ITCorporation

CONFIGURING NETWORK MONITOR POLICIES TO MONITOR A NETWORK PATH VIABILITY

KNOWLEDGE DATABASE

CONFIGURING NETWORK MONITOR POLICIES TO MONITOR A NETWORK PATH VIABILITY

DESCRIPTION:

Configuring Network Monitor Policies to monitor a network path viability

RESOLUTION:

The **Network | Network Monitor** page provides a flexible mechanism for monitoring network path viability. The results and status of this monitoring are displayed dynamically on the **Network Monitor** page, and are also provided to affected client components and logged in the system log.

Each custom NM (Network Monitor) policy defines a destination Address Object to be probed. This **Address Object** may be a Host, Group, Range, or FQDN. When the destination **Address Object** is a Group, Range or FQDN with multiple resolved addresses, Network Monitor probes each probe target and derives the NM Policy state based on the results.

The **Status** column elements displays the status of the network connection to the target:

- Green indicates that the policy status is UP.
- Red indicates that the policy status is DOWN.
- Yellow indicates that the policy status is UNKNOWN.

You can view details of the probe status by hovering your mouse over the green, red, or yellow light for a policy.

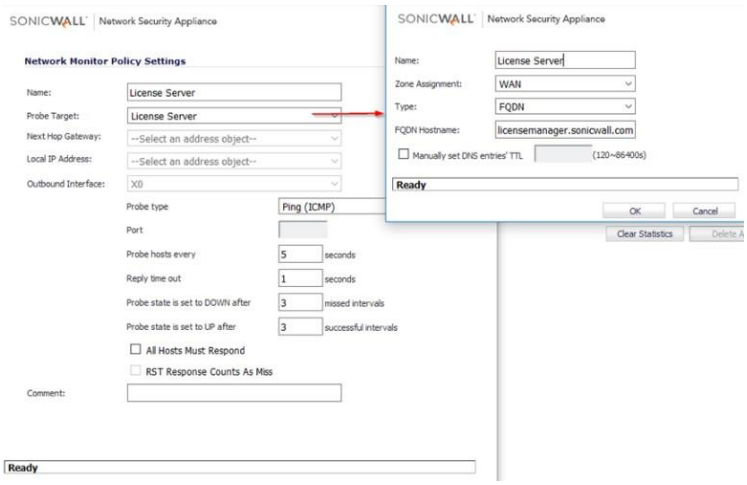
The following information is displayed in the probe status:

- The percent of successful probes.
- The number of resolved probe targets.
- The total number of probes sent.
- The total number of successful probe responses received.
- A list of resolved probe targets, and their status.

Adding a Network Monitor Policy

To add a network monitor policy on the SonicWall security appliance, perform these steps:

Step 1 From the **Network | Network Monitor** page, click the **Add** button. The **Add Network Monitor Policy** window is displayed.



Step 2 Enter the following information to define the network monitor policy:

- **Name** - Enter a description of the **Network Monitor** policy.
- **Probe Target** - Select the Address Object or Address Group to be the target of the policy. Address Objects may be Hosts, Groups, Ranges, or FQDNs object. Objects within a Group object may be Host, Range, or FQDN Address Objects. You can dynamically create a new address object by selecting Create New Address Object.
- **Probe Type** - Select the appropriate type of probe for the network monitor policy:

– **Ping (ICMP)** - This probe uses the route table to find the egress interface and next-hop for the defined probe targets. A Ping echo-request is sent out the egress interface with the source IP address of the egress interface. An echo response must return on the same interface within the specified **Response Timeout** time limit for the ping to be counted as successful.

– **TCP** - This probe uses the route table to find the egress interface and next-hop for the defined probe targets. A TCP SYN packet is sent to the probe target with the source IP address of the egress interface. A successful response will be counted independently for each probe target when the target responds with either a SYN/ACK or RST via thesame interface within the Response Timeout time window. When a SYN/ACK is received, a RST is sent to close the connection. If a RST is received, no response is returned.

– **Ping (ICMP) - Explicit Route** - This probe bypasses the route table and uses the source IP address of the interface specified in the **Outbound Interface** pull down menu to send a Ping to the targets. If a **Next Hop Gateway** is not specified, the probe assumes that the targets are directly connected to the **Outbound Interface**'s network.

