NavigateWorx

NR500 Series
Industrial Cellular VPN Router

Application Note 030

DMVPN with OSPF

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

Directory

1. Introduction

1.1 Overview

This document contains information regarding the configuration and use of DMVPN with OSPF.

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(baba6c2) or newer
Other Compatible Models: None

1.3 Version

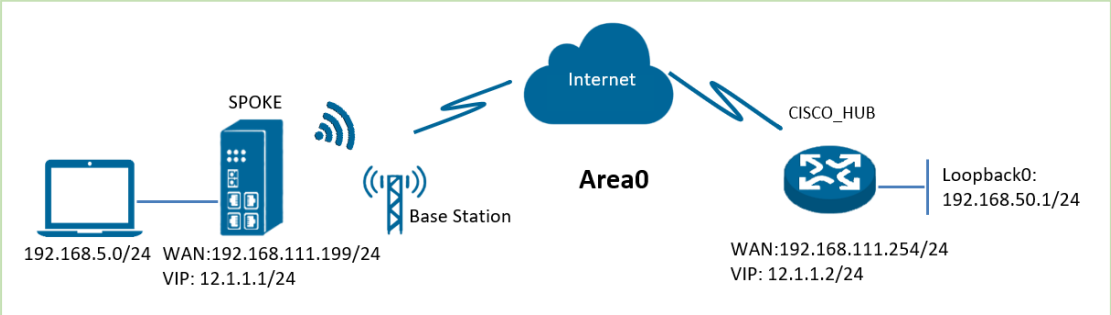
Updates between document versions are cumulative. Therefore, the latest document will include all the content of previous versions.

Release Date	Doc. Version	Firmware Version	Change Description
2018/12/15	V1.0.0	devel(baba6c2)	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**

2. Topology



1. NR500 Pro runs as DMVPN spoke with any kind of IP, which can ping DMVPN hub successfully.
2. CISCO router runs as DMVPN hub with a static public IP.
3. The tunnel is established between spoke and hub, the subnet can PING each other successfully.
4. Both NR500 Pro and CISCO run OSPF within a same Area0.

3. Configuration

3.1 HUB Configuration

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

==========

```
cisco2811#show running-config
Building configuration...
version 12.4
hostname cisco2811
ip address-pool local
no ipv6 cef
!
username cisco password 0 cisco
!
crypto isakmp policy 10
 encr 3des
 hash md5
 authentication pre-share
 group 2
crypto isakmp key 6 cisco address 0.0.0.0 0.0.0.0
!
crypto ipsec transform-set DMVPN esp-3des esp-sha-hmac
 mode transport
!
crypto ipsec profile DMVPN-PROFILE
 set transform-set DMVPN


interface Loopback0
 ip address 192.168.50.1 255.255.255.0
!

interface Tunnel1
 ip address 12.1.1.2 255.255.255.0
 no ip redirects
 ip nhrp authentication cisco
 ip nhrp map multicast dynamic
 ip nhrp network-id 3
 ip nhrp holdtime 120
 ip nhrp redirect
 no ip split-horizon
```

