



**How to create a mesh VPN  
network using Tunnel Interfaces  
and OSPF**

**KNOWLEDGE  
DATABASE**

## How to create a mesh VPN network using Tunnel Interfaces and OSPF

### DESCRIPTION:

It is quite easy to implement a Hub and Spoke VPN network using both Tunnel Interface and OSPF but the transition to a mesh network can be troublesome if you want to redistribute the SonicWall's firewalled subnets.

### RESOLUTION:

If you simply use the option "Redistribute Connected Network" in your OSPF configuration, it will perfectly work in hub and spoke environment but will prevent transition to a mesh environment as a tunnel interface is considered a connected interface by the SonicWall, hence the "spoke to spoke" VPN tunnel will fail to be created as both spokes will try to contact each other via the already existing VPN tunnel to the Hub.

The screenshot shows the SonicWall configuration interface for Route Policies. The left sidebar lists various configuration categories, with 'Routing' selected. The main area displays a table of Route Policies. Policy 6 is highlighted with a red box. Above the table, there is a field to apply a metric to default routes received from Advanced Routing protocols, set to 110.

#	Source	Destination	Service	Gateway	Interface	Metric	Priority	Probe	Comment	Configure
1	Any	255.255.255.255/32	Any	0.0.0.0	X0	20	1			
2	Any	X1 Default Gateway	Any	0.0.0.0	X1	20	2			
3	Any	X0 Subnet	Any	0.0.0.0	X0	20	3			
4	Any	X1 Subnet	Any	0.0.0.0	X1	20	4			
5	Any	X2 Subnet	Any	0.0.0.0	X2	20	5			
6	Any	1.1.212.0/24	Any	0.0.0.0	216	110	6			
7	Any	10.10.212.0/24	Any	0.0.0.0	216	110	7			
8	Any	10.10.216.0/24	Any	0.0.0.0	216	110	8			
9	Any	10.71.10.0/24	Any	0.0.0.0	216	110	9			
10	Any	10.71.216.0/24	Any	0.0.0.0	216	110	10			
11	X1 IP	Any	Any	X1 Default Gateway	X1	20	11			
12	Any	0.0.0.0/0	Any	1.1.211.1	X1	20	12			

Figure 1

Apply the following metric to default routes received from Advanced Routing protocols:

Route Policies Items 1 to 12 (of 12)

View Style:  All Policies  Custom Policies  Default Policies

#	Source	Destination	Service	Gateway	Interface	Metric	Priority	Probe	Comment	Configure
1	Any	255.255.255.255/32	Any	0.0.0.0	X0	20	1			<input type="button" value="Change"/>
2	Any	X1 Default Gateway	Any	0.0.0.0	X1	20	2			<input type="button" value="Change"/>
3	Any	X0 Subnet	Any	0.0.0.0	X0	20	3			<input type="button" value="Change"/>
4	Any	X1 Subnet	Any	0.0.0.0	X1	20	4			<input type="button" value="Change"/>
5	Any	X2 Subnet	Any	0.0.0.0	X2	20	5			<input type="button" value="Change"/>
6	Any	1.1.211.0/24	Any	0.0.0.0	216	110	6			<input type="button" value="Change"/>
7	Any	10.10.216.0/24	Any	0.0.0.0	216	110	7			<input type="button" value="Change"/>
8	Any	10.71.216.0/24	Any	0.0.0.0	216	110	8			<input type="button" value="Change"/>
9	Any	10.10.211.0/24	Any	0.0.0.0	216	110	9			<input type="button" value="Change"/>
10	Any	10.71.211.0/24	Any	0.0.0.0	216	110	10			<input type="button" value="Change"/>
11	X1 IP	Any	Any	X1 Default Gateway	X1	20	11			<input type="button" value="Change"/>
12	Any	0.0.0.0/0	Any	1.1.212.1	X1	20	12			<input type="button" value="Change"/>

Buttons:

Status: Ready

Figure 2

In figure 1, you can see that a route exist to the second spoke (#6). In Figure 2, it should the equivalent on Spoke 2 (route #6).

The solution in to create a fully mesh environment is to use the OSPF "Passive" mode on the connected interface of all the mesh network's nodes.

When OSPF passive mode is enabled on an interface, neither OSPF packets are sent nor any received on this interface. It only results in that interface's network being advertised by OSPF to other OSPF peers as LSA 1 (Router) instead of LSA5 (External) when using "Redistribute Connected Networks".

To Activate the Passive mode on your SonicWall's internal networks, simply go to Network, Routing.

Then configure an internal network.

Network /

## Routing

### Routing Protocols

Routing Mode:

Interface (Zone)	RIP	Configure RIP	OSPFv2	Configure OSPF
X0 (LAN)	RIP Disabled	<input type="button" value="Change"/>	OSPF Disabled	<input type="button" value="Change"/>
X1 (WAN)	RIP Disabled	<input type="button" value="Change"/>	OSPF Disabled	<input type="button" value="Change"/>

Then simply choose the mode "Passive"

#### Interface X0 (LAN) OSPFv2 Configuration

OSPFv2:	Passive	OSPF Area:	0
Dead Interval (1 - 65535):	40	OSPFv2 Area Type:	Normal
Hello Interval (1 - 65535):	10	Interface Cost (1 - 65535):	<input type="checkbox"/> Auto
Authentication:	Disabled	Router Priority: (0 - 255):	1
Password:			