Configuring Service Policies and Profiles

This section includes the following topics:

Service Path Configuration Workflow

Service paths enable you to apply multiple services to VM traffic by binding a sequence of services to a specific port profile.

The following table identifies the tasks required to configure a service path, related topics, and the minimum role required for each task:

Task	Related Topic	Role Required
1. Confirm that the prerequisites are met.	See Prerequisites for Configuring Service Paths, on page 2.	admin
2. Create the tenant and, if needed, the subordinate organization in which the service path will reside.	See Creating a Tenant.	admin
3. Add a port profile to a Nexus 1000V VSM. **Note** You can perform this step at any time before Step 6.	See Adding a Port Profile to a VSM, on page 3.	admin
4. Create service nodes for inclusion in the service path.	See Creating a Service Node, on page 4.	tenant-admin

Task	Related Topic	Role Required
5. Create a service path with service entries.	See Creating a Service Path, on page 5.	tenant-admin
6. Bind the service path to the VSM port profile.	See Binding a Service Path to a Port Profile, on page 6.	tenant-admin

Prerequisites for Configuring Service Paths

The following table describes the prerequisites for configuring service paths:

Item	Requirement
Tenant	Has at least one of the following assigned: • Compute firewall • Edge firewall • vPath-enabled load balancer using Citrix NetScaler 1000V
Compute firewall	• Has a security policy assigned. • Has a policy set with policies and rules for the compute firewall. • The policy set is bound to the compute firewall security policy. • A VLAN is provided if the firewall is to be used as a Layer 2 adjacent service node. • The VLAN exists on the VSM.
Edge firewall	• Has an edge device profile defined. • Has an edge security profile defined. • Has a policy set with policies and rules for the edge firewall. • An inbound security profile is attached to the outside interface of the edge firewall. • A VLAN is provided on the data interface because the edge firewall can be used only as a Layer 2 adjacent service node. • The VLAN exists on the VSM.
Load Balancer	Has vPath enabled.

Item	Requirement
Nexus 1000V	• Is deployed. • Is registered with Prime Network Services Controller.
Services	The following services are deployed: • VSG • ASA 1000V • Citrix NetScaler 1000V

Adding a Port Profile to a VSM

Prime Network Services Controller enables you to add a port profile to an enterprise VSM. You cannot add a port profile to a cloud VSM.

If an enterprise VSM has preconfigured port profiles or virtual service configurations that were created outside of Prime Network Services Controller, these configurations will not be displayed in the Prime Network Services Controller GUI.

If you create a port profile in Prime Network Services Controller and specify a VLAN, you must create the VLAN itself on the VSM and then add it to the necessary system and uplink port profiles. The same steps apply for VLANs that you specify while creating service devices, such as edge or compute firewalls: you must create the VLANs on the devices, and then add them to the appropriate system and uplink port profiles.

Before You Begin

Confirm the following:

- An enterprise VSM is registered and in the *applied* state in Prime Network Services Controller by choosing **Resource Management > Resources > VSMs**.
- You have admin privileges.

Procedure

Step 1 Choose **Resource Management > Resources > VSMs >** *vsm*, then click **Edit**.

Step 2 Above the Port Profile table, click **Add**.

Step 3 In the Add Port Profile dialog box, enter the required information as follows, then click **OK**:

1 In the General tab, provide the following information:

- Name
- Description
- State: Enabled or Disabled.

- Type of Binding: Dynamic, Ephemeral, or Static.
- Binding Option: Auto, AutoExpand, or None.
- Maximum and minimum number of ports.
- Tenant or subordinate organization in which to create the port profile.

2 In the L2 Network Membership tab, provide the following information:

- Capability: Bridge Domain or VLAN.
- Mode: Access or Trunk
- VLAN number (Access mode) or VLAN range (Trunk mode).

The NICs table is populated automatically after you bind a service path to the port profile and the service path is used the first time. For more information about configuring a service path and binding it to a port profile, see Service Path Configuration Workflow, on page 1.

Creating a Service Node

A service node identifies a virtual service device that can be used in a service path and provides basic configuration for that device.

The following restrictions apply when creating a service node:

- If you create multiple service nodes for a specific logical service device, the adjacencies must be different.
- You cannot create service nodes under different tenants with the same data IP address, VLAN, and adjacency, even if the logical service devices are different.

If either of these situations occurs, an error message will be generated when you attempt to bind the service path to the VSM port profile.

Before You Begin

Confirm the following:

- A logical device (compute firewall, edge firewall, or load balancer) exists.
- You have Tenant Management privileges.

Procedure

Step 1 Choose **Policy Management > Service Policies > root >** *tenant* **> Policy Helpers > Service Node**, and then click **Add Service Node**.

Step 2 In the Add Service Node dialog box, provide the following information, and then click **OK**:

- Name
- Service Type: Compute Firewall, Edge Firewall, or Load Balancer.

- Network Service: Name of the logical service device.
- Fail Mode: Action to take if the service node loses connectivity:
  - Close—Drop the packets.
  - Open—Forward the packets.
- Adjacency Type: Layer 2 or Layer 3.

Creating a Service Path

After you create service nodes, you can create a service path that uses the nodes. Traffic using the service path moves from one service node to another in the sequence that you specify.

Note You cannot use a service node more than once in a service path.

Before You Begin

Confirm that you have Tenant Management privileges.

Procedure

Step 1 Choose **Policy Management > Service Policies > root >** *tenant* **> Policies > Service Path**, and then click **Add Service Path**.

Step 2 In the Add Service Path dialog box, enter a name and description for the service path, and then click **Add Service Entry**.

Step 3 In the Add Service Entry dialog box, provide the following information, and then click **OK**:

- Service type
- Service node
- Service profile

The service profile identifies the policies that apply to the traffic using the service path.

Step 4 Add additional service entries as needed for the service path and click **OK**.

What to Do Next

You must bind the service path to a port profile so that the service path can be created on the Nexus 1000V VSM. After the service path is bound to a port profile, the traffic using that port profile follows the service entries in the sequence indicated in the table.

Binding a Service Path to a Port Profile

Binding a service path to a port profile ensures that all traffic using that port profile will follow the configured service path. When you bind a service path to a port profile, the NICs table that is displayed in the Edit Port Profile dialog box remains empty until the service path is used for the first time. When the service path is used, the NICs table is populated automatically.

Before You Begin

Confirm the following:

- A service path exists.
- You have Tenant Management privileges.

Procedure

Step 1 Choose one of the following:

- **Resource Management > Managed Resources > root >** *tenant* **> Port Profiles Tab**
- **Resource Management > Resources > VSMs >** *vsm* **> Edit**

Step 2 In the Port Profiles table, select the port profile you want to bind a service path to, then click **Edit**.

Step 3 In the Service Path field, click **Select**.

Step 4 In the Select Service Path dialog box, select the required service path, then click **OK**.

Step 5 In the Edit Port Profile dialog Box, click **Apply** and then **OK** to apply and save the change.

Configuring Service Policies

This procedure describes the general steps for configuring service policies for managed resources.

Procedure

Step 1 Choose **Policy Management > Service Policies > root > Policies >** ***policy-type***.

Step 2 In the General tab, click **Add** ***policy-type***.

Step 3 In the dialog boxes that follow, enter the required information. For more information on each dialog box, click the online-help.
The following topics provide specific details on various policies:

- Configuring ACL Policies and Policy Sets, on page 7
- Configuring Connection Timeout Policies, on page 13
- Configuring DHCP Policies, on page 14
- Configuring IP Audit and IP Audit Signature Policies, on page 17

Configuring ACL Policies and Policy Sets

The following topics describe how to configure ACL policies and policy sets:

Adding an ACL Policy

Prime Network Services Controller enables you to implement access control lists based on the time of day and frequency, or inclusion in a defined group. Benefits of this feature include:

- Providing closer control of access to network resources throughout the day or week.
- Enhancing policy-based routing and queuing functions.
- Automatically rerouting traffic at specific times of the day to ensure cost-effectiveness.

Procedure

Step 1 Choose **Policy Management > Service Policies > root > Policies > ACL > ACL Policies**.

Step 2 In the General tab, click **Add ACL Policy**.

Step 3 In the Add ACL Policy dialog box, enter a name and brief description for the policy, then click **Add Rule**.

Step 4 In the Add Rule dialog box, specify the required information as described in Add ACL Policy Rule Dialog Box, on page 8, then click **OK**.

Note All Network Port conditions in a single ACL rule must have the same value selected in the Attribute Value field. For example, you would choose FTP from the Attribute Value drop-down list for all rule conditions that specify the Attribute Name of Network Port.

The Add Rule dialog box contains settings for time rules for ACL policies. For more information about using time ranges with ACL policies, see Time Ranges in ACL Policy Rules, on page 11.

Add ACL Policy Rule Dialog Box

Field	Description
Name	Rule name, containing 2 to 32 characters. The name can contain alphanumeric characters, hyphen (-), underscore (_), period (.), and colon (:). You cannot change the name after it is saved.
Description	Brief rule description, containing 1 to 256 characters. The name can contain alphanumeric characters, hyphen (-), underscore (_), period (.), and colon (:).
Action to Take	1 Click the action to take if the rule conditions are met: • **Drop—**Drops traffic or denies access. • **Permit—**Forwards traffic or allows access. • **Reset—**Resets the connection. 2 Check the **Log** check box to enable logging.
Condition Match Criteria	Do one of the following: • Click **match-all** for the ACL Policy Rule to match all the conditions (AND). • Click **match-any** for the ACL Policy Rule to match any one condition (OR).
Src-Dest-Service Tab A rule can have a service condition or a protocol condition, but not both.	
Source Conditions	1 Click **Add**. 2 Enter the required values for following: • Attribute Type • Attribute Name • Operator • Attribute Value 3 Click **OK**.

