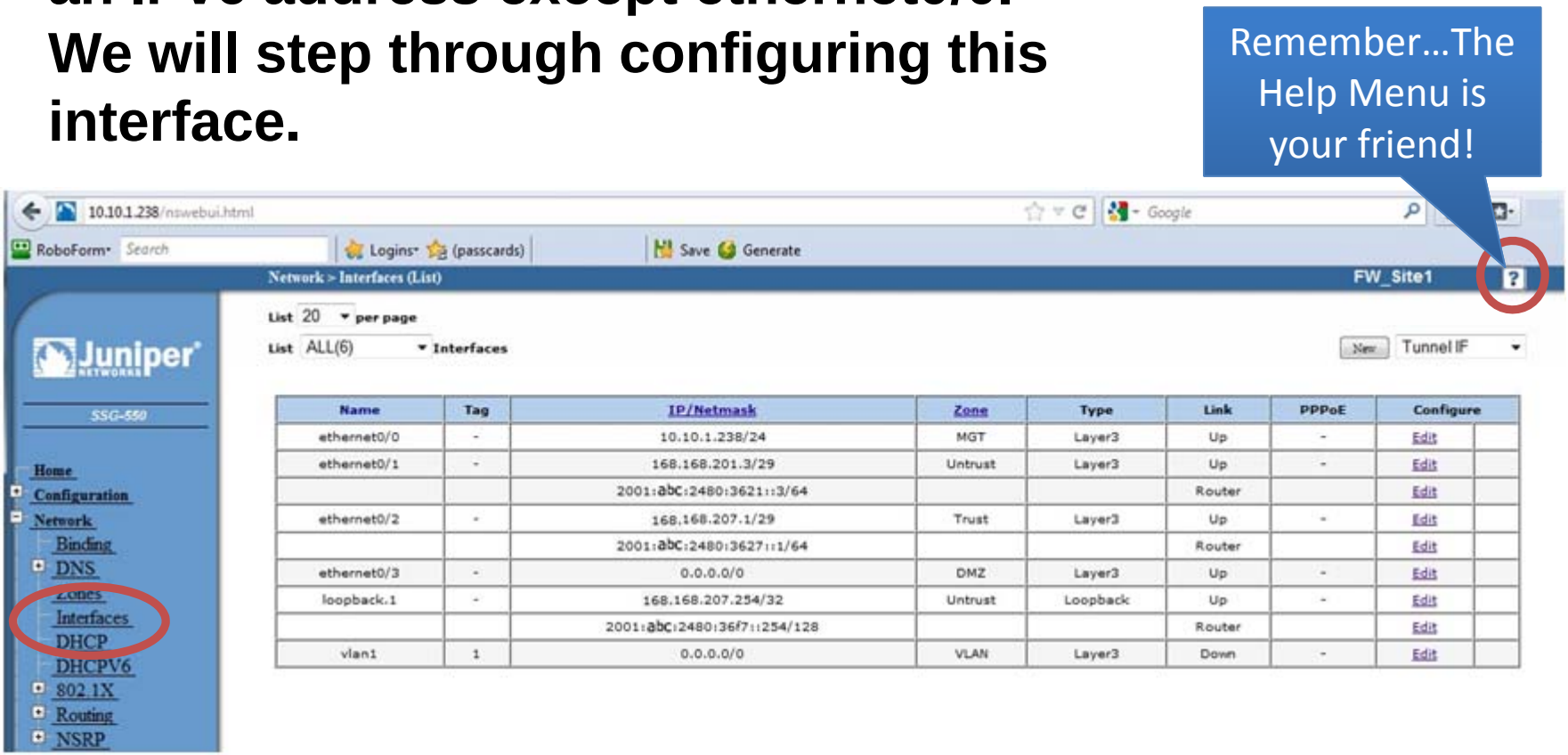
Juniper Netscreen Security Device

Netscreen Firewall - Interfaces

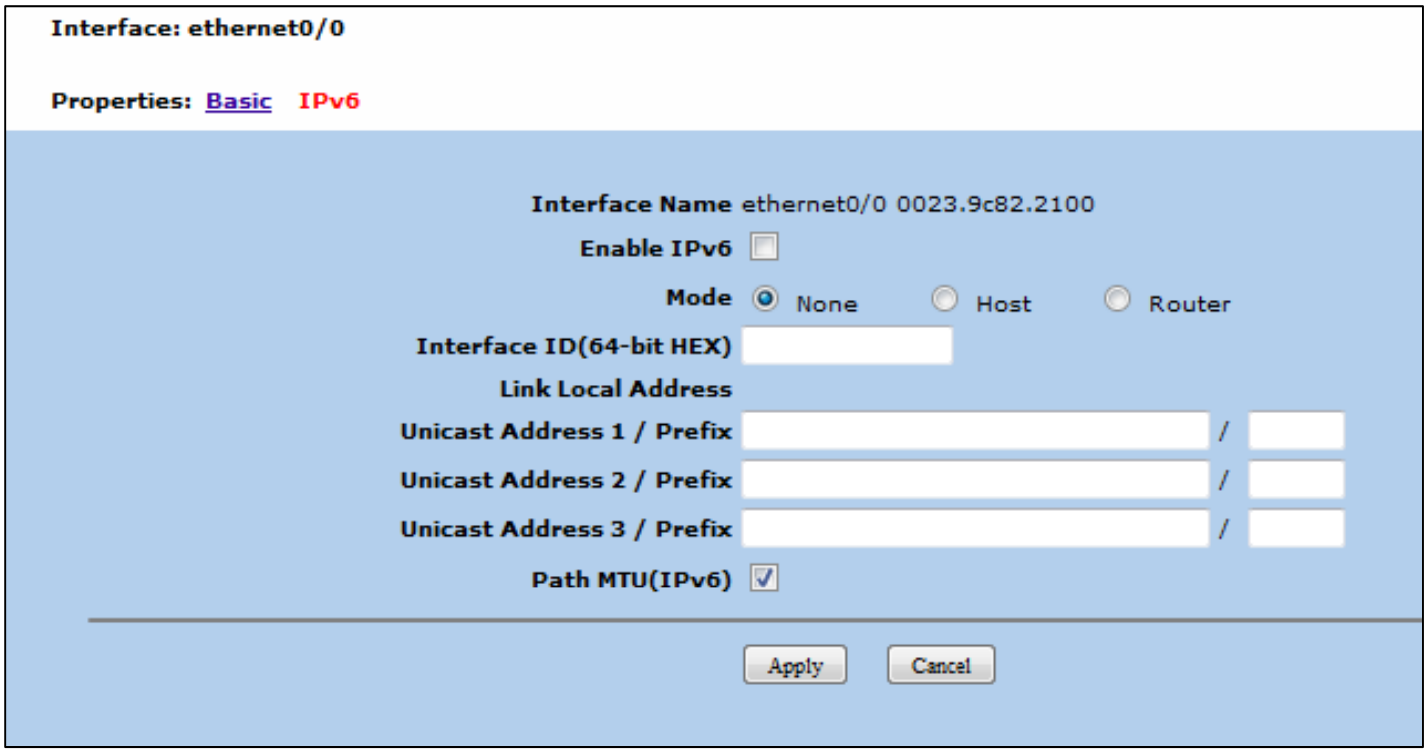
- **Below is a screen shot for a Netscreen Firewall interface. All interfaces have an IPv6 address except ethernet0/0. We will step through configuring this interface.**



Name	Tag	IP/Netmask	Zone	Type	Link	PPPoE	Configure
ethernet0/0	-	10.10.1.238/24	MGT	Layer3	Up	-	Edit
ethernet0/1	-	168.168.201.3/29	Untrust	Layer3	Up	-	Edit
		2001:abc:2480:3621::3/64			Router		Edit
ethernet0/2	-	168.168.207.1/29	Trust	Layer3	Up	-	Edit
		2001:abc:2480:3627::1/64			Router		Edit
ethernet0/3	-	0.0.0.0/0	DMZ	Layer3	Up	-	Edit
loopback.1	-	168.168.207.254/32	Untrust	Loopback	Up	-	Edit
		2001:abc:2480:36f7::254/128			Router		Edit
vlan1	1	0.0.0.0/0	VLAN	Layer3	Down	-	Edit