– **TCP - Explicit Route** - This probe bypasses the route table and uses the source IP address of the interface specified in the **Outbound Interface** pull down menu to send a TCP SYN packet to the targets. If a **Next Hop Gateway** is not specified, the probe assumes that the targets are directly connected to the **Outbound Interface**'s network. When a SYN/ACK is received, a RST is sent to close the connection. If a RST is received, no response is returned.

– **Next Hop Gateway** - Manually specifies the next hop that is used from the outbound interface to reach the probe target. This option must be configured for **Explicit Route** policies. For **non-Explicit Route** policies, the probe uses the appliance's route table to determine the egress interface to reach the probe target. If a **Next Hop Gateway** is not specified, the probe assumes that the targets are directly connected to the **Outbound Interface**'s network.

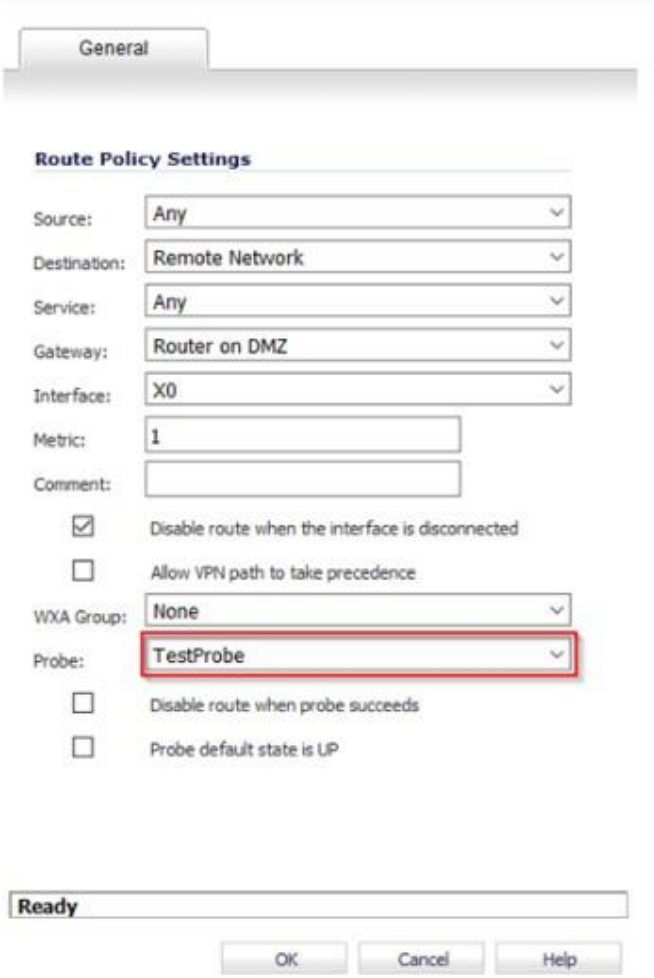
- **Outbound Interface** - Manually specifies which interface is used to send the probe. This option must be configured for **Explicit Route** policies. For **non-Explicit Route** policies, the probe uses the appliance's route table to determine the egress interface to reach the probe target.
- **Port** - Specifies the destination port of target hosts for TCP probes. A port is not specified for Ping probes.

Step 3 Optionally, you can adjust the following thresholds for the probes:

- **Probe hosts every** - The number of seconds between each probe. This number cannot be less than the **Reply time out** field.
- **Reply time out** - The number of seconds the **Network Monitor** waits for a response for each individual probe before a missed-probe will be counted for the specific probe target. The **Reply time out** cannot exceed the **Probe hosts every** field.
- **Probe state is set to DOWN after** - The number of consecutive missed probes that triggers a host state transition to DOWN.
- **Probe state is set to UP after** - The number of consecutive successful probes that triggers a host state transition to UP.
- **All Hosts Must Respond** - Selecting this checkbox specifies that all of the probe target **Host States** must be UP before the **Policy State** can transition to UP. If not checked, the **Policy State** is set to UP when any of the **Host States** are UP.

Step 4 Optionally, you can enter a descriptive comment about the policy in the **Comment** field.

Step 5 Click **Add** to submit the **Network Monitor** policy.



Example 1:
Using Network Monitor Probes in Policy Based Routing

Network Monitor policy can be used, when configuring a static route, as a condition to dynamically enable or disable the static route. When a **Network Monitor policy** is used, the static route is dynamically disabled or enabled, based on the state of the probe for the policy.