Field	Description
Destination Conditions	1 Click **Add**. 2 Enter the required values for following: • Attribute Type • Attribute Name • Operator • Attribute Value 3 Click **OK**.
Service	1 Click **Add**. 2 Enter the required values for following: • Operator • Protocol • Port 3 Click **OK**.
Protocol Tab	Specify the protocols to which the rule applies: • To apply the rule to any protocol, check the **Any** check box. • To apply the rule to specific protocols: 1 Uncheck the **Any** check box. 2 From the **Operator** drop-down list, choose a qualifier: Equal, Not Equal, Member, Not Member, In range, or Not in range. 3 In the Value fields, specify the protocol, object group, or range.
Ether Type Tab	Specify the encapsulated protocols to be examined for this rule: 1 From the Operator drop-down list, choose a qualifier: Equal, Not equal, Greater than, Less than, Member, Not Member, In range, or Not in range. 2 In the Value fields, specify the hexadecimal value, object group, or hexadecimal range.
Time Range Tab	
To apply the rule all the time	Check the **Always** check box.

Field	Description
To apply the rule for a specific time range	**1** Uncheck the **Always** check box. **2** Check the **Range** check box. **3** In the Absolute Start Time fields, provide the start date and time. **4** In the Absolute End Time fields, provide the end date and time.
To apply the rule based on membership in an object group	**1** Uncheck the **Always** check box. **2** Check the **Pattern** check box. **3** From the Operator drop-down list, choose **member (Member of)**. **4** Do any of the following : • From the **Select Object Group** drop-down list, choose an existing object group. • Click **Add Object Group** to create a new object group. • Click the Resolved Object Group link to review or modify the specified object group.
To apply the rule on a periodic basis, with the frequency you specify	**1** Uncheck the **Always** check box. **2** Check the **Pattern** check box. **3** From the Operator drop-down list, choose **range (In range)**. **4** In the Begin fields: **a** From the Begin drop-down list, choose the beginning day of the week or the frequency of the time range. **b** Choose the beginning hour and minute, and AM or PM. **5** In the End fields: **a** From the End drop-down list, choose the ending day of the week or frequency. **b** Choose the ending hour and minute, and AM or PM. **Note** If you choose a frequency from the Begin drop-down list, choose the same frequency from the End drop-down list. For example, choose Weekdays from both the Begin and End drop-down lists.

Field	Description
Advanced Tab	Specify any source port attributes that must be matched for the current policy to apply: **1** Click **Add**. **2** Provide the required information in the following fields, and then click **OK**: • Attribute Name • Operator • Attribute Value

Time Ranges in ACL Policy Rules

Prime Network Services Controller enables you to configure time ranges for ACL policy rules in either of the following ways:

- By specifying a time range for the ACL policy rule.
- By associating an ACL object group with the ACL policy rule.

Prime Network Services Controller supports the following types of time ranges:

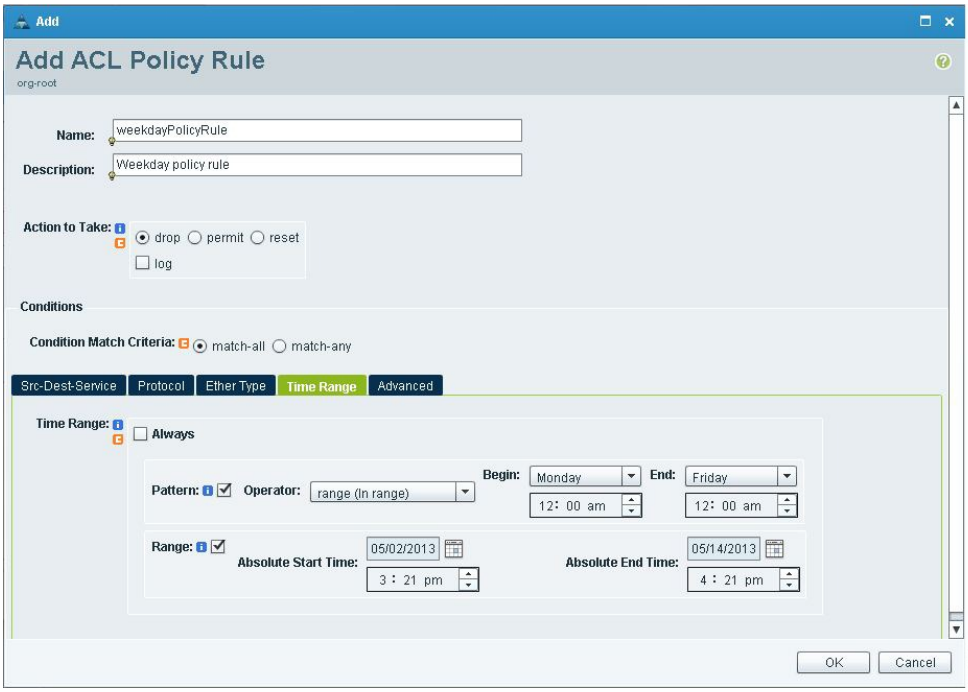
- Periodic—Specified by day-of-week start and end times (such as Sunday to Sunday), or a frequency (such as Daily, Weekdays, or Weekends). Periodic range start and end times also include options for hours and minutes.
- Absolute—Specified by a calendar date and time for start and end times, such as 01 Sep 2013 12:00 AM to 31 Dec 2013 12:00 AM.

For each ACL policy rule, you can have:

- One absolute time range.
- Any number of periodic time ranges, or none.
    - To specify a single periodic time range, add it to an ACL policy rule.
    - To specify multiple periodic time ranges, use an ACL policy object group.

The following figure shows the Time Range fields for an ACL policy rule.

Figure 1: Time Range Fields in an ACL Policy Rule



Adding an ACL Policy Set

Procedure

Step 1 Choose **Policy Management > Service Policies > root > Policies > ACL > ACL Policy Sets**.

Step 2 In the General tab, click **Add ACL Policy Set**.

Step 3 In the Add ACL Policy Set dialog box, enter the required information as described in the following table, then click **OK**:

Field	Description
Name	Policy set name, containing 2 to 32 characters. The name can contain alphanumeric characters, hyphen (-), underscore (_), period (.), and colon (:). You cannot change the name after it is saved.
Description	Policy set description, containing 1 to 256 characters. The name can contain alphanumeric characters, hyphen (-), underscore (_), period (.), and colon (:).
Admin State	Administrative state of the policy: enabled or disabled. This field is not available for all policy sets.
Policies	

Field	Description
Add Policy	Click to add a new policy.
Available	Policies that can be assigned to the policy set. Use the arrows between the columns to move policies between columns.
Assigned	Policies assigned to the policy set.
Up and down arrows	Changes the priority of the selected policies. Arrange the policies from highest to lowest priority, with the highest priority policy at the top of the list.

Configuring Connection Timeout Policies

Prime Network Services Controller enables you to configure connection timeout policies so that you can establish timeout limits for different traffic types.

After you create a connection timeout policy, you can associate it with an edge security profile. For more information, see Configuring Edge Security Profiles, on page 42.

Procedure

Step 1 Choose **Policy Management > Service Policies > root > Policies > Connection Timeout**.

Step 2 In the General tab, click **Add Connection Timeout Policy**.

Step 3 In the Add Connection Timeout Policy dialog box:

a) Enter a policy name and description.

b) Choose whether the administrative status of the policy is to be enabled or disabled.

Step 4 To add a rule to the policy, click **Add Rule**.

Step 5 In the Add Connection Timeout Policy Rule dialog box, provide the information as described in Add Connection Timeout Policy Rule Dialog Box, on page 13.

Add Connection Timeout Policy Rule Dialog Box

Field	Description
Name	Policy name.
Description	Brief policy description.

Field	Description
Action	
Idle TCP	Length of time (in days, hours, minutes, and seconds) a TCP connection can remain idle before it is closed.
Half-Closed	Length of time (in days, hours, minutes, and seconds) a half-closed TCP connection can remain idle before it is freed.
Send Reset To Idle Connection	Check the check box to send a reset to the TCP endpoints when a TCP connection times out.
Idle UDP	Length of time (in days, hours, minutes, and seconds) a UDP connection can remain idle before it closes. The duration must be at least one minute, and the default value is two minutes. Enter 00:00:00:00 to disable timeout.
ICMP	Length of time (in days, hours, minutes, and seconds) an ICMP state can remain idle before it is closed.
Protocol	Not available for configuration.
Source Conditions	
Destination Conditions	

Configuring DHCP Policies

Prime Network Services Controller enables you to create the following DHCP policies and apply them to edge firewalls:

- DHCP relay policy
- DHCP server policy

You can also configure DHCP relay servers for inclusion in DHCP relay policies.

The DHCP relay and DHCP server policies can be authored at the organization level and can be applied only to the inside interface of an edge firewall. When they are applied, DHCP policies allow the edge firewall to act either as a DHCP server or a DHCP relay for all VMs in the inside network.

You can apply only one DHCP server or relay profile at a time to the inside interface of the edge firewall.

For more information, see the following topics:

- Adding a DHCP Relay Server, on page 15
- Configuring a DHCP Relay Policy, on page 15
- Configuring a DHCP Server Policy, on page 16

Adding a DHCP Relay Server

DHCP relay servers are used to forward DHCP requests and replies between clients and servers when they are not on the same physical subnet. In contrast to IP router forwarding, where IP datagrams are switched between networks, DHCP relay servers receive DHCP messages and then generate a new message to send out on a different interface.

Procedure

Step 1 Choose **Policy Management > Service Policies > root > Policies > DHCP > DHCP Relay Server**.

Step 2 In the General tab, click **Add DHCP Relay Server**.

Step 3 In the New DHCP Relay Server dialog box, provide the information described in the Add DHCP Relay Server Dialog Box, on page 15, then click **OK**.

Add DHCP Relay Server Dialog Box

Field	Description
Name	Relay server name.
Description	Brief description of the relay server.
Relay Server IP	IP address of the relay server.
Interface Name	Interface to use to reach the relay server.