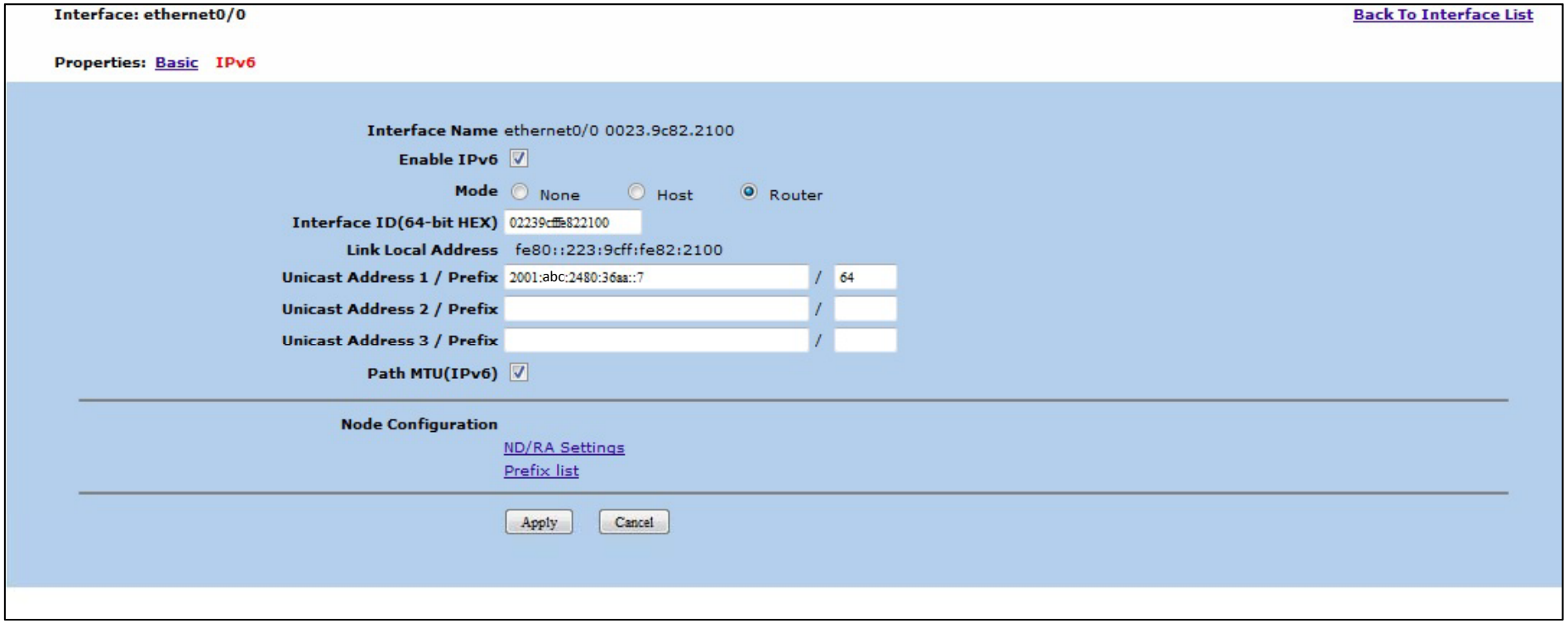
Netscreen Firewall – IPv6

- To configure, enable IPv6, determine mode and enter IPv6 address with prefix.
- Use Host Mode to accept RA messages.
- User Router Mode to send RA messages.



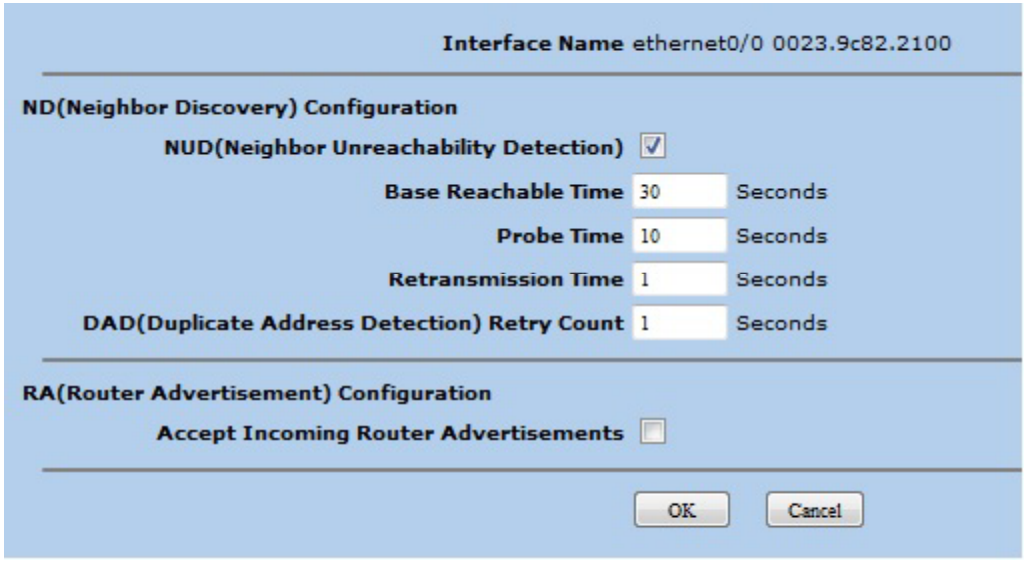
Netscreen – Configure IPV6

- **After configuring the IPv6 addresses and clicking apply, the Neighbor Discovery (ND) and Router Advertisement (RA) settings are now available for configuration.**



