

# NGAF

## Route Mode Deployment with GRE Configuration

Version 8.0.5

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## Change Log

Date	Change Description
Oct 22, 2018	Version 8.0.5 document release.

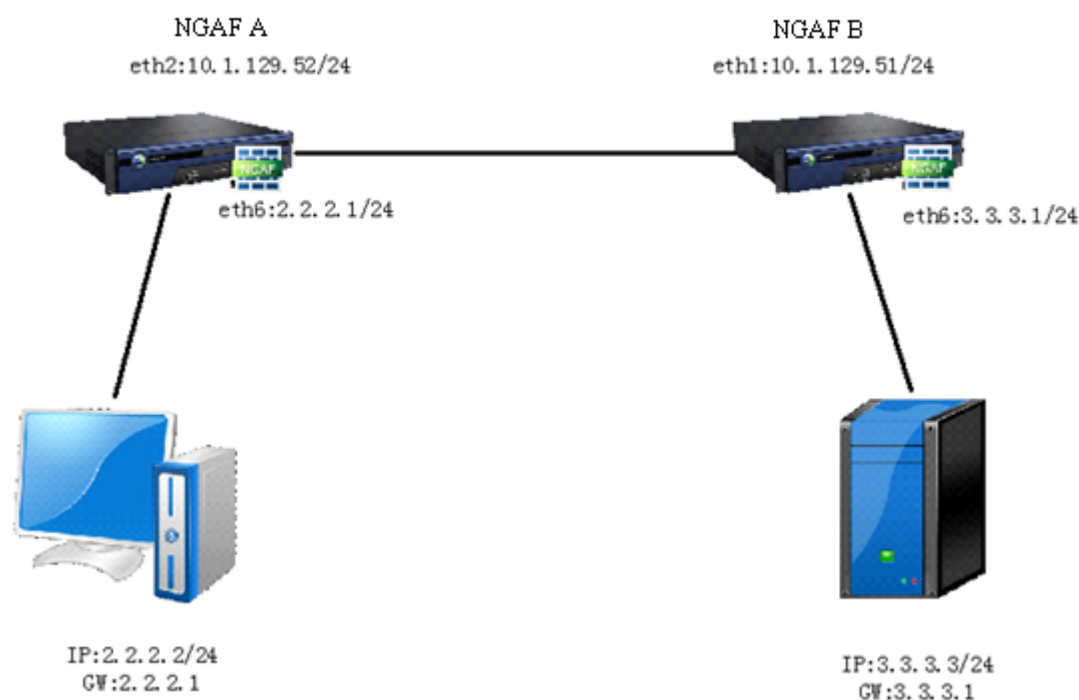
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## Chapter 1 Network Topology

Route mode deployment GRE environment as below:



Note that the NGAF must be able to communicate with each other.

## Chapter 2 NGAF Configuration

1. Basic network configuration: Make sure that the interfaces, default route and domain is configured correctly. Content security policies must be allow. Refer to the following link for route deployment:

[http://community.sangfor.com/plugin.php?id=sangfor\\_databases:index&mod=viewdatabase&tid=354&highlight=](http://community.sangfor.com/plugin.php?id=sangfor_databases:index&mod=viewdatabase&tid=354&highlight=)

2. After completing the basic network configuration, the second step is configuring the GRE tunnel. Navigate to [Network] > [Interface] > [GRE Tunnel] to configure the GRE tunnel.

## Firewall A:

**Add Tunnel**

No.: 52

Zone: WAN2

**Basics**

IP Address: e.g., 0.0.0.0/0

Source Address: 10.1.129.52

Destination Address: 10.1.129.51

GRE Key:

Remark:  
Optional, up to 256 characters

Advanced OK Cancel

## Firewall B:

**Add Tunnel**

No.: 51

Zone: WAN1

**Basics**

IP Address: e.g., 0.0.0.0/0

Source Address: 10.1.129.51

Destination Address: 10.1.129.52

GRE Key:

Remark:  
Optional, up to 256 characters

Advanced OK Cancel

Note:

IP Address: GRE tunnel IP address, this IP must be a new IP and cannot conflict with the local or peer interface. Can be ignored in route mode deployment.

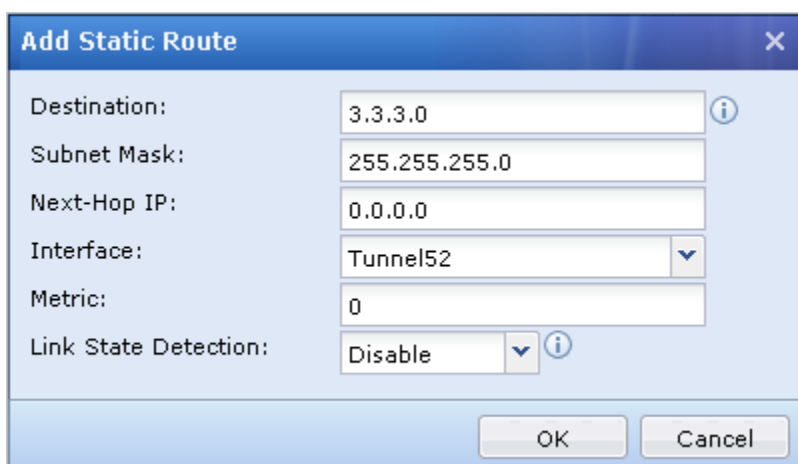
Source Address: Local egress WAN IP address