Configuring a DHCP Relay Policy

Prime Network Services Controller enables you to associate a DHCP relay server with a DHCP relay policy, as described in this procedure.

Procedure

Step 1 Choose **Policy Management > Service Policies > root > Policies > DHCP > DHCP Relay**.

Step 2 In the General tab, click **Add DHCP Relay Policy**.

Step 3 In the New DHCP Relay Policy dialog box, provide the information described in Add DHCP Relay Policy Dialog Box, on page 16, then click **OK**.

Add DHCP Relay Policy Dialog Box

Name	Description
Name	Policy name.
Description	Brief policy description.
DHCP Relay Server Assignment	Assign a DHCP relay server in one of the following ways: • Click **Add DHCP Relay Server** to add a new DHCP relay server. • In the Available Relay Servers list, select one of the available relay servers and move it to the Assigned Relay Servers list. You must assign at least one DHCP relay server to the policy.

Configuring a DHCP Server Policy

A DHCP server policy enables you to define the characteristics of the policy, such as ping and lease timeouts, IP address range, and DNS and WINS settings.

Procedure

Step 1 Choose **Policy Management > Service Policies > root > Policies > DHCP > DHCP Server**.

Step 2 In the General tab, click **Add DHCP Server Policy**.

Step 3 In the New DHCP Server Policy dialog box, provide the information as described in Add DHCP Server Policy Dialog Box, on page 16, then click **OK**.

Add DHCP Server Policy Dialog Box

Field	Description
General Tab	
Name	Policy name.
Description	Brief policy description.
Ping Timeout (Milliseconds)	Amount of time (in milliseconds) that the DHCP server waits for a ping reply before it stops attempting to reach a pool address for client assignment. The valid range is 10 to 10000 milliseconds.

Field	Description
Lease Timeout	Amount of time (in days, hour, minutes, and seconds) that the DHCP server allocates an IP address to a DHCP client before reclaiming and then reallocating it to another client. The default value is 00:01:00:00 (one hour).
Edge Device Interface Using the DHCP Client for DHCP Server Auto Configuration	To enable DHCP server automatic configuration, enter the name of the edge device interface that uses the DHCP client. For ASA 1000V instances, this interface is always an outside interface. Leaving this field empty indicates that the automatic configuration feature is disabled.
DNS Settings	DNS settings used by the edge firewall when configuring DHCP clients. To add a new entry, click **Add DNS Setting** and add the required information.
WINS Servers	Windows Internet Naming Service (WINS) name servers that are available to DHCP clients. To add a new WINS server, click **Add WINS Server** and enter the WINS server IP address. WINS servers are listed in the order of preference, with the most preferred WINS server at the top. Select an entry in the table, and then use the arrows above the table to change server priority.
IP Address Range	Enter the following information for the DHCP address pool: • Start IP Address—Beginning IP address of the pool. • End IP Address—Ending IP address of the pool. • Subnet Mask—Subnet mask to apply to the address pool.

The Advance tab allows you to add Manual and Exclude addresses. You must know the applicable MAC and IP addresses.

Configuring IP Audit and IP Audit Signature Policies

The IP audit feature provides basic Intrusion Prevention System (IPS) support for ASA 1000V instances. Prime Network Services Controller supports a basic list of signatures, and enables you to configure policies that specify one or more actions to apply to traffic that matches a signature.

The following IP audit policies are available:

- Audit policies
- Signature policies

When you associate an IP audit policy with a device, the policy is applied to all traffic on the outside interface of the device.

The following topics describe how to configure these policies.

Configuring IP Audit Policies

Procedure

Step 1 Choose **Policy Management > Service Policies > root > Policies > IP Audit > Audit Policies**.

Step 2 In the General tab, click **Add IP Audit Policy**.

Step 3 In the Add IP Audit Policy dialog box provide the following information:

- Policy name
- Policy description
- In the Admin State field, choose whether the administrative state of the policy is to be enabled or disabled.

Step 4 To add a rule to the policy, click **Add Rule** in the Rule Table toolbar.

Step 5 In the Add IP Audit Policy Rule dialog box, provide the information as described in Add IP Audit Policy Rule Dialog Box, on page 18, then click **OK** in the open dialog boxes.

Add IP Audit Policy Rule Dialog Box

Field	Description
Name	Rule name.
Description	Brief rule description.
Attack-Class Action	Check the check boxes of the actions to take for signature type Attack if the conditions of the rule are met: • Log—Send a message indicating that a packet matched the signature. • Drop—Drop the packet. • Reset Flow—Drop the packet and reset the connection.
Informational-Class Action	Check the check boxes of the actions to take for signature type Informational if the conditions of the rule are met: • Log—Send a message indicating that a packet matched the signature. • Drop—Drop the packet. • Reset Flow—Drop the packet and reset the connection.

Field	Description
Protocol	Not available for configuration.
Source Conditions	
Destination Conditions	

Configuring IP Audit Signature Policies

An IP audit signature policy identifies the signatures that are enabled and disabled. By default, all signatures are enabled. You can disable a signature when legitimate traffic matches the signature in most situations, resulting in false alarms. However, disabling the signature is performed at a global level, meaning that no traffic will trigger the signature (even bad traffic) when it is disabled.

Procedure

Step 1 Choose **Policy Management > Service Policies > root > Policies > IP Audit > Signature Policies**.

Step 2 In the General tab, click **Add IP Audit Signature Policy**.

Step 3 In the Add IP Audit Signature Policy dialog box, enter a name and description for the policy.

Step 4 In the Signatures area, move signatures between the Enabled Signatures and Disabled Signatures lists as required.

Note We recommend that you do not disable signatures unless you are sure you understand the consequences of doing so.

You can view additional information about a signature by selecting the required signature and clicking **Properties**.

Step 5 After you have made all adjustments, click **OK**.

Configuring NAT/PAT Policies and Policy Sets

Prime Network Services Controller supports Network Address Translation (NAT) and Port Address Translation (PAT) policies for controlling address translation in the deployed network. These policies support both static and dynamic translation of IP addresses and ports.

Prime Network Services Controller enables you to configure the following policy items:

- NAT policy—Can contain multiple rules, which are evaluated sequentially until a match is found.

Note Edge routers support a limited set of NAT policy options.

- NAT policy set—Group of NAT policies that can be associated with an edge security profile. When the profile is applied, the NAT policies are applied only to ingress traffic.

- PAT policy—Supports source dynamic and destination static interface PAT on edge firewalls.

The following topics describe how to configure NAT and PAT policies, and NAT policy sets.

Configuring NAT/PAT Policies

This procedure describes how to configure NAT/PAT policies with Prime Network Services Controller.

Procedure

Step 1 Choose **Policy Management > Service Policies > root > Policies > NAT > NAT Policies**.

Step 2 In the General tab, click **Add NAT Policy**.

Step 3 In the Add NAT Policy dialog box, enter a name and description for the policy.

Step 4 In the Admin State field, indicate whether the administrative state of the policy is to be enabled or disabled.

Step 5 To add a rule to the policy, click **Add Rule**.

Step 6 In the Add NAT Policy Rule dialog box, provide the information as described in Add NAT Policy Rule Dialog Box, on page 20, then click **OK** in the open dialog boxes.

Add NAT Policy Rule Dialog Box

Add NAT Policy Rule Dialog Box

Field	Description
Name	Rule name.
Description	Brief rule description.
Original Packet Match Conditions	
Source Match Conditions	Source attributes that must be matched for the current policy to apply. To add a new condition, click **Add Rule Condition**. Available source attributes are IP Address and Network Port.
Destination Match Conditions	Destination attributes that must be matched for the current policy to apply. To add a new condition, click **Add Rule Condition**. Available destination attributes are IP Address and Network Port.

Field	Description
Protocol	Specify the protocols to which the rule applies: • To apply the rule to any protocol, check the **Any** check box. • To apply the rule to specific protocols: **1** Uncheck the **Any** check box. **2** From the Operator drop-down list, choose a qualifier: Equal, Not equal, Member, Not Member, In range, or Not in range. **3** In the Value fields, specify the protocol, object group, or range.
NAT Action Table	
NAT Action	From the drop-down list, choose the required translation option: Static or Dynamic.
Translated Address	Identify a translated address pool for each original packet match condition from the following options: • Source IP Pool • Source Port Pool • Source IP PAT Pool • Destination IP Pool • Destination Port Pool For example, if you specify a source IP address match condition, you must identify a Source IP Pool object group. Similarly, a destination network port match requires a Destination Port Pool object group. The Source IP PAT Pool option is available only if you choose dynamic translation. Click **Add Object Group** to add object groups for the translation actions.
NAT Options	Check and uncheck the check boxes as required: • Enable Bidirectional—Check the check box for connections to be initiated bidirectionally; that is, both to and from the host. Available only for static address translation. • Enable DNS—Check the check box to enable DNS for NAT. • Enable Round Robin IP—Check the check box to allocate IP addresses on a round-robin basis. Available only for dynamic address translation. • Disable Proxy ARP—Check the check box to disable proxy ARP. Available only for static address translation.

Note Edge routers support a limited set of NAT policy options.

Configuring NAT Policy Sets

Policy sets enable you to group multiple policies of the same type (such as NAT, ACL, or Interface) for inclusion in a profile. NAT policy sets are groups of NAT policies that can be associated with an edge security profile.

Procedure

Step 1 Choose **Policy Management > Service Policies > root > Policies > NAT > NAT Policy Sets**.

Step 2 In the General tab, click **Add NAT Policy Set**.

Step 3 In the Add NAT Policy Set dialog box, enter a name and description for the policy set.

Step 4 In the Admin State field, indicate whether the administrative status of the policy is to be enabled or disabled.