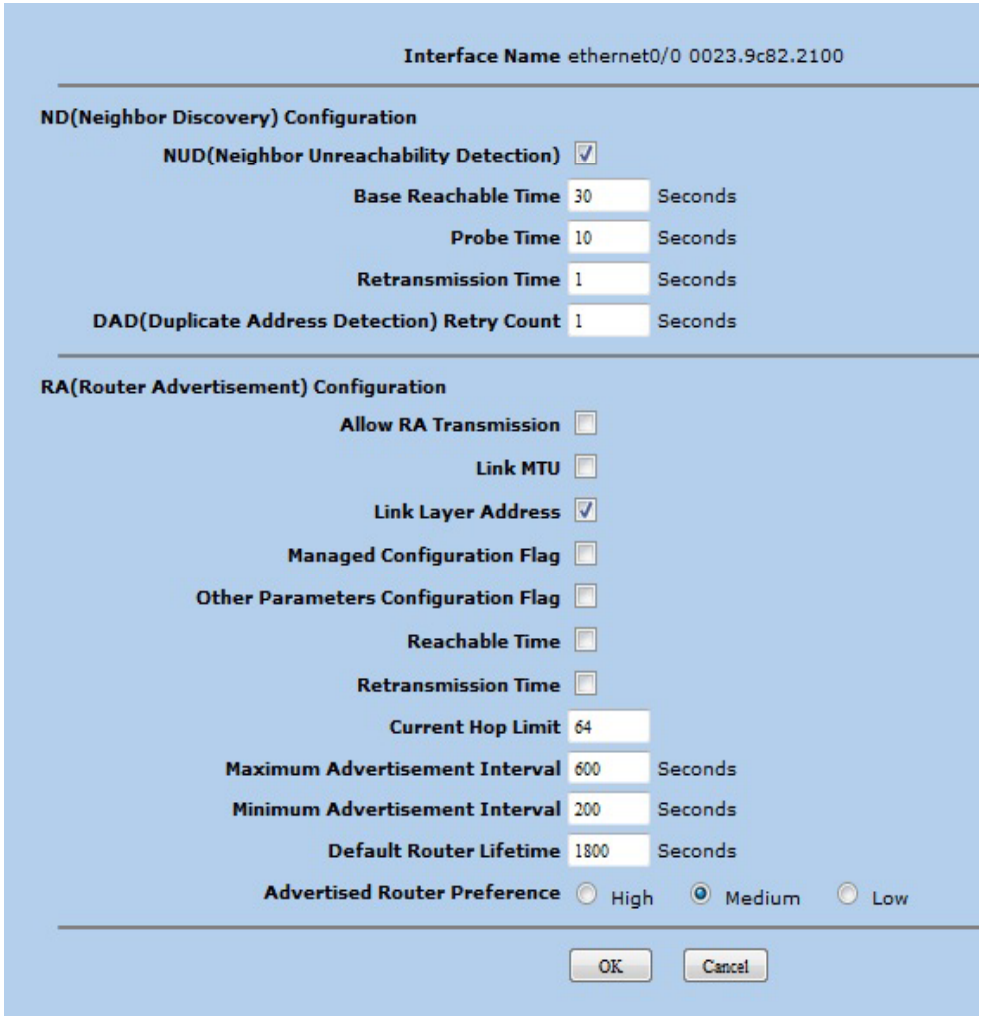
Netscreen – ND/RA Settings (Host)

- If using Host Mode, determine if you would like to accept incoming router advertisements.
- Accept Incoming Router Advertisements learns of the existence and identity of IPv6 routers by accepting Router Advertisement (RA) messages.



Netscreen – ND/RA Settings (Router)

- Use RA Transmission to learn of the existence and identity of other IPv6 routers.
- Link MTU advertises the link-MTU in router advertisements.
- Link Layer Address enables the Link Layer Address flag, which includes the link-layer (MAC) address of the router in outgoing RA messages.



