

Basic BGP configuration with Comware v7



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BGP peer configuration with Comware v7

HP MSR Next Generation Routers use Comware v7 operating system opposed to earlier products that used Comware v5.

Here is the list of current products that use Comware v7:

- HP MSR 4000 Series
- HP MSR 3000 Series
- HP MSR 2000 Series
- HP MSR 1002-4
- HP VSR 1000 Series Virtual Routers

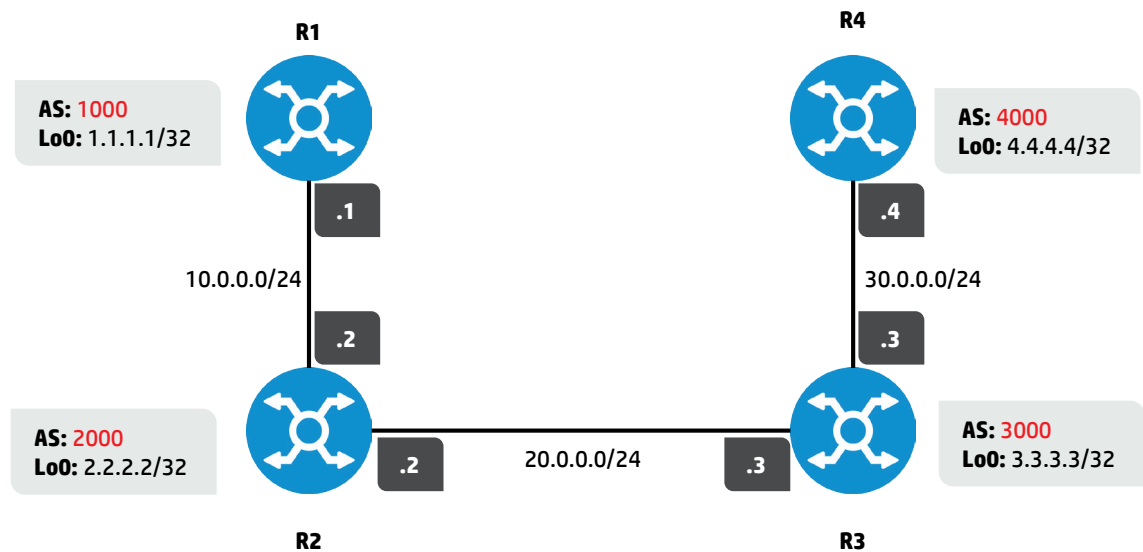
This configuration example only provides information about basic BGP configuration differences. Detailed information about Comware v5 and Comware v7 differences can be found at the following link:

[HP MSR Router Series Comware v5 and v7 CLI configuration comparison](#)

BGP peer configuration is the first significant change on BGP for Comware v7. Topology show in figure 1 will be used to show peer configuration and defining routing policies.

Topology

Figure 1. Configuration example diagram



Let's define peering between R1 and R2**R1**

```
#
  sysname R1
interface LoopBack0
  ip address 1.1.1.1 255.255.255.255
#
interface GigabitEthernet0/0
  ip address 10.0.0.1 255.255.255.0
#
bgp 1000
  peer 10.0.0.2 as-number 2000
  address-family ipv4 unicast
    network 1.1.1.1 255.255.255.255
    peer 10.0.0.2 enable
```

R2

```
#
  sysname R2
interface LoopBack0
  ip address 2.2.2.2 255.255.255.255
#
interface GigabitEthernet0/0
  ip address 10.0.0.2 255.255.255.0
#
bgp 2000
  peer 10.0.0.1 as-number 1000
  address-family ipv4 unicast
    network 2.2.2.2 255.255.255.255
    peer 10.0.0.1 enable
```

Most important point in this configuration is to define IPv4 unicast address family and enable the peer here, otherwise, peers will not be connected. Also note that networks are also propagated under address family.

Let's verify that peers are established and routes are available on R1

<R1>**display bgp peer ipv4 unicast**

```

BGP local router ID: 1.1.1.1
Local AS number: 1000
Total number of peers: 1                Peers in established state: 1

* - Dynamically created peer
Peer                AS   MsgRcvd  MsgSent  OutQ  PrefRcv  Up/Down  State
-----
10.0.0.2            2000  125      118      0     2        01:47:39  Established
    
```

<R1>**display bgp routing-table ipv4 unicast**

```

Total number of routes: 3

BGP local router ID is 1.1.1.1
Status codes: * - valid, > - best, d - dampened, h - history,
              s - suppressed, S - stale, i - internal, e - external
Origin: i - IGP, e - EGP, ? - incomplete

      Network                NextHop          MED          LocPrf      PrefVal  Path/Ogn
-----
* >  1.1.1.1/32              127.0.0.1        0
* >e 2.2.2.2/32              10.0.0.2         0
    
```

Filter incoming routes with routing policy

In this example, we will use route policies and path filtering using regular expressions. We will do two different filtering examples.