Step 5 In the Policies area, select the policies to include in this policy set:

a) In the Available list, select one or more policies and move them to the Assigned list.

b) Adjust the priority of the assigned policies by using the arrow keys above the list.

c) If required, click **Add NAT Policy** to add a new policy and include it in the Assigned list.
For information on configuring a NAT policy, see Configuring NAT/PAT Policies, on page 20.

Step 6 Click **OK**.

Configuring PAT for Edge Firewalls

Prime Network Services Controller enables you to configure source and destination interface PAT for edge firewalls, such as the ASA 1000V. For more information, see the following topics.

Configuring Source Dynamic Interface PAT

Prime Network Services Controller enables you to configure source dynamic interface PAT for edge firewalls, such as ASA 1000Vs.

Procedure

Step 1 Choose **Policy Management > Service Policies > root > Policies > NAT > NAT Policies**.

Step 2 In the General tab, click **Add NAT Policy**.

Step 3 In the Add NAT Policy dialog box, enter a name and description for the policy.

Step 4 In the Admin State field, indicate whether the administrative state of the policy is to be enabled or disabled.

Step 5 Click **Add Rule** to add a rule to this policy.

Step 6 In the Add NAT Policy Rule dialog box, provide the information described in Add NAT Policy Rule Dialog Box, on page 20 with the following specific settings, then click **OK**:

a) From the NAT Action drop-down list, choose **Dynamic**.
b) In the Translated Address area, add a Source IP Pool object group that contains the ASA 1000V outside interface IP address.

Step 7 Click **OK**.

Configuring Destination Static Interface PAT

Prime Network Services Controller enables you to configure destination static interface PAT for edge firewalls, such as ASA 1000Vs, as described in the following procedure.

Procedure

Step 1 Choose **Policy Management > Service Policies > root > Policies > NAT > NAT Policies**.
Step 2 In the General tab, click **Add NAT Policy**.
Step 3 In the Add NAT Policy dialog box, enter a name and description for the policy.
Step 4 In the Admin State field, indicate whether the administrative state of the policy is to be enabled or disabled.
Step 5 Click **Add Rule** to add a rule to this policy.
Step 6 In the Add NAT Policy Rule dialog box, enter the IP address of the ASA 1000V outside interface as a rule condition for Destination Match Conditions.
Step 7 Configure other options in the Add NAT Policy Rule dialog box as described in Add NAT Policy Rule Dialog Box, on page 20, then click **OK**.
Note If any of the IP address fields includes a range that starts or ends with the IP address of the outside interface of the ASA 1000V, an error message will be displayed that identifies an overlap with the ASA 1000V interface IP address.
Step 8 Click **OK**.

Configuring Packet Inspection Policies

Prime Network Services Controller enables you to configure policies for application-layer protocol inspection. Inspection is required for services that embed IP addressing information in the user data packet, or that open secondary channels on dynamically assigned ports. When inspection is configured, the end device performs a deep packet inspection instead of quickly passing the packet on. As a result, inspection can affect overall device throughput.

Protocols Supported for Packet Inspection Policies, on page 24 lists the application-layer protocols supported by Prime Network Services Controller.

Procedure

Step 1 Choose **Policy Management > Service Policies > root > Policies > Packet Inspection**.

Step 2 In the General tab, click **Add Packet Inspection Policy**.

Step 3 In the Add Packet Inspection Policy dialog box, enter a name and description for the policy.

Step 4 In the Admin State field, indicate whether the administrative status of the policy is enabled or disabled.

Step 5 To add a rule to the policy, click **Add Rule**.

Step 6 In the Add Packet Inspection Policy Rule Dialog box, provide the information as described in Add Packet Inspection Policy Rule Dialog Box, on page 24, then click **OK** in the open dialog boxes.

Protocols Supported for Packet Inspection Policies

CTIQBE	ICMP	PPTP	SQL *Net
DCE/RPC	ICMP Error	RSH	SunRPC
DNS	ILS	RSTP	TFTP
FTP	IP Options	SIP	WAAS
H323 H225	IPsec Pass-Through	Skinny	XDMCP
H323 RAS	MGCP	SMTP	
HTTP	NetBIOS	SNMP	

Add Packet Inspection Policy Rule Dialog Box

Field	Description
Name	Rule name.
Description	Brief rule description.
Action	Under Enable Inspections, check the check boxes of protocols to be inspected if the rule conditions are met.
Protocol	Not available for configuration.
Source Conditions	
Destination Conditions	

Configuring Routing Policies

Prime Network Services Controller enables you to use routing policies to configure static, OSPF, and BGP routes for managed resources.

Note You can configure only inside and outside interfaces on edge firewalls by using Prime Network Services Controller. Use the CLI to configure routes on the edge firewall management interface.

After you configure a static route routing policy, you can implement the policy by:

- Including the routing policy in an edge device profile.
- Applying the edge device profile to an edge firewall that has managed endpoints.

Procedure

Step 1 Choose **Policy Management > Service Policies > root > Policies > Routing**.

Step 2 In the General tab, click **Add Routing Policy**.

Step 3 In the Add Routing Policy dialog box, enter a name and brief description for the routing policy.

Step 4 To add a new static route, click **Add Static Route**.

Step 5 In the Add Static Route dialog box, enter the following information:

a) In the Destination Network fields, enter the IP route prefix and prefix mask for the destination.

b) In the Forwarding (Next Hop) fields, enter the IP address of the next hop that can be used to reach the destination network.

Note The Forwarding Interface field applies only to ASA 1000V data interfaces. Use the CLI to configure routes on the ASA 1000V management interface.

c) (Optional) In the Distance Metric field, enter the distance metric.

Step 6 Click **OK**.

Configuring TCP Intercept Policies

Prime Network Services Controller enables you to configure TCP intercept policies that you can then associate with an edge security profile. TCP intercept policies that you associate with a device via an edge security profile are applied to all traffic on the outside interface of the device.

Procedure

Step 1 Choose **Policy Management > Service Policies > root > Policies > TCP Intercept**.

Step 2 In the General tab, click **Add TCP Intercept Policy**.

Step 3 In the Add TCP Intercept Policy dialog box, enter a name and brief description for the policy.

Step 4 In the Admin State field, indicate whether the administrative status of the policy is to be enabled or disabled.

Step 5 To add a rule to the policy, click **Add Rule**.

Step 6 In the Add TCP Intercept Policy Rule dialog box, provide the information as described in Add TCP Intercept Policy Rule Dialog Box, on page 26.

Add TCP Intercept Policy Rule Dialog Box

Field	Description
Name	Rule name.
Description	Brief rule description.
Maximum Number of Embryonic TCP Connections (0-65535)	Number of embryonic TCP connections allowed overall and per client: **1** In the Total field, enter the maximum number of embryonic TCP connections allowed. **2** In the client field, enter the maximum number of embryonic TCP connections allowed per client. The default value 0 (zero) indicates unlimited connections.
Protocol	Not available for configuration.
Source Conditions	Not available for configuration.
Destination Conditions	Not available for configuration.

Configuring Site-to-Site IPsec VPN Policies

Prime Network Services Controller enables you to configure site-to-site IPsec VPNs. In addition, you can configure a crypto map policy and attach it to an edge profile. For ease of configuration and to keep logical IPsec entities separate, configuration is divided into the following sections:

- Configuring Crypto Map Policies
- Configuring IKE Policies
- Configuring Interface Policy Sets

- Configuring IPsec Policies
- Configuring Peer Authentication Policies
- Configuring VPN Device Policies

To access VPN policies, choose **Policy Management > Service Policies > root > Policies > VPN.**

Configuring Crypto Map Policies

Prime Network Services Controller enables you to create crypto map policies that include:

- Rules for source and destination conditions.
- IP Security (IPsec) options, including an IPsec policy.
- Internet Key Exchange (IKE) options, including a peer device.

Crypto map policies are applied to interfaces by means of their inclusion in interface policy sets and edge security policies.

Procedure

Step 1 Choose **Policy Management > Service Policies > root > Policies > VPN > Crypto Map Policies**.

Step 2 In the General tab, click **Add Crypto Map Policy**.

Step 3 In the Add Crypto Map Policy dialog box, provide the information as described in Add Crypto Map Policy Dialog Box, on page 27, then click **OK**.

Step 4 To add a policy rule, click **Add Rule** in the General tab and provide the required information as described in Add Crypto Map Policy Rule Dialog Box, on page 29.

Add Crypto Map Policy Dialog Box

Field	Description
General Tab	
Name	Policy name.
Description	Brief policy description.
Admin State	Whether the administrative status of the policy is enabled or disabled.
Rule Table	
Add Rule	Click **Add Rule** to add a new rule to the current policy.
IPsec Settings Tab	

Field	Description
SA Lifetime	Length of time (in days, hours, minutes, and seconds) that a security association (SA) lives before expiring.
SA Lifetime Traffic (KB)	Volume of traffic, in kilobytes, that can pass between IPsec peers using a given SA before that association expires.
Enable Perfect Forwarding Secrecy	Whether or not Perfect Forward Secrecy (PFS) is enabled. PFS is a cryptographic characteristic associated with a derived shared secret value. With PFS, if one key is compromised, previous and subsequent keys are not compromised, because subsequent keys are not derived from previous keys.
Diffie-Hellman Group	Available if PFS is enabled. Choose the Diffie-Hellman (DH) group for this policy: • Group 1—The 768-bit DH group. • Group 2—The 1024-bit DH group. • Group 5—The 1536-bit DH group.
IPsec Policies	The IPsec policy that applies to the current policy. Select an existing IPsec policy or click **Add IPsec Policy** to create a new policy.
Peer Device	Peer device. Choose an existing peer or click **Add Peer Device** to add a new peer. In the Add Peer Device dialog box, enter the peer device IP address or hostname.
Other Settings Tab	
Enable NAT Traversal	Whether or not IPsec peers can establish a connection through a NAT device.
Enable Reverse Route Injection	Whether or not static routes are automatically added to the routing table and then announced to neighbors on the private network.
Connection Type	Connection type for this policy: • Answer-Only—Responds only to inbound IKE connections during the initial proprietary exchange to determine the appropriate peer to which to connect. • Bidirectional—Accepts and originates connections based on this policy. • Originate-Only—Initiates the first proprietary exchange to determine the appropriate peer to which to connect.