Netscreen –IPv6 Route Table

- **Text**

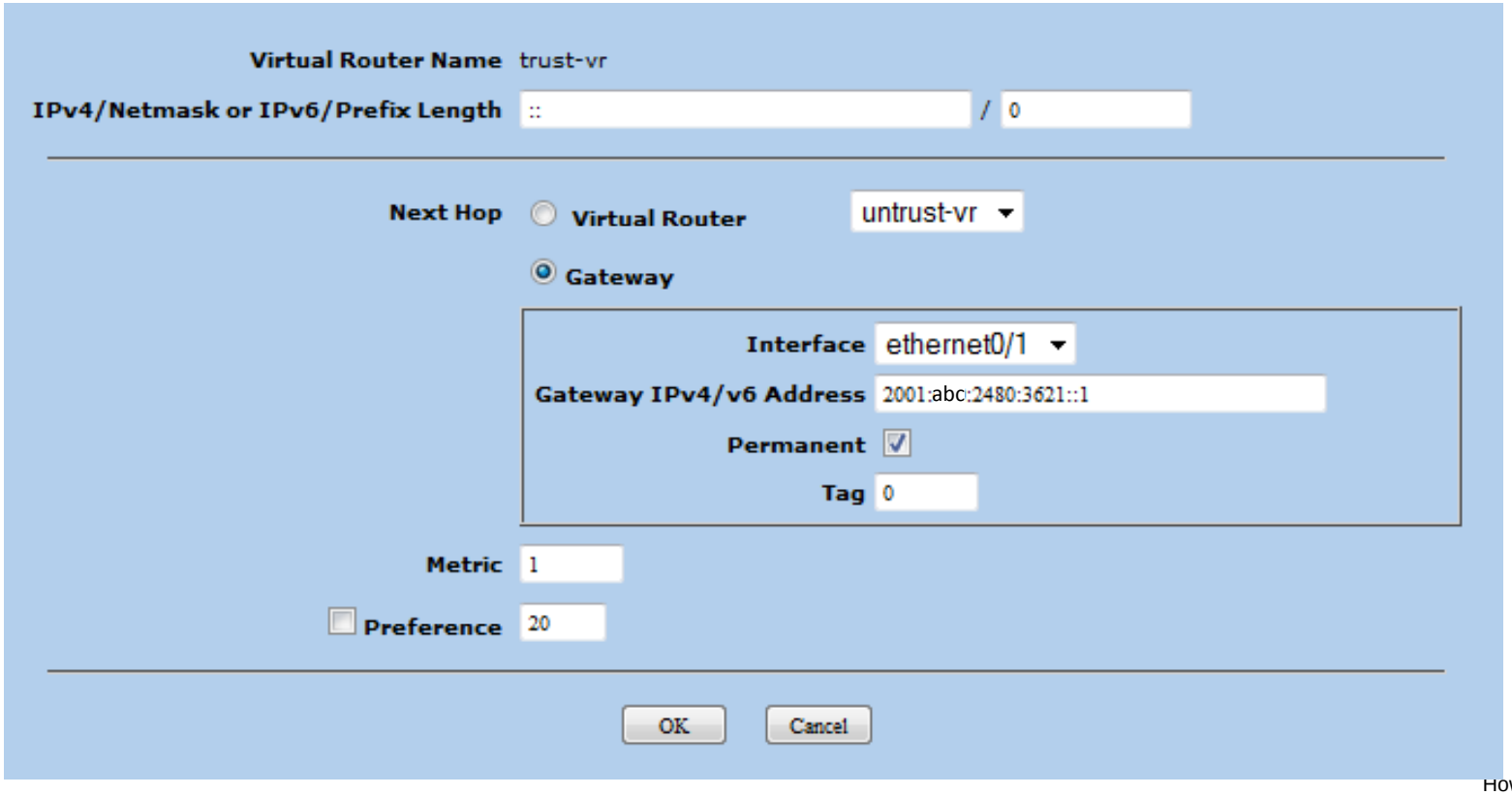
IPv6 Routing Table -- trust-vr

	IP/Prefix	Gateway	Interface	Protocol	Preference	Metric	Vsys	Configure
*	2001:abc:2480:3621::3/64	::	ethernet0/1	C			Root	-
*	2001:abc:2480:3621::3/128	::	ethernet0/1	H			Root	-
*	2001:abc:2480:3627::1/64	::	ethernet0/2	C			Root	-
*	2001:abc:2480:3627::1/128	::	ethernet0/2	H			Root	-
*	2001:abc:2480:36f7::254/128	::	loopback.1	C			Root	-
*	2001:abc:2480:36f7::254/128	::	loopback.1	H			Root	-
*	2001:abc:2480:36aa::7/64	::	ethernet0/0	C			Root	-
*	2001:abc:2480:36aa::7/128	::	ethernet0/0	H			Root	-

* Active route C Connected I Imported eB EBGP O OSPF E1 OSPF external type 1 H Host Route
P Permanent S Static A Auto-Exported iB IBGP R RIP E2 OSPF external type 2
D Dynamic N NHRP

Netscreen – Add IPv6 Default Route

- Add '::/0' to denote default route (all IPv6 addresses)
- Add next-hop IPv6 address



Netscreen – Verify Default IPv6 Route

- **Verify the newly added IPv6 default route is now in the routing table and is active.**

IPv6 Routing Table -- trust-vr

	IP/Prefix	Gateway	Interface	Protocol	Preference	Metric	Vsys	Configure
*	2001:abc:2480:3621::3/64	::	ethernet0/1	C			Root	-
*	2001:abc:2480:3621::3/128	::	ethernet0/1	H			Root	-
*	2001:abc:2480:3627::1/64	::	ethernet0/2	C			Root	-
*	2001:abc:2480:3627::1/128	::	ethernet0/2	H			Root	-
*	2001:abc:2480:36f7::254/128	::	loopback.1	C			Root	-
*	2001:abc:2480:36f7::254/128	::	loopback.1	H			Root	-
*	2001:abc:2480:36aa::7/64	::	ethernet0/0	C			Root	-
*	2001:abc:2480:36aa::7/128	::	ethernet0/0	H			Root	-
*	::/0	2001:abc:2480:3621::1	ethernet0/1	SP	20	1	Root	Remove

* Active route C Connected I Imported eB EBGP O OSPF E1 OSPF external type 1 H Host Route
P Permanent S Static A Auto-Exported iB IBGP R RIP E2 OSPF external type 2
D Dynamic N NHRP

Netscreen Policies – Allow ICMP6

- **As with IPv4, do not block all ICMP6!**
- **See RFC4890 - Recommendations for Filtering ICMPv6 Messages in Firewalls**
- **Traffic That Must Not Be Dropped**
  - Destination Unreachable (Type 1) - All codes
  - Packet Too Big (Type 2)
  - Time Exceeded (Type 3) - Code 0 only
  - Parameter Problem (Type 4) - Codes 1 and 2 only
  - Echo Request (Type 128)
  - Echo Response (Type 129)
- **This is not all inclusive, there are other recommendations in RFC.**

