

# NR500 Series Industrial Cellular VPN Router

## Application Note 035

### BGP with CISCO

**Version:** V1.0.0  
**Date:** Dec 2018  
**Status:** Confidential



## Directory

1. Introduction.....	3
1.1 Overview.....	3
1.2 Compatibility.....	3
1.3 Version.....	3
1.4 Corrections.....	3
2. Topology.....	4
3. Configuration.....	5
3.1 CISCO Configuration.....	5
3.2 NR500 Pro Configuration.....	7
4. Route Table.....	7
5. Testing.....	8

# 1. Introduction

## 1.1 Overview

This document contains information regarding the configuration and use of BGP with CISCO.

This guide has been written for use by technically competent personnel with a good understanding of the communications technologies used in the product, and of the requirements for their specific application.

## 1.2 Compatibility

This application note applies to:

**Models Shown:** NR500 series.

**Firmware Version:** devel(f6eb5e7) or newer

**Other Compatible Models:** None

## 1.3 Version

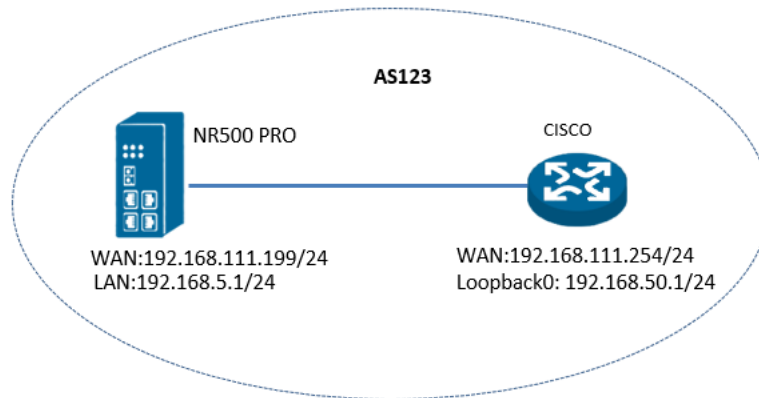
Updates between document versions are cumulative. Therefore, the latest document will include all the content of previous versions.

Release Date	Doc. Version	Firmware Version	Change Description
2018/12/12	V1.0.0	devel(f6eb5e7)	First released

## 1.4 Corrections

Appreciate for corrections or rectifications to this application note, and if any request for new application notes please email to: [support@navigateworx.com](mailto:support@navigateworx.com)

## 2. Topology



1. NR500 Pro and CISCO run in the same AS123. And the act as the neighbor of each other.
2. NR500 Pro and CISCO enable BGP and declare the IP of LAN and loopback0.

## 3. Configuration

### 3.1 CISCO Configuration

1. The configuration of **CISCO** like below:

=====

```
CISCO7200#show run
Building configuration...
```

```
Current configuration : 1293 bytes
```