Field	Description
Negotiation Mode	Mode to use for exchanging key information and setting up SAs: • Aggressive Mode—Faster mode, using fewer packets and exchanges, but does not protect the identity of the communicating parties. • Main Mode—Slower mode, using more packets and exchanges, but protects the identities of the communicating parties.
DH Group for Aggressive Mode	DH group to use when in aggressive mode: Group 1, Group 2, or Group 5.

Add Crypto Map Policy Rule Dialog Box

Field	Description
Name	Rule name.
Description	Brief rule description.
VPN Action	Action to take based on this rule: Permit or Deny.
Protocol	Protocols to examine for this rule: • To examine all protocols, check the **Any** check box. • To examine specific protocols: 1 Uncheck the **Any** check box. 2 From the Operator drop-down list, choose a qualifier: Equal, Not equal, Member, Not Member, In range, or Not in range. 3 In the Value fields, specify the protocol, object group, or range.
Source Conditions	Source attributes that must be matched for the rule to apply. To add a new condition, click **Add Rule Condition**. Available source attributes are IP Address and Network Port.
Destination Conditions	Destination attributes that must be matched for the rule to apply. To add a new condition, click **Add Rule Condition**. Available destination attributes are IP Address and Network Port.

Configuring IKE Policies

The Internet Key Exchange (IKE) protocol is a hybrid protocol that implements Oakley and SKEME key exchanges inside the Internet Security Association and Key Management Protocol (ISAKMP) framework. The initial IKE implementation used the IPsec protocol, but IKE can be used with other protocols. IKE provides authentication of the IPsec peers, negotiates IPsec keys, and negotiates the IPsec Security Associations (SAs).

Procedure

Step 1 Choose **Policy Management > Service Policies > root > Policies > VPN > IKE Policies**.

Step 2 In the General tab, click **Add IKE Policy**.

Step 3 In the Add IKE Policy dialog box, enter a name and description for the policy.

Step 4 Configure either an IKE V1 or IKE V2 policy:

- IKE V1 Policy
  1. Click **Add IKE V1 Policy**.
  2. In the Add IKE V1 Policy dialog box, provide the information described in IKE V1 Policy Dialog Box, on page 30, then click **OK**.
- IKE V2 Policy
  1. Click **Add IKE V2 Policy**.
  2. In the Add IKE V2 Policy dialog box, provide the information described in IKE V2 Policy Dialog Box, on page 31, then click **OK**.

Step 5 Click **OK**.

IKE V1 Policy Dialog Box

Field	Description
DH Group	Diffie-Hellman group: Group 1, Group 2, or Group 5.
Encryption	Encryption method: 3DES, AES, AES-192, AES-256, or DES.
Hash	Hash algorithm: MD5 or SHA.
Authentication	Authentication method is Preshared key.
SA Lifetime	Length of time (in days, hours, minutes, and seconds) that an SA lives before expiring.

IKE V2 Policy Dialog Box

Field	Description
DH Group	Diffie-Hellman group: Group 1, Group 2, Group 5, or Group 14.
Encryption	Encryption method: 3DES, AES, AES-192, AES-256, or DES.
Hash	Hash integrity algorithm: MD5, SHA, SHA256, SHA384, or SHA512.
Pseudo Random Function Hash	Pseudo-random function (PRF) has algorithm: MD5, SHA, SHA256, SHA384, or SHA512.
SA Lifetime	Length of time (in days, hours, minutes, and seconds) that an SA lives before expiring.

Configuring Interface Policy Sets

Interface policy sets enable you to group multiple policies for inclusion in an edge security profile.

Procedure

Step 1 Choose **Policy Management > Service Policies > root > Policies > VPN > Interface Policy Sets**.

Step 2 In the General tab, click **Add Interface Policy Set**.

Step 3 In the Add Interface Policy Set dialog box, provide the information as described in Add Interface Policy Set Dialog Box, on page 31, then click **OK**.

Add Interface Policy Set Dialog Box

General Tab

Field	Description
Name	Policy set name.
Description	Brief description of the policy set.
Admin State	Administrative state of the policy set: enabled or disabled.
Policies Area	
Add Crypto Map Policy	Click to add a new policy.

Field	Description
Available	Policies that can be assigned to the policy set. Use the arrows between the columns to move policies between columns.
Assigned	Policies assigned to the policy set.
Up and down arrows	Changes the priority of the selected policies. Arrange the policies from highest to lowest priority, with the highest priority policy at the top of the list.

Domain Settings Tab

Field	Description
Enable IKE (Must check at least one)	Check the appropriate check box to specify IKE V1 or IKE V2.
Enable IPsec Pre-fragmentation	Check the check box to fragment packets before encryption. Pre-fragmentation minimizes post-fragmentation (fragmentation after encryption) and the resulting reassembly before decryption, thereby improving performance.
Do Not Fragment	Available only if the Enable IPsec Pre-fragmentation check box is checked. From the drop-down list, choose the action to take with the Don't Fragment (DF) bit in the encapsulated header: • Clear • Copy • Set

Configuring IPsec Policies

IPsec policies define the IPsec policy objects used to create a secure IPsec tunnel for a VPN.

Procedure

Step 1 Choose **Policy Management > Service Policies > root > Policies > VPN > IPsec Policies**.

Step 2 In the General tab, click **Add IPsec Policy**.

Step 3 In the Add IPsec Policy dialog box, enter a name and description for the policy.
You must configure ethier an IKE V1 or IKE V2 proposal for an IPsec policy.

Step 4 To configure an IKE V1 proposal:

a) In the IKE v1 Proposal Table area, click **Add IPsec IKEv1 Proposal**.

b) In the IPsec IKEv1 Proposal dialog box, provide the information described in IPsec IKEv1 Proposal Dialog Box, on page 33, then click **OK**.

Step 5 To configure an IKE V2 proposal:

a) In the IKE v2 Proposal Table area, click **Add IPsec IKE v2 Proposal**.

b) In the IPsec IKEv2 Proposal dialog box, provide the information described in IPsec IKEv2 Proposal Dialog Box, on page 34, then click **OK**.

Step 6 Click **OK** to save the policy.

IPsec IKEv1 Proposal Dialog Box

Field	Description
Mode	Mode in which the IPsec tunnel operates. In Tunnel mode, the IPsec tunnel encapsulates the entire IP packet.
ESP Encryption	Encapsulating Security Protocol (ESP) encryption method: • 3DES—Encrypts three times according to the Data Encryption Standard (DES) using 56-bit keys. • AES—Encrypts according to the Advanced Encryption Standard (AES) using 128-bit keys. • AES-192—Encrypts according to the AES using 192-bit keys. • AES-256—Encrypts according to the AES using 256-bit keys. • DES—Encrypts according to the DES using 56-bit keys. • Null—Null encryption algorithm. Transform sets defined with ESP-Null provide authentication without encryption; this method is typically used for testing purposes only.
ESP Authentication	Hash authentication algorithm: • MD5—Produces a 128-bit digest. • Null—Does not perform authentication. • SHA—Produces a 160-bit digest.

IPsec IKEv2 Proposal Dialog Box

Field	Description
ESP Encryption Algorithm Table	To add an ESP encryption method: **1** Click **Add ESP Encryption Algorithm**. **2** From the ESP Encryption drop-down list, choose the encryption method: • 3DES—Encrypts three times according to the Data Encryption Standard (DES) using 56-bit keys. • AES—Encrypts according to the Advanced Encryption Standard (AES) using 128-bit keys. • AES-192—Encrypts according to the AES using 192-bit keys. • AES-256—Encrypts according to the AES using 256-bit keys. • DES—Encrypts according to the DES using 56-bit keys. • Null—Null encryption algorithm. Transform sets defined with ESP-Null provide authentication without encryption; this method is typically used for testing purposes only.
Integrity Algorithm Table	To add an integrity algorithm: **1** Click **Add Integrity Algorithm**. **2** From the Integrity Algorithm drop-down list, choose the authentication algorithm: • MD5—Produces a 128-bit digest. • Null—Does not perform authentication. • SHA—Produces a 160-bit digest.

Configuring Peer Authentication Policies

Use a peer authentication policy to define the method used to authenticate a peer.

Procedure

Step 1 Choose **Policy Management > Service Policies > root > Policies > VPN > Peer Authentication Policies**.

Step 2 In the General tab, click **Add Peer Authentication Policy**.

Step 3 In the Add Peer Authentication Policy dialog box, enter a name and description for the policy.

Step 4 Click **Add Policy to Authenticate Peer**.

Step 5 In the Add Policy to Authenticate Peer dialog box, provide the information described in Add Policy to Authenticate Peer Dialog Box, on page 35, then click **OK**.

Step 6 Click **OK** to save the policy.

Add Policy to Authenticate Peer Dialog Box

Field	Description
Peer Device (Unique)	Unique IP address or hostname of the peer.
IKEv1 Area	
Local	Preshared key.
Confirm	Preshared key for confirmation.
Set	Whether or not the preshared key has been set and is properly configured (read-only).
IKEv2 Area	
Local	Local preshared key.
Confirm	Local preshared key for confirmation.
Set	Whether or not the local preshared key has been set and is properly configured (read-only).
Remote	Remote preshared key.
Confirm	Remote preshared key for confirmation.
Set	Whether or not the remote preshared key has been set and is properly configured (read-only).

Configuring VPN Device Policies

A VPN device policy enables you to specify VPN global settings, such as:

- IKE policy
- IKE global settings
- IPsec global settings
- Peer authentication policy

Procedure

Step 1 Choose **Policy Management > Service Policies > root > Policies > VPN > VPN Device Policies**.