- In first example, we will allow only networks originating from AS 2000 to enter R1 but routes from AS 3000 and 4000 will be filtered. Using this example you can take only networks that originate from your service provider.
- In the second example, we will allow networks that originate from our neighbor AS and networks that are directly attached to this AS so we will let routes from AS 2000 and 3000 but not from 4000.

First example: BGP settings on R2, R3, and R4

R2

```
interface GigabitEthernet0/1
    ip address 20.0.0.2 255.255.255.0
#
bgp 2000
peer 20.0.0.3 as-number 3000
#
address-family ipv4 unicast
    peer 20.0.0.3 enable
```

R3

```
#
sysname R3
interface LoopBack0
    ip address 3.3.3.3 255.255.255.255
#
interface GigabitEthernet0/0
    ip address 20.0.0.3 255.255.255.0
#
interface GigabitEthernet0/1
    ip address 30.0.0.3 255.255.255.0
bgp 3000
peer 20.0.0.2 as-number 2000
peer 30.0.0.4 as-number 4000
#
address-family ipv4 unicast
network 3.3.3.3 255.255.255.255
peer 20.0.0.2 enable
peer 30.0.0.4 enable
```

R4

```
#
 sysname R4
 interface LoopBack0
  ip address 4.4.4.4 255.255.255.255
#
 interface GigabitEthernet0/0
  ip address 30.0.0.4 255.255.255.0
 bgp 4000
  peer 30.0.0.3 as-number 3000
#
 address-family ipv4 unicast
  network 4.4.4.4 255.255.255.255
  peer 30.0.0.3 enable
```

Now let's look at routing table at R1 to make sure we have all routes from R2, R3, and R4

```
[R1]dis ip routing-table protocol bgp
```

```
Summary Count : 3
```

```
BGP Routing table Status : <Active>
```

```
Summary Count : 3
```

Destination/Mask	Proto	Pre Cost	NextHop	Interface
2.2.2.2/32	BGP	255 0	10.0.0.2	GE0/0
3.3.3.3/32	BGP	255 0	10.0.0.2	GE0/0
4.4.4.4/32	BGP	255 0	10.0.0.2	GE0/0

Now it is time to apply our first filter on R1 so we can have routes that originate from AS 2000 only

R1

```
bgp 1000
  address-family ipv4 unicast
    peer 10.0.0.2 route-policy IN_FILTER import
#
 route-policy IN_FILTER permit node 10
  if-match as-path 34
#
 ip as-path 34 permit ^2000$
```

Let's check if we have routes from AS 2000 only

```
[R1]dis ip routing-table protocol bgp
```

```
Summary Count : 1
```

```
BGP Routing table Status : <Active>
```

```
Summary Count : 1
```

Destination/Mask	Proto	Pre Cost	NextHop	Interface
2.2.2.2/32	BGP	255 0	10.0.0.2	GE0/0

```
BGP Routing table Status : <Inactive>
```

```
Summary Count : 0
```

Now let's apply our second filter on R1 so that it originates from AS 2000 and neighbor AS's are directly connected to AS 2000. In this example, AS 3000 is the neighbor AS so it should be visible but AS 4000 is not the neighbor to AS 2000 so it will be filtered.

R1

```
bgp 1000
    address-family ipv4 unicast
        peer 10.0.0.2 route-policy IN_FILTER import
#
route-policy IN_FILTER permit node 10
    if-match as-path 34
#
ip as-path 34 permit ^2000_[0-9]*$
```

Let's check if we have only routes from AS 2000 and AS 3000

```
[R1]dis ip routing-table protocol bgp
```

```
Summary Count : 2
```

```
BGP Routing table Status : <Active>
```

```
Summary Count : 2
```

Destination/Mask	Proto	Pre Cost	NextHop	Interface
2.2.2.2/32	BGP	255 0	10.0.0.2	GE0/0
3.3.3.3/32	BGP	255 0	10.0.0.2	GE0/0

Additional links

Manuals for the HP Networking products can be found at:
<http://h17007.www1.hp.com/us/en/networking/library/index.aspx#>

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