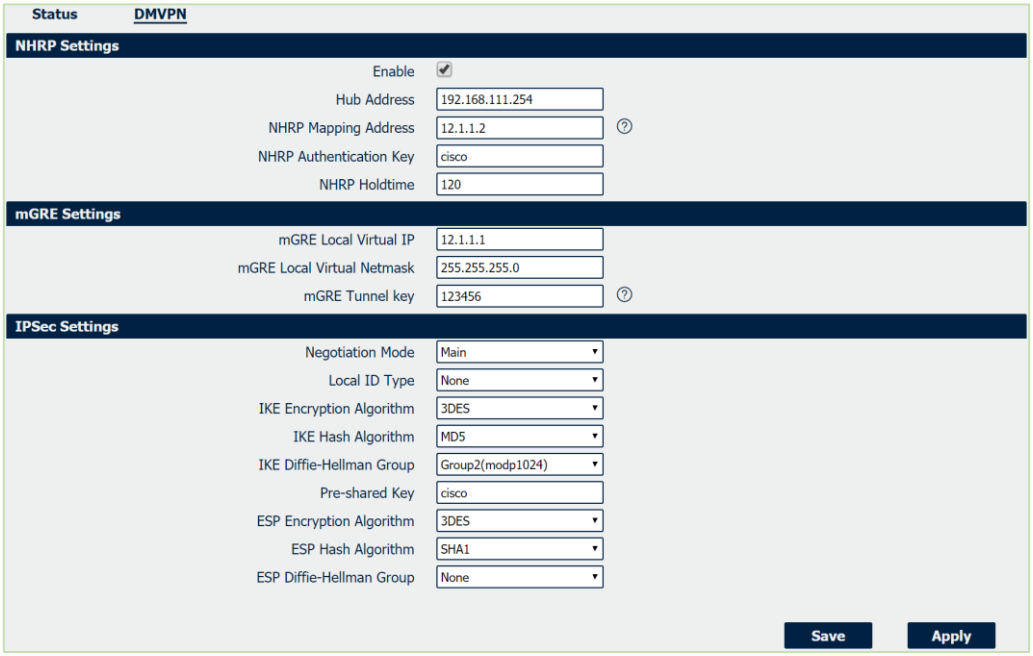
```
 ip ospf network non-broadcast
//Only support "non-broadcast" due to the limitation of protocol
 tunnel source 192.168.111.254
 tunnel mode gre multipoint
 tunnel key 123456
 tunnel protection ipsec profile DMVPN-PROFILE
!
interface FastEthernet0/0
 ip address 192.168.111.254 255.255.255.0
 ip nat outside
 ip nat enable
 ip virtual-reassembly
 duplex full
 speed auto
 no mop enabled
!
interface FastEthernet0/1
 ip address 192.168.6.3 255.255.255.0
 ip nat inside
 ip nat enable
 ip virtual-reassembly
 duplex auto
 speed auto
!
router ospf 1
 router-id 9.9.9.9
 log-adjacency-changes
 network 12.1.1.0 0.0.0.255 area 0
 network 192.168.50.0 0.0.0.255 area 0
 neighbor 12.1.1.2

ip forward-protocol nd
no ip http server
no ip http secure-server
!

ip nat inside source list 10 interface FastEthernet0/0 overload
!
access-list 10 permit 192.168.6.0 0.0.0.255
snmp-server community public RO
cisco2811#
============================================================
```