Netscreen IPv6 Policies

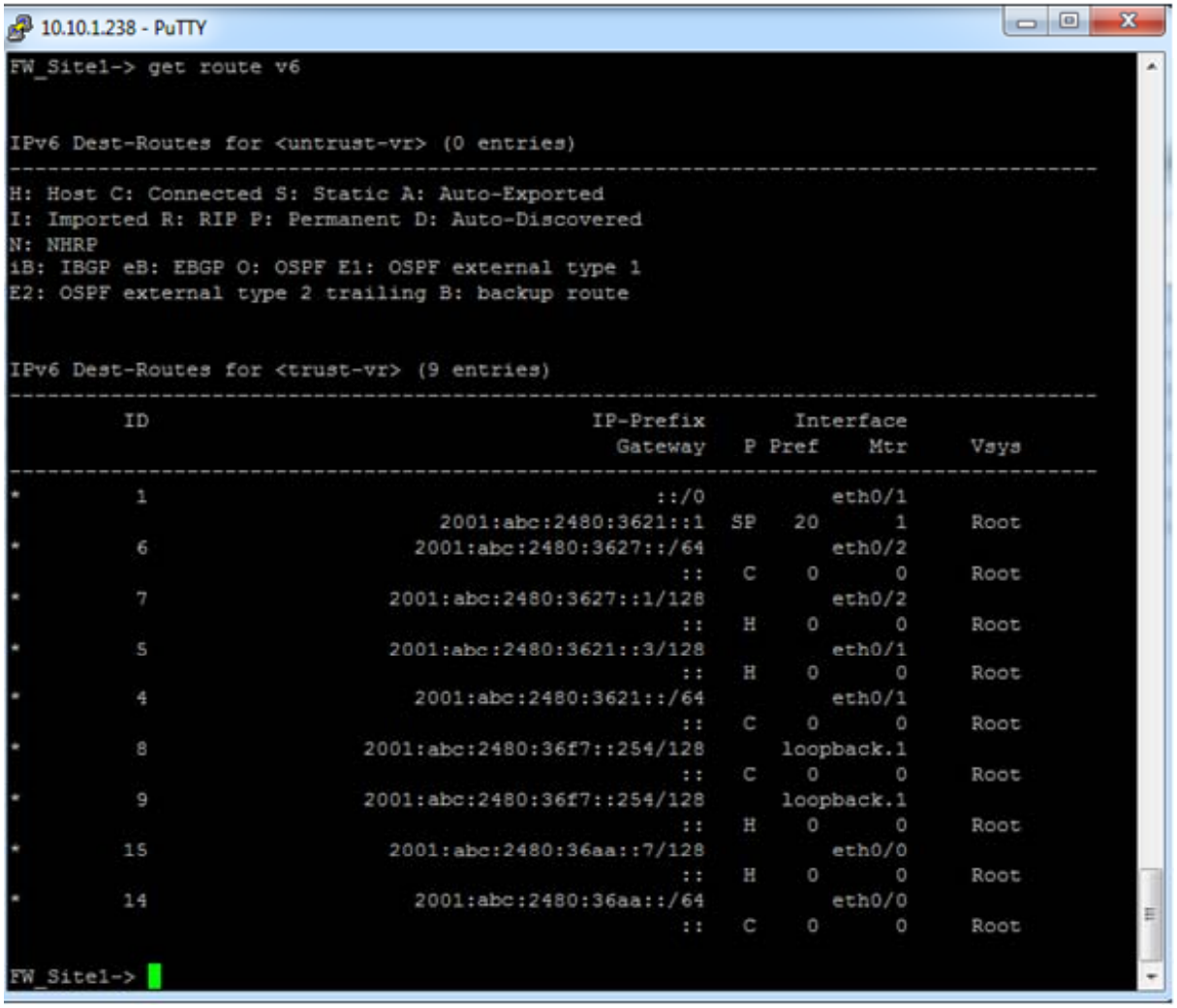
- **IPv6 policies are separate policies from IPv4.**
- **Can add policy elements & groups for IPv6 just as IPv4.**
- **Implement policies for IPv6 the same as for IPv4.**