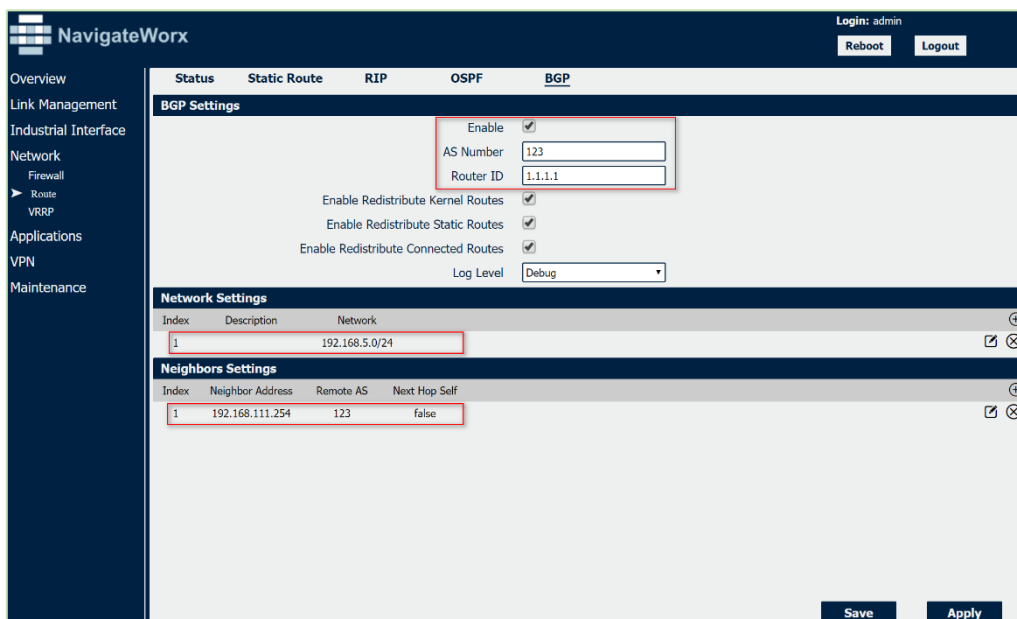
```
!
upgrade fpd auto
version 12.4
service timestamps debug datetime msec
service timestamps log datetime msec
no service password-encryption
!
hostname CISCO7200
!
boot-start-marker
boot-end-marker
!

no aaa new-model
no ip icmp rate-limit unreachable
ip cef
!
no ip domain lookup
ip auth-proxy max-nodata-conns 3
ip admission max-nodata-conns 3
!
multilink bundle-name authenticated
!
archive
 log config
  hidekeys
!
ip tcp synwait-time 5
!
interface Loopback0
  ip address 192.168.50.1 255.255.255.0
```

```
!  
interface FastEthernet0/0  
  ip address 192.168.111.254 255.255.255.0  
  duplex auto  
  speed auto  
!  
interface FastEthernet0/1  
  no ip address  
  shutdown  
  duplex auto  
  speed auto  
!  
router bgp 123  
  no synchronization  
  bgp router-id 3.3.3.3  
  bgp log-neighbor-changes  
  network 192.168.50.0  
  neighbor 192.168.111.199 remote-as 123  
  no auto-summary  
!  
ip forward-protocol nd  
no ip http server  
no ip http secure-server  
!  
line con 0  
  exec-timeout 0 0  
  privilege level 15  
  logging synchronous  
  stopbits 1  
line aux 0  
  exec-timeout 0 0  
  privilege level 15  
  logging synchronous  
  stopbits 1  
line vty 0 4  
  login  
end  
  
CISCO7200#  
=====
```

## 3.2 NR500 Pro Configuration

1. Go to **Network>Route>BGP**, enable BGP and configure BGP as below picture.



**BGP Settings**

Enable

AS Number

Router ID

Enable Redistribute Kernel Routes

Enable Redistribute Static Routes

Enable Redistribute Connected Routes

Log Level

**Network Settings**

Index	Description	Network
1		192.168.5.0/24

**Neighbors Settings**

Index	Neighbor Address	Remote AS	Next Hop Self
1	192.168.111.254	123	false

Save Apply

2. Click Save>Apply.

## 4. Route Table

1. Route Table on CISCO for reference.

```
CISCO7200#show ip route
Codes: C - connected, S - static, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2
       i - IS-IS, su - IS-IS summary, L1 - IS-IS level-1, L2 - IS-IS level-2
       ia - IS-IS inter area, * - candidate default, U - per-user static route
       o - ODR, P - periodic downloaded static route

Gateway of last resort is not set

C    192.168.111.0/24 is directly connected, FastEthernet0/0
B    192.168.5.0/24 [200/0] via 192.168.111.199, 00:09:17
C    192.168.50.0/24 is directly connected, Loopback0
CISCO7200#
```

2. Route Table on NR500 Pro for reference.


**NavigateWorx**
Login: admin  
Reboot Logout

Overview  
 Link Management  
 Industrial Interface  
 Network  
   Firewall  
   ▶ Route  
   VRRP

Status	Static Route	RIP	OSPF	BGP	
<b>Route Table Information</b>					
Index	Destination	Netmask	Gateway	Metric	Interface
1	0.0.0.0	0.0.0.0	192.168.111.11	0	wan
2	192.168.5.0	255.255.255.0	0.0.0.0	0	lan0
3	192.168.50.0	255.255.255.0	192.168.111.200	20	wan
4	192.168.111.0	255.255.255.0	0.0.0.0	0	wan

## 5. Testing

1. Ping from CISCO to NR500 Pro.

```

CISCO7200#ping 192.168.5.1
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.5.1, timeout is 2 seconds:
!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 8/18/36 ms
CISCO7200#
  
```

2. Test successfully.