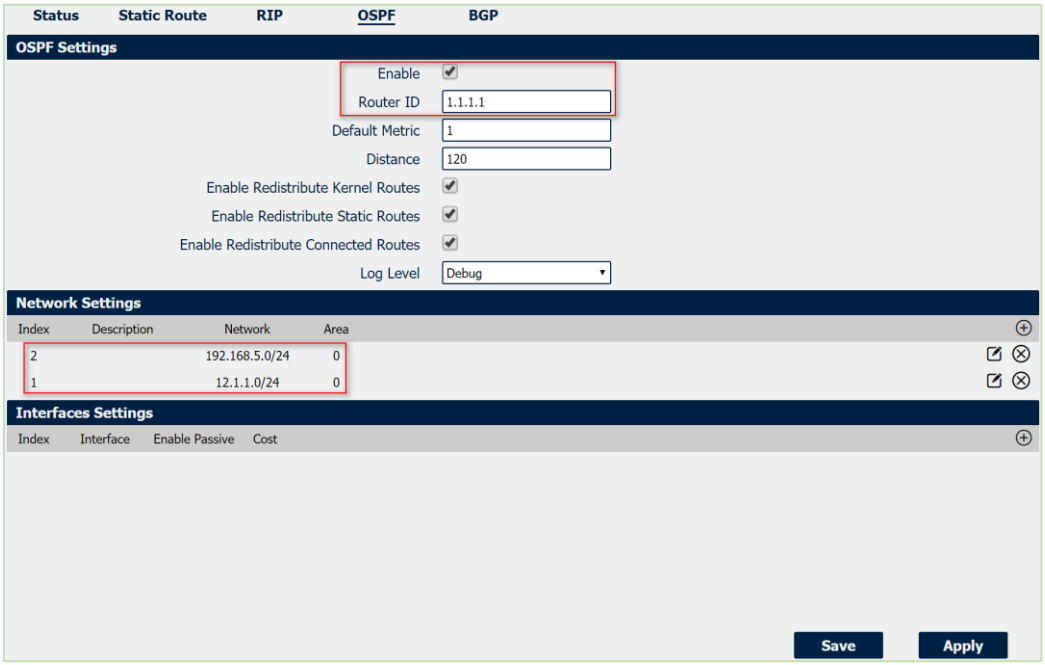
3.2 Spoke Configuration

1. Go to **VPN>DMVPN**, enable DMVPN and configure DMVPN as below picture.

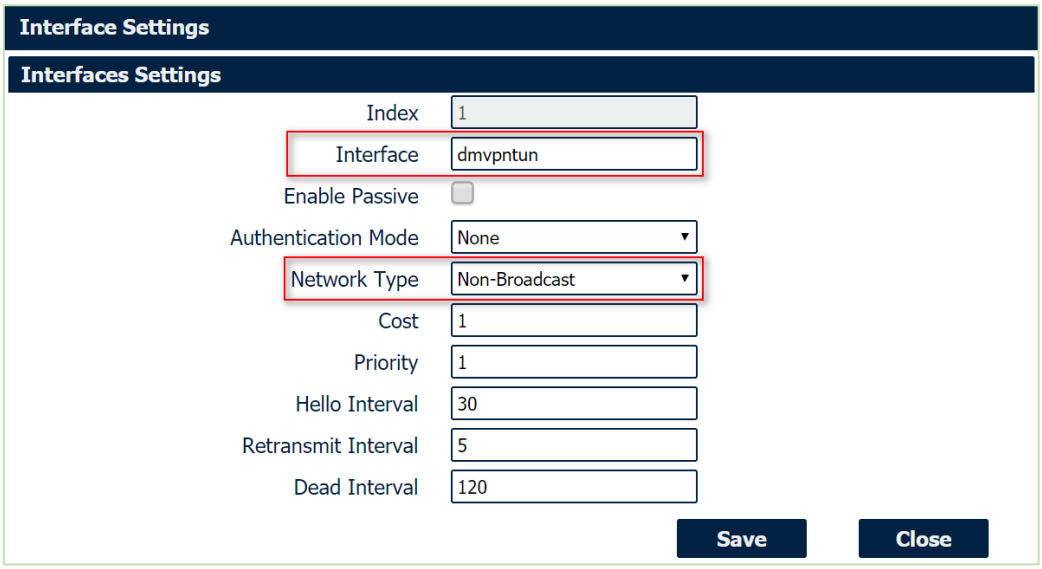


2. Click Save>Apply.

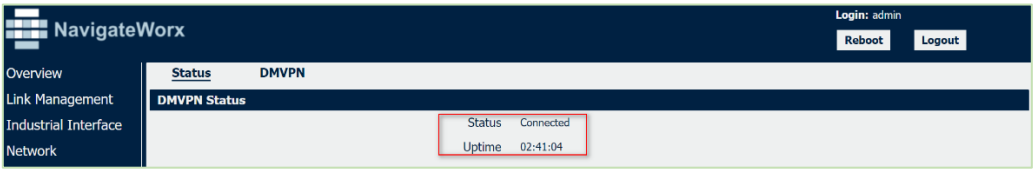
3. Go to **Network>Route>OSPF,** enable OSPF and configure OSPF as below picture.



4. Go to **Network>Route>OSPF>Interface Settings**, to specify the Interface Network Type as "**Non-Broadcast**" as below picture.