From SAN_Zone To Untrust, total policy: 6

ID	Source	Destination	Service	Action	Options	Configure			Enable	Move
994276	Any-IPv4	127.32.148.160/28	Good ICMP and Traceroute	✓		Edit	Clone	Remove	☑	↕ ➡
994275	Any-IPv6	2001:abc:2480:a000::/64	Good ICMP6 and Traceroute	✓		Edit	Clone	Remove	☑	↕ ➡
994272	Any5 IPv4 - 12732.148.172/32 Any IPv4 - 127.32.148.175/32 Any6 IPv4 - 127.32.148.174/32 Any7 IPv4 - 127.32.148.173/32	Any4 IPv4 - 127.32.240.95/32 Any3 IPv4 - 127.32.240.19/32 Any1 IPv4 - 127.32.240.138/32 Any2 IPv4 - 127.32.240.120/32	ANY	✓		Edit	Clone	Remove	☑	↕ ➡
994269	Any-IPv4	Any-IPv4	ANY	✗		Edit	Clone	Remove	☑	↕ ➡
994274	Any5 IPv6 - 2001:abc:2480:a000::90/64 Any IPv6 - 2001:abc:2480:a000::93 Any6 IPv6 - 2001:abc:2480:a000::92 Any7 IPv6 - 2001:abc:2480:a000::91/64	Any4 IPv6 - 2001:abc:430::240:95/64 Any3 IPv6 - 2001:abc:430::240:119/64 Any1 IPv6 - 2001:abc:430::240:138/64 Any2 IPv6 - 2001:abc:430::240:120	ANY	✓		Edit	Clone	Remove	☑	↕ ➡
994270	Any-IPv6	Any-IPv6	ANY	✗		Edit	Clone	Remove	☑	↕ ➡