In the example above, a static route has been created to route traffic to a remote network which is reachable through a router on the DMZ. Under the **Probe** a **Network Monitor Policy** has been selected which pings a host on the remote network. Failure of the ping will result in disabling this route. Typical configurations will not check the **Disable route when probe succeeds** checkbox, because typically administrators will want to disable a route when a probe to the route's destination fails. This option is provided to give administrators added flexibility for defining routes and probes.

The **Probe default state is UP** option is to have the route consider the probe to be successful (i.e. in the "UP" state) when the attached Network Monitor policy is in the "UNKNOWN" state. This is useful to control the probe-based behavior when a unit of a High Availability pair transitions from "IDLE" to

"ACTIVE," because this transition sets all Network Monitor policy states to "UNKNOWN."

Example 2:
Using Network Monitor policies in Route Policies to dynamically failover between VPN and MPLS connection

This following article illustrates a scenario wherein two sites with SonicWall UTM devices are connected to each other over a direct connection or an MPLS connection. A site to site VPN connection is defined concurrently between the two sites. The primary connection between the two sites is the direct or the MPLS connection and when it fails, traffic would automatically be routed through a site to site VPN (policy based).

For detailed instructions please refer to **KB ID 8445**

Logs messages:

Here is a sample log message when the Network Monitoring probe goes Down

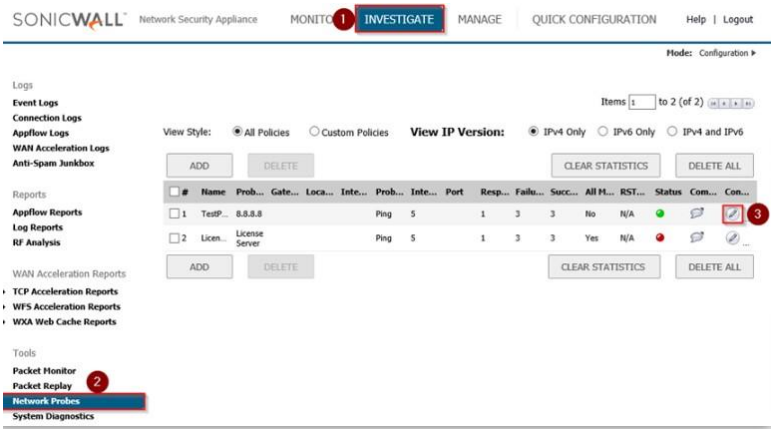
Alert	Network Monitor	Network Monitor: Policy test status is DOWN
Alert	Network Monitor	Network Monitor: Host 192.168.168.65 (Policy:test) is offline

SonicOS 6.5 was released September 2017. This release includes significant user interface changes and many new features that are different from the SonicOS 6.2 and earlier firmware. The below resolution is for customers using SonicOS 6.5 and later firmware.

The **Investigate** in the top navigation menu Under **Network Probes** page provides a flexible mechanism for monitoring network path viability. The results and status of this monitoring are displayed dynamically on the **Network Probes** page, and are also provided to affected client components and logged in the system log.

Each custom NM (Network Probe) policy defines a destination Address Object to be probed. This **Address Object** may be a Host, Group, Range, or FQDN. When the destination **Address Object** is a Group, Range or FQDN with multiple resolved addresses, Network Monitor probes each probe target and derives the NM Policy state based on the results.

1. Click **Investigate** in the top navigation menu.
2. Click on **Network Probes**.
3. Click on **configure** button to configure network probes policy.