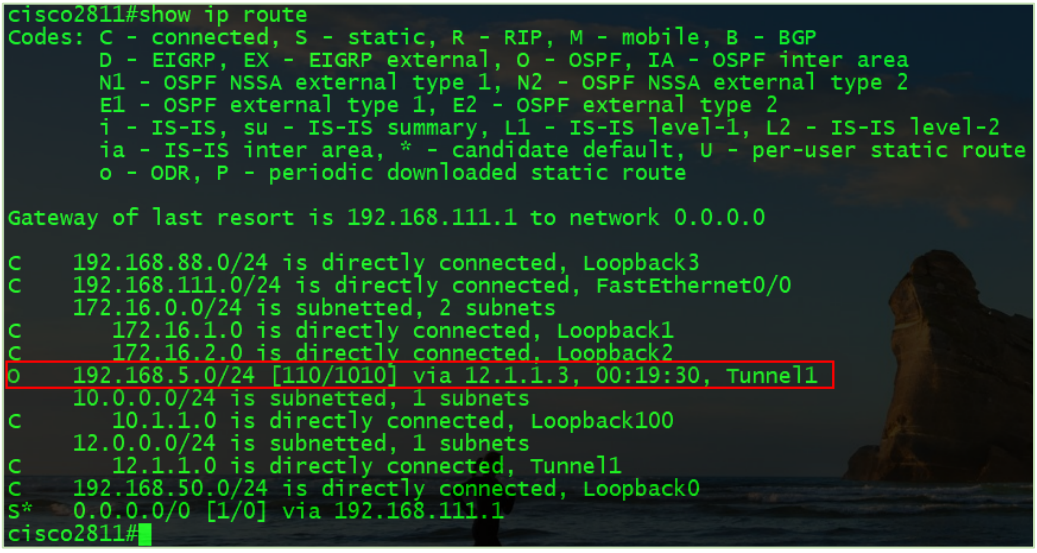


5.Route had connected to CISCO HUB. Go to **VPN>DMVPN>Status** to check the connection status.

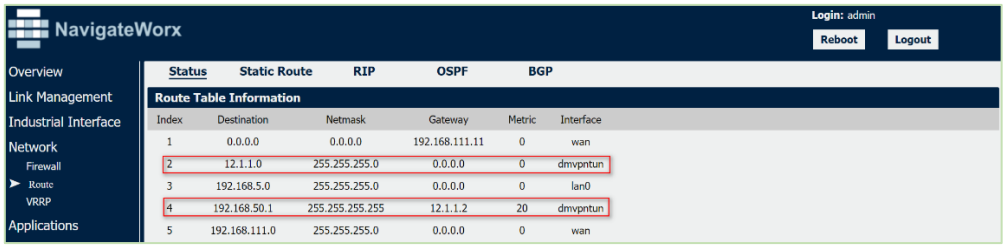


4. Route Table

1. Route Table on CISCO HUB for reference.

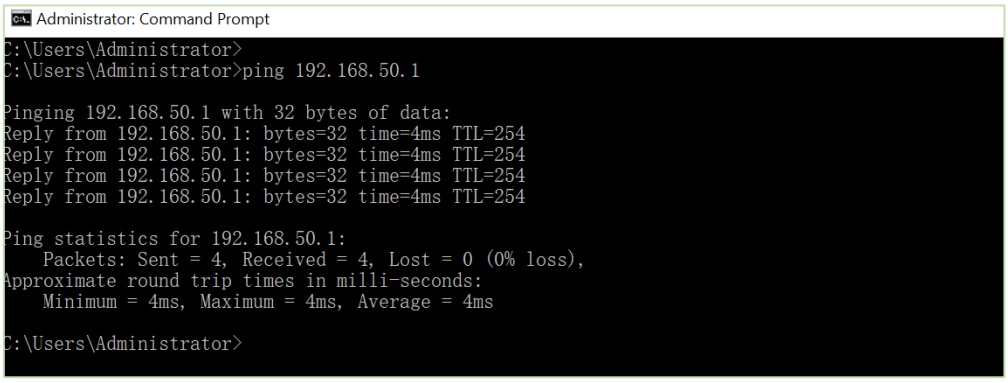


2. Route Table on SPOKE for reference.

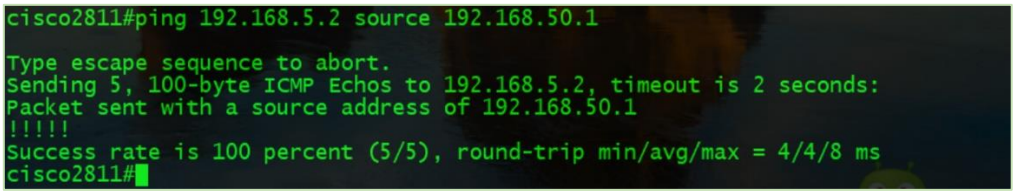


5. Testing

1. Enable CMD and Ping from end device of SPOKE to subnet of CISCO HUB.



2. Ping from CISCO HUB to end device of SPOKE.



3. Test successfully.