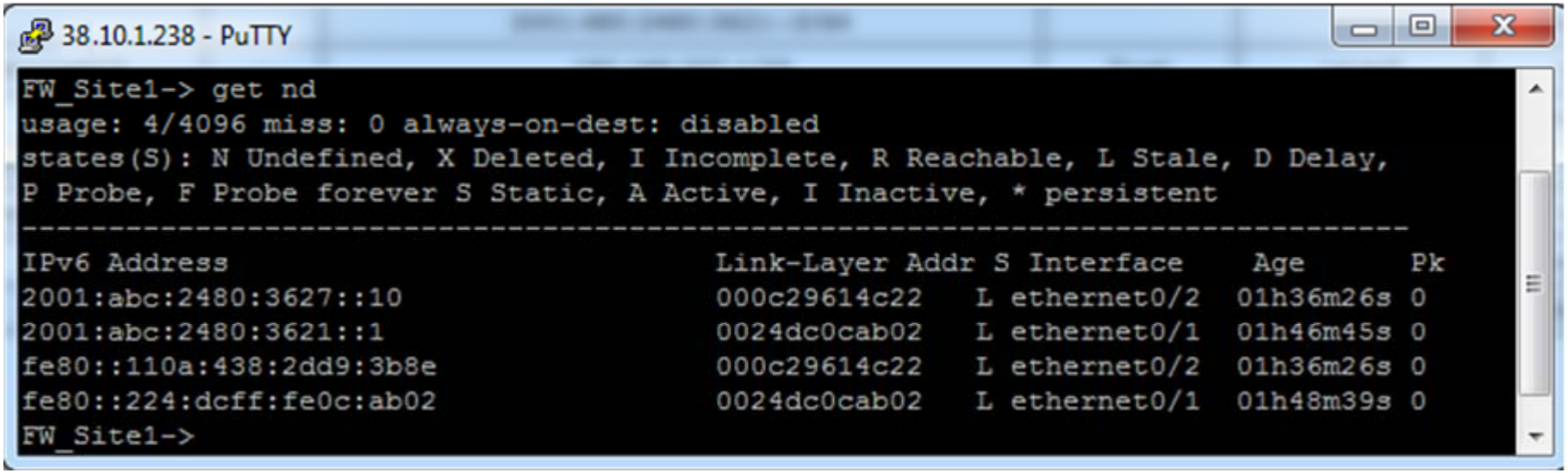
Netscreen CLI – Verify Routing

- **Use the ‘get route v6’ to view IPv6 routing table.**



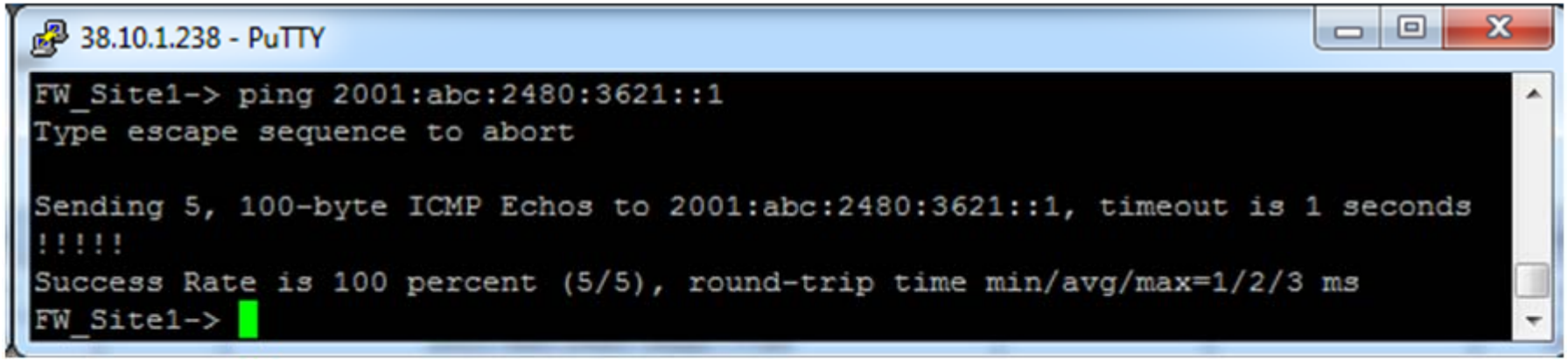
Netscreen CLI – Verify IPv6 Neighbors

- **Use ‘get ndp’ to determine IPv6 neighbors.**

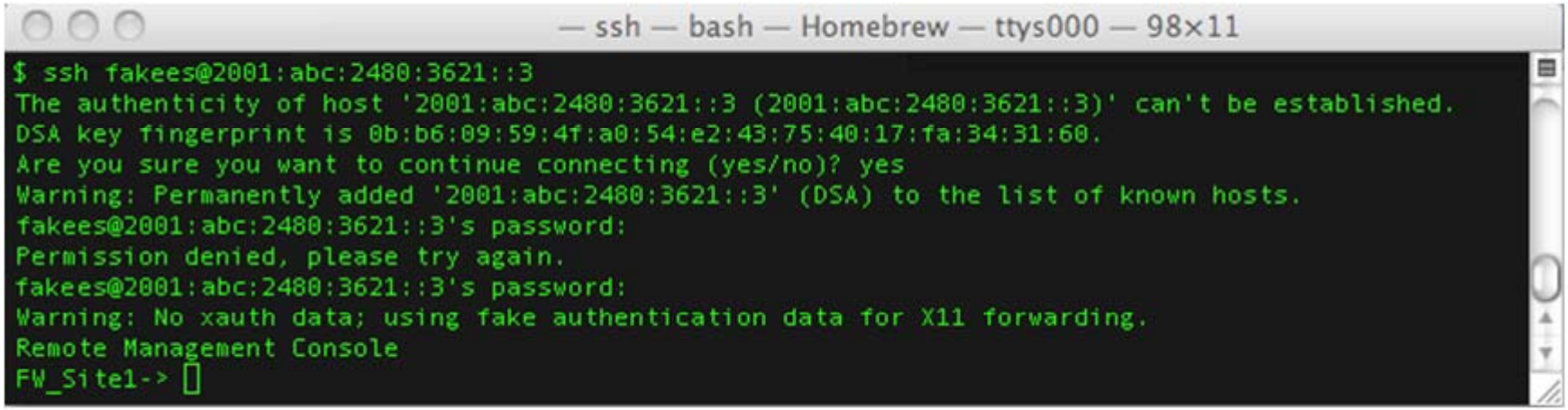


Netscreen CLI – Verify Reachability

- **Use the Ping command to ping the upstream router.**



- **SSH to the IPv6 Firewall Address.**



Netscreen CLI - Commands

IPv6 Interface Configuration –

```
set interface ethernet0/1 ip 168.168.201.3/29
set interface "ethernet0/1" ipv6 mode "router"
set interface "ethernet0/1" ipv6 ip 2001:abc:2480:3621::3/64
set interface "ethernet0/1" ipv6 enable
set interface ethernet0/1 route
```

IPv6 Router Advertisement Settings –

```
set interface ethernet0/1 ipv6 ra prefix 2001:abc:2480:3621::/64 autonomous onlink
set interface ethernet0/1 ipv6 ra link-address
set interface ethernet0/1 ipv6 ra transmit
set interface ethernet0/1 ipv6 ra link-mtu
set interface ethernet0/1 ipv6 nd nud
```

IPv6 Default Route –

