes ipv6 detail
9999::9/128
  From peer: 6.6.6.6
  Route: Winner
  Origin: INCOMPLETE
  AS Path: 1.1
  Nexthop: 3003::1
  Multiple Exit Discriminator: 0
  Local Preference: 100

```