Destination Address: Opposite egree WAN IP address

GRE Key: Both ends must be the same, can be ignored

### 3. Third step is to build a static route

#### Firewall A:



**Add Static Route**

Destination: 3.3.3.0 ⓘ

Subnet Mask: 255.255.255.0

Next-Hop IP: 0.0.0.0

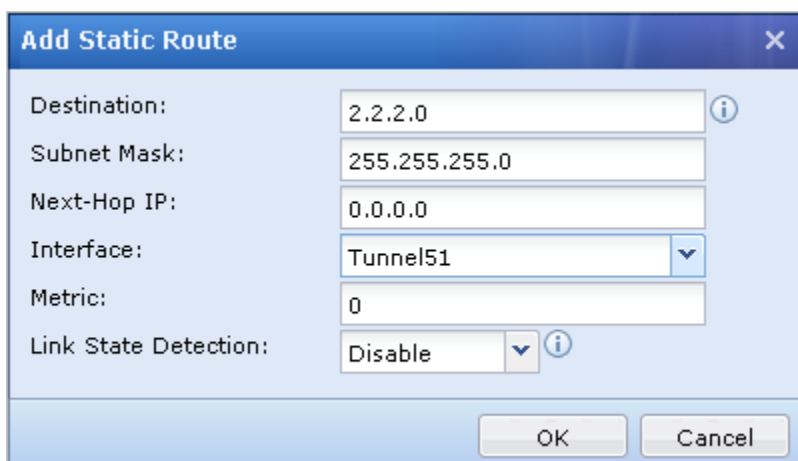
Interface: Tunnel52 ▼

Metric: 0

Link State Detection: Disable ⓘ

OK Cancel

#### Firewall B:



**Add Static Route**

Destination: 2.2.2.0 ⓘ

Subnet Mask: 255.255.255.0

Next-Hop IP: 0.0.0.0

Interface: Tunnel51 ▼

Metric: 0

Link State Detection: Disable ⓘ

OK Cancel

Note:

Destination: Peer IP address accessed through tunnel

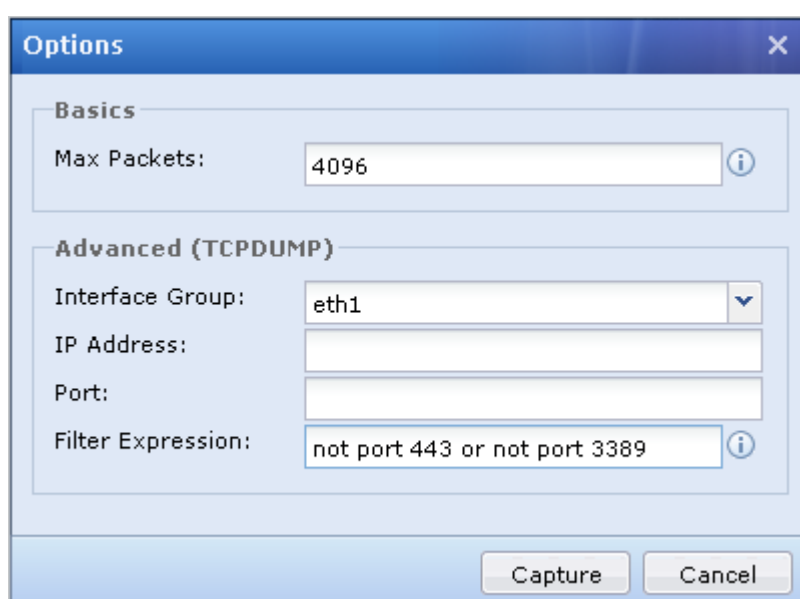
Subnet Mask: Subnet mask of the IP address

Next-Hop IP: 0.0.0.0

Interface: Select GRE tunnel interface

#### 4. Testing:

1. Under the circumstances where GRE tunnel is not built and PC is unable to ping to server ip 3.3.3.3. First, under [System] > [Troubleshooting] > [Capture Packets], setup the parameters to capture packet, then ping 3.3.3.3 using the PC, as shown below:



2. In the data packet, we can see that the eth1 source ip 2.2.2.2 has not go through address translation. The request packet is sent to 3.3.3.3 without returning the packet, as shown below:

No.	Time	IP ID	Source	Destination	Protocol	Length	Response	Info
822	2017-06-30 12:18:31.693305	0x5db2 (23986)	2.2.2.2	3.3.3.3	ICMP	74		Echo (ping) request id=0x0002, seq=15578/55868, ttl=127 (no response found!)
2170	2017-06-30 12:18:36.693493	0x5dc0 (24000)	2.2.2.2	3.3.3.3	ICMP	74		Echo (ping) request id=0x0002, seq=15584/57404, ttl=127 (no response found!)
3502	2017-06-30 12:18:41.692641	0x5d64 (24020)	2.2.2.2	3.3.3.3	ICMP	74		Echo (ping) request id=0x0002, seq=15590/58940, ttl=127 (no response found!)