```
set route ::/0 interface ethernet0/1 gateway 2001:abc:2480:3621::1 permanent
```

Policy Using ‘Multiple’ Source and ‘Multiple’ Destination –

```
set policy id 994274 from "SAN_Zone" to "Untrust” “Any9 IPv6 - 2001:abc:2480:a000::90/64" “Any10 IPv6 - 2001:abc:4300::240:95/64" "ANY" permit
set policy id 994274
set src-address “Any11 IPv6 - 2001:abc:2480:a000::93"
set src-address “Any12 IPv6 - 2001:abc:2480:a000::92"
set src-address “Any13 IPv6 - 2001:abc:2480:a000::91/64"
set dst-address “Any14 IPv6 - 2001:abc:4300::2400:119/64"
set dst-address “Any15 IPv6 - 2001:abc:4300::2400:138/64"
set dst-address “Any16 IPv6 - 2001:abc:4300::2400:120”
```

Set Policy Group –

```
set group address "SAN_Zone" "SAN_Servers"
set group address "SAN_Zone" "SAN_Servers" add "Any11 IPv4 - 127.32.148.172/32"
set group address "SAN_Zone" "SAN_Servers" add “Any12 IPv4 - 127.32.148.175/32"
set group address "SAN_Zone" "SAN_Servers" add “Any13 IPv4 - 127.32.148.174/32"
set group address "SAN_Zone" "SAN_Servers" add “Any14 IPv4 - 127.32.148.173/32"
```