Step 2 In the General tab, click **Add VPN Device Policy**.

Step 3 In the Add VPN Device Policy dialog box, provide the information as described in Add VPN Device Policy Dialog Box, on page 36.

Step 4 As needed, provide the information described in the following tables:

- Configuring IKE Policies, on page 30
- Configuring Peer Authentication Policies, on page 34

Step 5 Click **OK** to create the policy.

Add VPN Device Policy Dialog Box

General Tab

Note A VPN device policy requires both an IKE policy and a peer authentication policy.

Field	Description
Name	Policy name.
Description	Brief policy description.
IKE Policy	Choose an existing policy from the drop-down list, or click **Add IKE Policy** to add a new policy.
Peer Authentication Policy	Choose an existing policy from the drop-down list, or click **Add Peer Authentication Policy** to add a new policy.

IKE Settings Tab

Field	Description
Enable IPsec over TCP	Whether or not IPsec traffic is allowed over TCP. If IPsec over TCP is enabled, this method takes precedence over all other connection methods.
Send Disconnect Notification	Whether or not clients are notified that sessions will be disconnected.
Allow Inbound Aggressive Mode	Whether or not inbound aggressive mode is permitted.
Wait for Termination before Rebooting	Whether or not a reboot can occur only when all active sessions have terminated voluntarily.
Threshold for Cookie Challenge (0-100 Percent)	Percentage of the maximum number of allowed Security Associations (SAs) that can be in-negotiation (open) before cookie challenges are issued for future SA negotiations.
Negotiation Threshold for Maximum SAs (0-100 Percent)	Percentage of the maximum number of allowed SAs that can be in-negotiation before additional connections are denied. The default value is 100 percent.
IKE Identity	Phase 2 identification method: • Automatic—Determines ISAKMP negotiation by connection type: ◦ IP address for a preshared key. ◦ Cert DN for certificate authentication. • IP Address—IP address of the host exchanging ISAKMP identity information. • Hostname—Fully qualified domain name of the host exchanging ISAKMP identity information. • Key ID—String used by the remote peer to look up the preshared key.
Key for IKE Identity	The key to use for IKE identify if the IKE identification method is Key ID.
NAT Traversal	Whether or not IPsec peers can establish a connection through a NAT device.

Field	Description
Keep-Alive Time for NAT Traversal	Length of time (in hours, minutes, and seconds) that a tunnel can exist with no activity before the device sends keepalive messages to the peer. Values range from 10 to 3600 seconds, with a default of 20 seconds.
IKEv2 IPsec Maximum Security Associations	Whether or not the total number of IKE V2 SAs on the node can be set.
Maximum Number of SA	Maximum number of SA connections allowed.
IKEv1 over TCP Port Table	1 Click **Add IKE V1 Over TCP Port** to add a new port. 2 In the Port field, enter the TCP port to use for IKE V1.

IPsec Settings Tab

Field	Description
Anti Replay	Whether or not SA anti-replay is enabled.
Anti Replay Window Size	Window size to use to track and prevent duplication of packets. Using a larger window size allows the decryptor to track more packets.
SA Lifetime	Length of time (in days, hours, minutes, and seconds) that an SA can live before expiring.
SA Lifetime Volume (KB)	Volume of traffic, in kilobytes, that can pass between IPsec peers using a given SA before the association expires.

Configuring Zone-Based Firewall Policies

A zone policy defines the traffic that you want to allow or deny between zones. A zone-pair policy allows you to specify a unidirectional firewall policy between two zones. The direction is defined by specifying a source and destination zone.

A firewall zone is a group of interfaces to which a policy can be applied. By default, traffic can flow freely within that zone but all traffic to and from that zone is dropped. To allow traffic to pass between zones, you must explicitly declare it by creating a zone-pair and a policy for that zone.

This workflow is part of the Edge Router Configuration Workflow.

For more information on Zone Based Firewall policies and options, see http://www.cisco.com/en/US/partner/products/sw/secursw/ps1018/products_tech_note09186a00808bc994.shtml.

Procedure

Step 1 Choose **Policy Management > Service Policies >** ***tenant*** **> Policies** and select **Zone Based Firewall**.

Step 2 Choose **Zone Pair Policies** and add a zone pair policy. In this step you designate a source and destination zone and apply a policy map. If you have not configured a policy map, you can create one now and also configure associated class maps and rules.

Step 3 Choose **Policy Sets** and create a policy set by identifying zone pair policies.

Working with Profiles

A profile is a collection of policies. By creating a profile with policies that you select, and then applying that profile to multiple objects, such as edge firewalls, you can ensure that those objects have consistent policies.

A device must be registered to Prime Network Services Controller before you can apply a profile to it.

Prime Network Services Controller enables you to create and apply the following types of profiles:

- Compute security profiles—Compute firewall profiles that include ACL policies and user-defined attributes.
- Edge device profiles—Edge firewall profiles that include routing, VPN, DHCP, and IP Audit policies.
- Edge security profiles—Edge firewall profiles that include access and threat mitigation policies.

The following topics describe how to configure and apply profiles.

Configuring Compute Security Profiles

Prime Network Services Controller enables you to create compute security profiles at the root or tenant level. Creating a compute security profile at the root level enables you to apply the same profile to multiple tenants.

Procedure

Step 1 Choose **Policy Management > Service Profiles > root > Compute Firewall > Compute Security Profiles**.

Step 2 In the General tab, click **Add Compute Security Profile**.

Step 3 In the Add Compute Security Profile dialog box, provide the information as described in Add Compute Security Profile Dialog Box, on page 40, then click **OK**.

Add Compute Security Profile Dialog Box

General Tab

Field	Description
Name	Profile name. This name can be between 2 and 32 identifier characters. You can use alphanumeric characters including hyphen, underscore, period, and colon. You cannot change this name after it is saved.
Description	Brief profile description. This description can be between 1 and 256 identifier characters. You can use alphanumeric characters including hyphens, underscore, period, and colon.
Policy Set	Drop-down list of policy sets.
Add ACL Policy Set	Click the link to add an ACL policy set.
Resolved Policy Set	Click the link to edit the resolved policy set.
Resolved Policies Area	
(Un)assign Policy	Click the link to assign or unassign a policy.
Name	Rule name.
Source Condition	Source condition for the rule.
Destination Condition	Destination condition for the rule.
Service/Protocol	Service or protocol to which the rule applies.
EtherType	Encapsulated protocol to which the rule applies.
Action	Action to take if the rule conditions are met.
Description	Rule description.

Attributes Tab

Field	Description
Add User Defined Attribute	Opens a dialog box for adding an attribute.
Name	Attribute name.
Value	Attribute value.

Verifying Compute Firewall Policies

Use this procedure to verify active policies and optionally modify policy objects for compute firewalls.

Procedure

Step 1 Choose **Resource Management > Managed Resources > root >** *tenant* **> Compute Firewalls >** *compute-firewall*.

Step 2 In the Compute Security Profiles tab, select the required policy, then click **Show Resolved Policies**.

Step 3 In the Edit dialog box, click the required policy in the Resolved Policies table to view the policy details, such as source and destination conditions.

Step 4 To modify a policy, in the Policy Set area, either choose a different policy from the drop-down list, or click **Add ACL Policy Set** to configure a new policy.

Step 5 Click **Apply** to accept any changes or **OK** when you have finished reviewing the policies.

Configuring Edge Device Profiles

Edge device profiles contain the following policies in addition to a timeout value for address translation:

- DHCP
- IP audit signature
- Routing
- VPN device

You can create an edge device profile at any level of the organization hierarchy (root, tenant, virtual data center (VDC), app, or tier). Creating an edge device profile at the root level enables you to apply it to multiple edge firewalls for different tenants.

Procedure

Step 1 Choose **Policy Management > Service Profiles > root > Edge Firewall > Edge Device Profiles**.

Step 2 In the General tab, click **Add Edge Device Profile**.

Step 3 In the Add Edge Device Profile dialog box, enter the information as described in Edge Device Profile Dialog Box, on page 42, then click **OK**.

Edge Device Profile Dialog Box

Field	Description
General Tab	
Name	Profile name.
Description	Brief profile description.
Policies Tab	
Routing Policy	Choose an existing policy or click **Add Routing Policy** to add a new policy. Click the Resolved Policy link to review or modify the assigned policy.
IP Audit Signature Policy	Choose an existing policy or click **Add IP Audit Signature Policy** to add a new policy. Click the Resolved Policy link to review or modify the assigned policy.
VPN Device Policy	Choose an existing policy or click **Add VPN Device Policy** to add a new policy. Click the Resolved Policy link to review or modify the assigned policy.
Address Translations Timeout	Length of time (in days, hours, minutes, and seconds) that a translation can remain unused before it expires.
DHCP Policy	
Edge DHCP Policy	Adds a DHCP policy.
Type	Type of DHCP service: relay or server.
Interface Name	Interface to which the DHCP policy is applied.
Server/Relay Policy	DHCP policy name.

Configuring Edge Security Profiles

Edge security profiles can include any of the following:

- ACL policy sets (ingress and egress)
- Connection timeout policies
- IP audit policies
- NAT policy sets

- Packet inspection policies
- TCP intercept policies
- VPN interface policy sets

You can create an edge security profile at any level of the organizational hierarchy (root, tenant, VDC, app, or tier). Creating an edge security profile at the root level enables you to apply it to multiple edge firewalls for different tenants.

Procedure

Step 1 Choose **Policy Management > Service Profiles > Edge Firewall > Edge Security Profiles**.

Step 2 In the General tab, click **Add Edge Security Profile**.

Step 3 In the Add Edge Security Profile dialog box provide the information as described in Add Edge Security Profile Dialog Box, on page 43.