3. Under the circumstances where GRE tunnel is built and PC is able to ping to server ip 3.3.3.3. Capture packet according to the parameters on top, then in the data packet, we can see that the original source ip is encapsulated with the ip address of the external network interface, as shown below:

No.	Time	IP ID	Source	Destination	Protocol	Length	Response	Info
2880	2017-06-30 13:27:11.947219	0x0000 (0), 0x741a (29722)	2.2.2.2	3.3.3.3	ICMP	98		Echo (ping) request id=0x0002, seq=20503/5968, ttl=127 (reply in 2881)
2881	2017-06-30 13:27:11.948998	0x0000 (0), 0x1f37 (7991)	3.3.3.3	2.2.2.2	ICMP	98	1.779	Echo (ping) reply id=0x0002, seq=20503/5968, ttl=127 (request in 2880)
2270	2017-06-30 13:27:12.948276	0x0000 (0), 0x7420 (29728)	2.2.2.2	3.3.3.3	ICMP	98		Echo (ping) request id=0x0002, seq=20505/6480, ttl=127 (reply in 2271)
2271	2017-06-30 13:27:12.949340	0x0000 (0), 0x1f38 (7992)	3.3.3.3	2.2.2.2	ICMP	98	1.064	Echo (ping) reply id=0x0002, seq=20505/6480, ttl=127 (request in 2270)
2476	2017-06-30 13:27:13.951408	0x0000 (0), 0x7423 (29731)	2.2.2.2	3.3.3.3	ICMP	98		Echo (ping) request id=0x0002, seq=20507/6992, ttl=127 (reply in 2477)
2477	2017-06-30 13:27:13.951837	0x0000 (0), 0x1f39 (7993)	3.3.3.3	2.2.2.2	ICMP	98	0.429	Echo (ping) reply id=0x0002, seq=20507/6992, ttl=127 (request in 2476)
2871	2017-06-30 13:27:14.951544	0x0000 (0), 0x7426 (29734)	2.2.2.2	3.3.3.3	ICMP	98		Echo (ping) request id=0x0002, seq=20509/7504, ttl=127 (reply in 2872)
2872	2017-06-30 13:27:14.952092	0x0000 (0), 0x1f3a (7994)	3.3.3.3	2.2.2.2	ICMP	98	0.548	Echo (ping) reply id=0x0002, seq=20509/7504, ttl=127 (request in 2871)
3020	2017-06-30 13:27:15.952402	0x0000 (0), 0x742a (29738)	2.2.2.2	3.3.3.3	ICMP	98		Echo (ping) request id=0x0002, seq=20511/8016, ttl=127 (reply in 3021)
3021	2017-06-30 13:27:15.953020	0x0000 (0), 0x1f3b (7995)	3.3.3.3	2.2.2.2	ICMP	98	0.618	Echo (ping) reply id=0x0002, seq=20511/8016, ttl=127 (request in 3020)
3260	2017-06-30 13:27:16.953553	0x0000 (0), 0x742c (29740)	2.2.2.2	3.3.3.3	ICMP	98		Echo (ping) request id=0x0002, seq=20513/8528, ttl=127 (reply in 3261)
3261	2017-06-30 13:27:16.954120	0x0000 (0), 0x1f3c (7996)	3.3.3.3	2.2.2.2	ICMP	98	0.567	Echo (ping) reply id=0x0002, seq=20513/8528, ttl=127 (request in 3260)
3506	2017-06-30 13:27:17.954603	0x0000 (0), 0x7435 (29749)	2.2.2.2	3.3.3.3	ICMP	98		Echo (ping) request id=0x0002, seq=20515/9040, ttl=127 (reply in 3507)
3507	2017-06-30 13:27:17.955181	0x0000 (0), 0x1f3d (7997)	3.3.3.3	2.2.2.2	ICMP	98	0.578	Echo (ping) reply id=0x0002, seq=20515/9040, ttl=127 (request in 3506)

Frame 2881: 98 bytes on wire (784 bits), 98 bytes captured (784 bits)  
 Ethernet II, Src: Vmware\_ca:ec:0a:00:0c:29:ca:ec:0a, Dst: Vmware\_0d:9b:ce:00:0c:29:0d:9b:ce  
 Internet Protocol Version 4, Src: 10.1.129.51, Dst: 10.1.129.52  
 Generic Routing Encapsulation (GRE)  
 Internet Protocol Version 4, Src: 3.3.3.3, Dst: 2.2.2.2  
 Internet Control Message Protocol

## Chapter 3 Precaution

- 1) Security functionality checking must configure with zone, zone of the egress port; for those who does not requires security functionalities, there is no needs to
- 2) It is not necessary to configure IP address for GRE tunnel.
- 3) The source address and destination address correspond to the egress interface IP address.
- 4) The GRE keys on both ends of the GRE tunnel must be the same, not necessary to configure.
- 5) Configure static route to import data into the GRE tunnel. Select the GRE tunnel interface as static route interface, next hop IP address is 0.0.0.0.





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