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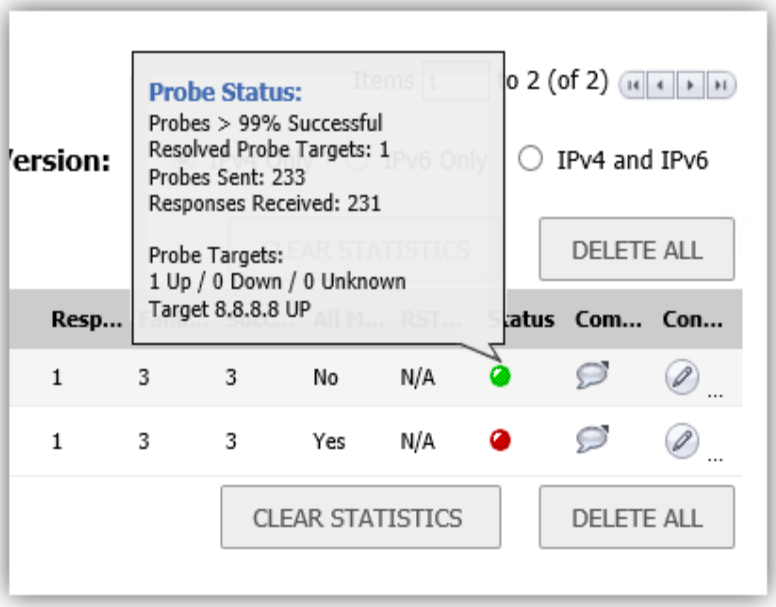

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2. Click on **Network Probes**.
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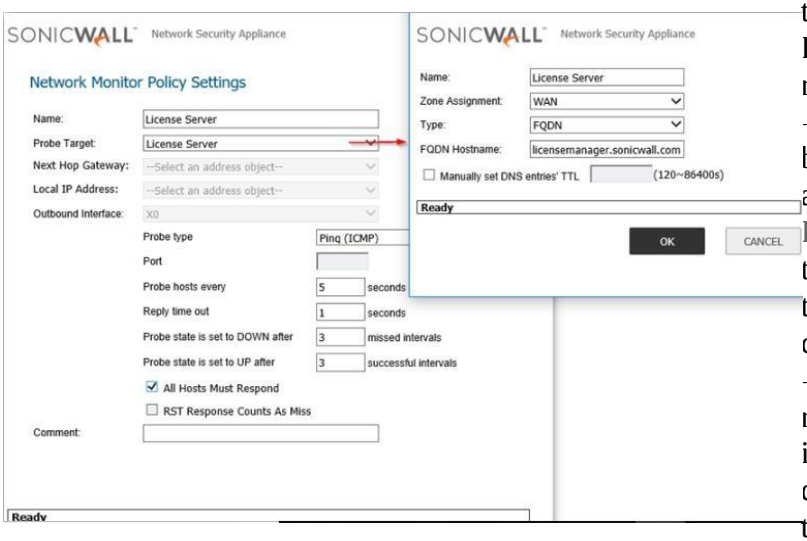
The **Add Network Monitor Policy** window is displayed.



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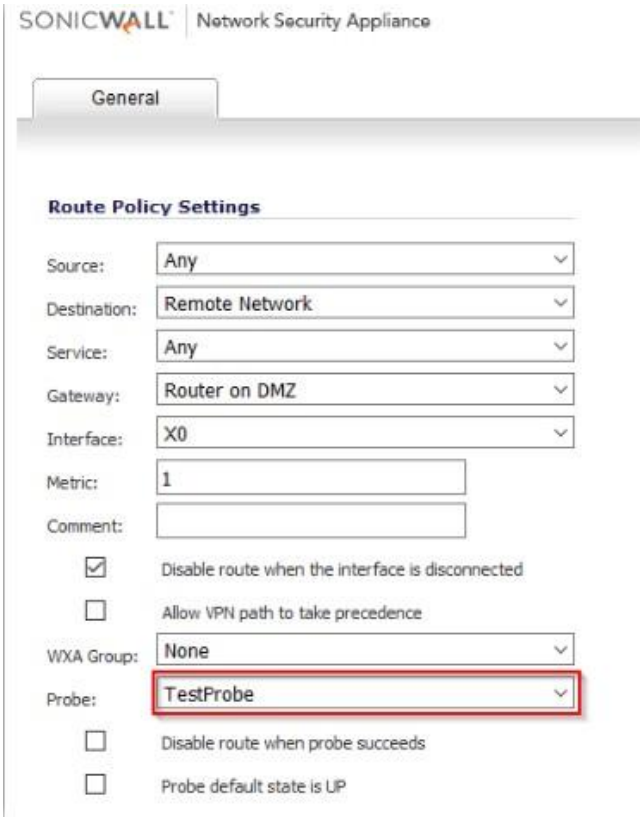

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Logs messages:
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1. Click **Investigate** in the top navigation menu.
2. Click on **Event Logs**