Add Edge Security Profile Dialog Box

Field	Description
General Tab	
Name	Profile name.
Description	Brief profile description.
Ingress Tab	
Policy Set	Choose an existing policy set or click **Add ACL Policy Set** to add a new policy set. Click the **Resolved Ingress Policy Set** link to modify the assigned policy set.
Resolved Policies	Click **(Un)assign Policy** to assign or remove a policy for the current policy set.
Egress Tab	
Policy Set	Choose an existing policy set or click **Add ACL Policy Set** to add a new policy set. Click the **Resolved Egress Policy Set** link to modify the assigned policy set.
Resolved Policies	Click **(Un)assign Policy** to assign or remove a policy for the current policy set.

Field	Description
NAT Tab	
Policy Set	Choose an existing policy set or click **Add NAT Policy Set** to add a new policy set. Click the **Resolved NAT Policy Set** link to modify the assigned policy set.
Resolved Policies	Click **(Un)assign Policy** to assign or remove a policy for the current policy set.
VPN Tab	
Policy Set	Choose an existing policy set or click **Add Interface Policy Set** to add a new policy set. Click the **Resolved VPN Interface Policy Set** link to modify the assigned policy set.
Advanced Tab	
Packet Inspection Policy	Choose an existing policy or click **Add Packet Inspection Policy** to add a new policy. Click the **Resolved Policy** link to modify the assigned policy.
Connection Timeout Policy	Choose an existing policy or click **Add Connection Timeout Policy** to add a new policy. Click the **Resolved Policy** link to modify the assigned policy.
TCP Intercept Policy	Choose an existing policy or click **Add TCP Intercept Policy** to add a new policy. Click the **Resolved Policy** link to modify the assigned policy.
IP Audit Policy	Choose an existing policy or click **Add IP Audit Policy** to add a new policy. Click the **Resolved Policy** link to modify the assigned policy.

Applying an Edge Device Profile

After you have created an edge device profile, you can apply the profile to multiple edge firewalls to ensure consistent policies across the firewalls.

Procedure

Step 1 Choose **Resource Management > Managed Resources > root >** *tenant* **> Edge Firewalls >** *edge-firewall*.
Step 2 In the General tab, click **Select** in the Edge Device Profile field.
Step 3 In the Select Edge Device Profile dialog box, select the required profile, then click **OK**.
Step 4 Click **Save**.

Applying an Edge Security Profile

After you have created an edge security profile, you can apply it to edge firewall instances to ensure consistent policies on the interfaces.

Note Edge security profiles can be applied only on outside interfaces of edge firewalls.

Procedure

Step 1 Choose **Resource Management > Managed Resources > root >** *tenant* **> Edge Firewalls >** *edge-firewall*.
Step 2 In the Interfaces table, select the required outside interface, then click **Edit**.
Step 3 In the Edit dialog box, click **Select** in the Edge Security Profile field.
Step 4 In the Select Edge Security Profile dialog box, select the required profile, then click **OK**.
Step 5 Click **OK** in the open dialog boxes, then click **Save**.

Verifying Edge Firewall Policies

Use this procedure to verify active policies and optionally modify policy objects for edge firewalls.

Procedure

Step 1 Choose **Resource Management > Managed Resources > root >** *tenant* **> Edge Firewalls >** *edge-firewall*.
Step 2 In the Edge Security Profiles tab, select the required policy, then click **Show Resolved Policies**.
Step 3 To view policy or policy set details, use the tabs in the Edit dialog box to navigate to the required policy or policy set, then click the required policy or policy set in Resolved field
Step 4 To use a different policy or policy set, navigate to the required policy or policy set, then either choose a different policy or policy set from the drop-down list, or add a new policy or policy set.
Step 5 Click **Apply** to accept any changes or **OK** when you have finished reviewing the policies.

Configuring Security Profiles

Editing a Security Profile for a Compute Firewall

Procedure

Step 1 Choose **Policy Management > Service Profiles > root > Compute Firewalls > Compute Security Profiles**.

Step 2 In the General tab, select the profile you want to edit, then click **Edit**.

Step 3 In the Edit Compute Security Profile dialog box, edit the fields as required by using the information in the following tables, then click **OK**.

Field	Description
Name	Profile name.
Description	Brief policy description.
Policy Set	List of available policy sets.
Add ACL Policy Set	Click to add a new ACL policy set.
Resolved Policy Set	Click the link to view and optionally edit the resolved policy set.
Resolved Policies	
(Un)assigned Policy	Click to assign or unassign policies.
Name	Policy name.
Source Condition	Source condition for the policy.
Destination Condition	Destination condition for the policy.
Service/Protocol	Protocol specify by the policy.
EtherType	EtherType specified by the policy.
Action	Action to take if the specified condition is met.
Description	Brief policy description.

Field	Description
Add User Defined Attribute	Click to add a custom attribute.

Field	Description
Name	Attribute name.
Value	Attribute value.

Editing a Security Profile for an Edge Firewall

This procedure enables you to edit a security profile associated with an edge firewall.

Procedure

Step 1 Choose **Policy Management > Service Profiles > root > Edge Firewall > Edge Security Profiles**.

Step 2 In the General tab, select the edge security profile that you want to edit, then click **Edit**.

Step 3 In the Edit Edge Security Profile dialog box, edit the entries as required by using the information in the following table, then click **OK**.

Field	Description
General Tab	
Name	Profile name (read-only).
Description	Brief profile description.
ID	Unique profile identifier (read-only).
Ingress Tab	
Policy Set	Choose an existing policy set or click **Add ACL Policy Set** to add a new policy set. Click the **Resolved Ingress Policy Set** link to modify the assigned policy set.
Resolved Policies	Click **(Un)assign Policy** to assign or remove a policy for the current policy set.
Egress Tab	
Policy Set	Choose an existing policy set or click **Add ACL Policy Set** to add a new policy set. Click the **Resolved Egress Policy Set** link to modify the assigned policy set.

Field	Description
Resolved Policies	Click **(Un)assign Policy** to assign or remove a policy for the current policy set.
NAT Tab	
Policy Set	Choose an existing policy set or click **Add NAT Policy Set** to add a new policy set. Click the **Resolved NAT Policy Set** link to modify the assigned policy set.
Resolved Policies	Click **(Un)assign Policy** to assign or remove a policy for the current policy set.
VPN Tab	
Policy Set	Choose an existing policy set or click **Add Interface Policy Set** to add a new policy set. Click the **Resolved VPN Interface Policy Set** link to modify the assigned policy set.
Advanced Tab	
Packet Inspection Policy	Choose an existing policy or click **Add Packet Inspection Policy** to add a new policy. Click the **Resolved Policy** link to modify the assigned policy.
Connection Timeout Policy	Choose an existing policy or click **Add Connection Timeout Policy** to add a new policy. Click the **Resolved Policy** link to modify the assigned policy.
Threat Migration	Choose an existing policy or click **Add TCP Intercept Policy** to add a new policy. Click the **Resolved Policy** link to modify the assigned policy.
IP Audit Policy	Choose an existing policy or click **Add IP Audit Policy** to add a new policy. Click the **Resolved Policy** link to modify the assigned policy.

Deleting a Security Profile

Procedure

Step 1 In the **Navigation** pane, choose **Policy Management** > **Security Policies**> **root** > **Security Profiles**.
Step 2 In the **Work** pane, click the security profile you want to delete.
Step 3 Click **Delete.**
Step 4 In the Confirm dialog box, click **OK**.

Deleting a Security Profile Attribute

Procedure

Step 1 In the **Navigation** pane, choose **Policy Management > Security Profiles > root > Security Profiles** > *security profile*. The security profile is the profile that contains the attribute you want to delete.
Step 2 In the **Work** pane, click the **Attributes** tab.
Step 3 Click the attribute you want to delete.
Step 4 Click **Delete.**
Step 5 In the Confirm dialog box, click **OK**.

Assigning a Policy

Procedure

Step 1 In the **Navigation** pane, expand **Policy Management** > **Security Profiles** > **root** > **Security Profiles**.
Step 2 Click the profile where you want to assign the policy.
Step 3 In the **Work** pane, click the **(Un)assign Policy** link.
Step 4 In the **(Un)assign Policy** dialog box, move the policy you want assigned to the **Assigned** list.
Step 5 Click **OK**.

Unassigning a Policy

Procedure

Step 1 In the **Navigation** pane, expand **Policy Management** > **Security Profiles** > **root** > **Security Profiles**.
Step 2 Click the profile where you want to unassign the policy.
Step 3 In the **Work** pane, click the **(Un)assign Policy** link.
Step 4 In the **(Un)assign Policy** dialog box, move the policy you want unassigned to the **Available** list.
Step 5 Click **OK**.

Configuring Security Policy Attributes

Configuring Object Groups

An object group defines a collection of condition expressions on a system-defined or user-defined attribute. An object group can be referred to in a policy rule condition when the member or not-member operator is selected. A rule condition that refers to an object group resolves to true if any of the expressions in the object group are true.

Object groups can be created at any level in the organizational hierarchy.

Adding an Object Group

Procedure

Step 1 Choose **Policy Management > Service Policies > root >** *tenant* **> Policy Helpers > Object Groups**.
Step 2 In the General tab, click **Add Object Group**.
Step 3 In the Add Object Group dialog box, complete the following fields, then click **OK**:

Note You must specify an attribute type and name before adding an object group expression. With Hyper-V hypervisors, the attribute type VM is not supported and if you choose the attribute type Network, the attribute name Service is not supported.

Field	Description
Name	Object group name. This name can be between 2 and 32 identifier characters. You can use alphanumeric characters including hyphen, underscore, period, and colon. You cannot change this name after it is saved.

Field	Description
Description	Brief description of the object group. This description can be between 1 and 256 identifier characters. You can use alphanumeric characters including hyphens, underscore, period, and colon.
Attribute Type	Available attribute types: Network, VM, User Defined, vZone, and Time Range. You must configure an attribute type and name to add an object group expression.
Attribute Name	Available attribute names for the selected attribute type.
Expression Table	
Add Object Group Expression	Click to add an object group expression.
Operator	Operator for the selected expression.
Value	Value for the selected expression.

Adding an Object Group Expression

Procedure

Step 1 Choose **Policy Management > Service Policies > root > Policy Helpers > Object Groups**.

Step 2 In the General tab, select the object group you want to add an object group expression to, then click **Edit**.

Note For new object groups, you must specify the attribute type and name before adding an object group expression.

Step 3 In the Edit Object Group dialog box, click **Add Object Group Expression**.

Step 4 In the Add Object Group Expression dialog box, specify the object group expression by using the information in the following table, then click **OK** in the open dialog boxes.

Field	Description
Attribute Name	Attribute (read-only).
Operator	Available operators for this attribute.
Attribute Value	Attribute value for this expression.

Editing an Object Group

Procedure

Step 1 Choose **Policy Management > Service Policies > root >** *tenant* **> Policy Helpers > Object Groups**.

Step 2 In the General tab, select the object group you want to edit, then click **Edit**.

Step 3 In the Edit Object Group dialog box, update the fields as follows, then click **OK** in the open dialog boxes:

Field	Description
Name	Object group name (read-only).
Description	Object group description. This description can be between 1 and 256 identifier characters. You can use alphanumeric characters including hyphens, underscore, period, and colon.
Attribute Type	Specified attribute type (read-only).
Attribute Name	Specified attribute name (read-only).
Expression Table	
Add Object Group Expression	Click to add a new object group expression.
Edit	Enables you to edit the selected object group expression.
Delete	Deletes the selected object group expression.
Operator	Expression operator.
Value	Expression attribute value.

Editing an Object Group Expression

Procedure

Step 1 Choose **Policy Management > Service Policies > root > Policy Helpers > Object Groups**.

Step 2 In the General tab, select the object group with the expression you want to edit, then click **Edit**.

Step 3 In the Expression table in the Edit Object Group dialog box, select the expression you want to edit, then click **Edit**.

Step 4 In the Edit Object Group Expression dialog box, edit the fields as required, then click **OK** in the open dialog boxes.

Field	Description
Attribute Name	Attribute name (read-only).
Operator	Available operators for this expression.
Attribute Value	Attribute value for this expression.

Deleting an Object Group

Procedure

Step 1 Choose **Policy Management > Service Policies > root > Policy Helpers > Object Groups**.

Step 2 In the General tab, select the Object Group you want to delete, then click **Delete**.

Step 3 When prompted, confirm the deletion.

Deleting an Object Group Expression

Procedure

Step 1 Choose **Policy Management > Service Policies > root > Policy Helpers > Object Groups**.

Step 2 In the General tab, select the object group that contains the expression you want to delete, then click **Edit**.

Step 3 In the Edit Object Group dialog box, select the expression that you want to delete In the Expression table, then click **Delete**.

Step 4 When prompted confirm the deletion.

Step 5 Click **OK** in the open dialog box to save the change.

Configuring Security Profile Dictionary

Adding a Security Profile Dictionary

Procedure

Step 1 Choose **Policy Management > Service Policies > root >** *tenant* **> Policy Helpers > Security Profile Dictionary**.

Step 2 In the General tab, click **Add Security Profile Dictionary**.

Step 3 In the Add Security Profile Dictionary dialog box, complete the following fields as appropriate, then click **OK**:

Field	Description
Name	Name of the security profile dictionary. This name can contain 1 to 16 alphanumeric characters. You cannot use spaces or any special characters, and you cannot change this name after the object has been saved. **Note** You can have one security profile dictionary at the root level and one for each tenant.
Description	A description of the security profile dictionary. This description can be between 1 and 256 identifier characters. You can use alphanumeric characters including hyphens, underscore, period, and colon.
Attributes Table	
Add Security Profile Custom Attribute	Click to add a new attribute.
Name	Custom attribute name.

Field	Description
Description	Custom attribute description.

Adding a Security Profile Dictionary Attribute

Procedure

Step 1 Choose **Policy Management > Service Policies > root >** *tenant* **> Policy Helpers > Security Profile Dictionary**.

Step 2 In the General tab, select the security profile dictionary that you want to add an attribute to, then click **Edit**.

Step 3 In the Edit Security Profile Dictionary dialog box, click **Add Security Profile Custom Attribute**.

Step 4 In the Add Security Profile Custom Attribute dialog box, complete the following fields, then click **OK**:

Field	Description
Name	Attribute name. This name can be between 1 and 16 alphanumeric characters. You cannot use spaces or any special characters, and you cannot change this name after the object has been saved.
Description	Attribute description. This description can be between 1 and 256 identifier characters. You can use alphanumeric characters including hyphens, underscore, period, and colon.

Editing a Security Profile Dictionary

Procedure

Step 1 Choose **Policy Management > Service Policies > root > Policy Helpers > Security Profile Dictionary**.

Step 2 In the General tab, select the security profile dictionary you want to edit, then click **Edit**.

Step 3 In the Edit Security Profile Dictionary dialog box, modify the fields as appropriate, then click **OK**:

Field	Description
Name	Name of the security profile dictionary (read-only).

Field	Description
Description	Description of the security profile dictionary.
Attributes	
Add Security Profile Custom Attribute	Click to add a custom attribute.
Name	Attribute name.
Description	Attribute description.

Editing a Security Profile Dictionary Attribute

Procedure

Step 1 Choose **Policy Management > Service Policies > root > Policy Helpers > Security Profile Dictionary**.

Step 2 In the General tab, select the security profile dictionary that contains the attribute you want to edit, then click **Edit**.

Step 3 In the Edit Security Profile Dictionary dialog box, select the attribute you want to edit, then click **Edit**.

Step 4 In the Edit Security Custom Attribute dialog box, edit the Description field as required, then click **OK** in the open dialog boxes to save the change.

Deleting a Security Profile Dictionary

Procedure

Step 1 Choose **Policy Management > Service Policies > root > Policy Helpers > Security Profile Dictionary**.

Step 2 In the General tab, select the security profile dictionary you want to delete, then click **Delete**.

Step 3 When prompted, confirm the deletion.

Deleting a Security Profile Dictionary Attribute

Procedure

Step 1 Choose **Policy Management > Service Policies > root > Policy Helpers > Security Profile Dictionary**. In the General tab, select the dictionary that contains the attribute you want to delete, then click **Edit**.

Step 2 In the Edit Security Profile Dictionary dialog box, in Attributes table, select the attribute you want to delete, then click **Delete**.

Step 3 When prompted, confirm the deletion.

Working with vZones

A virtual zone (vZone) is a logical grouping of VMs or hosts. vZones facilitate working with policies and profiles because vZones enable you to write policies based on vZone attributes by using vZone names.

The high level flow for working with vZones in Prime Network Services Controller is as follows:

1. Define a vZone, each with one or more conditions for inclusion in the vZone.
2. Define a service policy with the rules based on zone or network conditions.
3. Create a policy set that includes the service policy defined in Step 2.
4. Create a security profile that includes the policy set created in Step 3.
5. Bind the security profile to the ASA 1000V or VSG port profile.
6. Assign the security profile to the ASA 1000V or VSG in Prime Network Services Controller.

See the following topics for more information about working with vZones.

Adding a vZone

Procedure

Step 1 Choose **Policy Management > Service Policies > root > Policy Helpers > vZones**.

Step 2 In the General tab, click **Add vZone**.

Step 3 In the Add vZone dialog box provide the required information as described in the following table, then click **OK**:

Field	Description
Name	vZone name. The name can be between 2 and 32 characters. You can use alphanumeric characters including hyphen, underscore, period, and colon. You cannot change the name after it is saved.

Field	Description
Description	vZone description. The description can be between 1 and 256 identifier characters. You can use alphanumeric characters including hyphens, underscore, period, and colon.
Condition Match Criteria	Condition match options: • Choose match-all for the zone to match all the conditions (AND). • Choose match-any for the zone to match any one condition (OR).
vZone Condition	
Attribute Type	Condition type.
Attribute Name	Condition attribute name. **Note** vZone conditions cannot be created using the service attribute.
Operator	Condition operator.
Attribute Value	Condition attribute value.

Editing a vZone

Procedure

Step 1 Choose **Policy Management > Service Policies > root > Policy Helpers > vZones**.

Step 2 In the General tab, select the vZone that you want to edit, then click **Edit**.

Step 3 In the Edit vZone dialog box in the General tab, right-click the attribute that you want to edit, and choose **Edit**.

Step 4 In the Edit Zone Condition dialog box, edit the fields as required, then click **OK** in the open dialog boxes.

Field	Description
Name	vZone name (read-only).
Description	Brief vZone description.
Condition Match Criteria	Choose the required match option: • Match-all—Match all of the criteria (AND). • Match-any—Match any one of the criteria (OR).

Field	Description
vZone Condition	
Toolbar	
Add Zone Condition	Adds a zone condition.
Edit	Enables you to edit the selected condition.
Delete	Deletes the selected condition.
Filter	Filters the contents by the string or value that you enter.
Table	
Attribute Name	Zone condition attribute name.
Operator	Zone condition operator.
Attribute Value	Value for the zone condition.

Deleting a vZone Condition

Procedure

Step 1 Choose **Policy Management > Service Policies > root > Policy Helpers > vZones**.

Step 2 In the General tab, select the vZone with the condition that you want to delete, then click **Edit**.

Step 3 In the Edit vZone dialog box, select the condition in the vZone Condition table that you want to delete, then click **Delete**.

Step 4 Confirm the deletion.

Step 5 In the Edit vZone dialog box, click **OK** or **Apply**.

Deleting a vZone

Procedure

Step 1 Choose **Policy Management > Service Policies > root > Policy Helpers > vZones**.

Step 2 In the General tab, select the vZones that you want to delete, then click **Delete**.

Step 3 Confirm the deletion.