Configure Custom DNS-Filtering Profiles

For supported software information, click here.

Domain Name System (DNS) filtering allows you to control access to websites, webpages, and IP addresses, to provide protection from malicious websites, such as known malware and phishing sites.

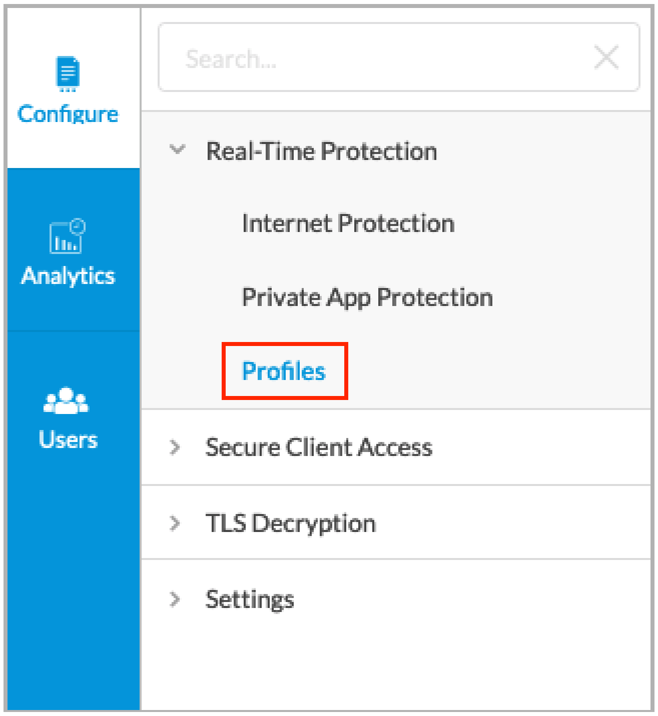
You can create custom profiles that you can use when configuring internet protection rules. You associate custom DNS filtering profiles with devices that are connected to a Secure Web Gateway (SWG) and that need to send traffic to the internet. DNS filtering processes any traffic that matches an internet protection rule in a DNS-filtering profile. Any logs that are generated are sent to the logging profile associated with the DNS profile.

In a DNS-filtering profile you can configure the following components to use to filter DNS requests:

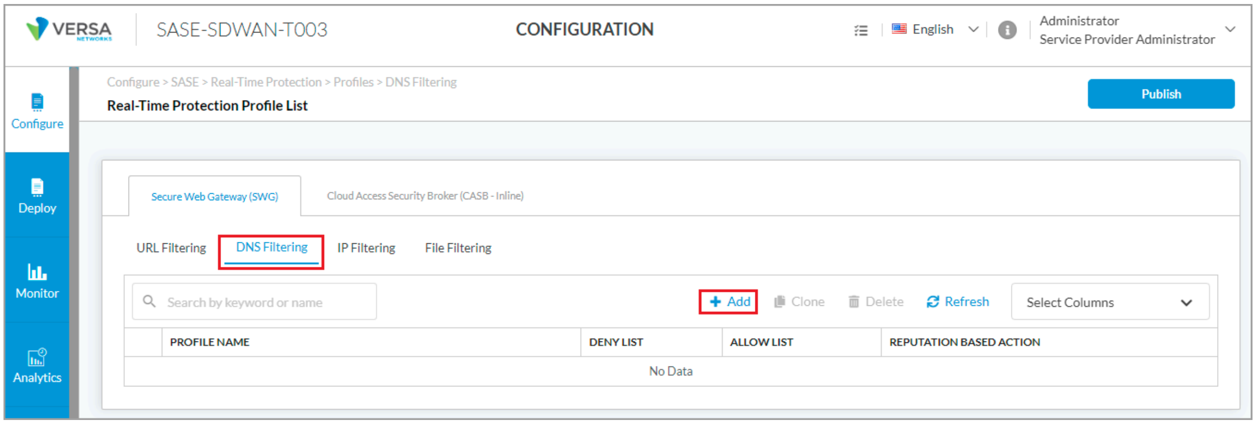
- Deny lists—Define the URLs and IP addresses of DNS requests for which access is blocked, and define the action to take when a URL or an IP address matches. Deny lists are sometimes referred to blacklists.
- Allow lists—Define the URLs and IP addresses of DNS requests to which to explicitly allow access. Allow lists are sometimes referred to as whitelists.
- Query-based actions—Define rules for DNS operation codes (opcodes), which are the commands that are sent to DNS servers to have them perform an action.
- Reputation-based actions—Define how to handle DNS requests from newly observed website domains.

To configure custom DNS-filtering profiles:

1. Go to Configure > Real-Time Protection > Profiles.

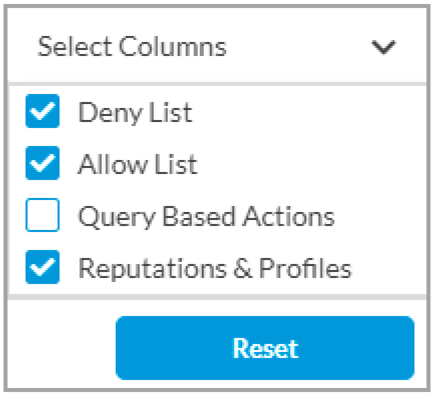


The following screen displays:



PROFILE NAME	DENY LIST	ALLOW LIST	REPUTATION BASED ACTION
No Data			

2. Select the DNS Filtering tab.
3. To customize which columns display, click Select Columns and then click the columns to select or deselect the ones you want to display. Click Reset to return to the default column display settings.


Select Columns

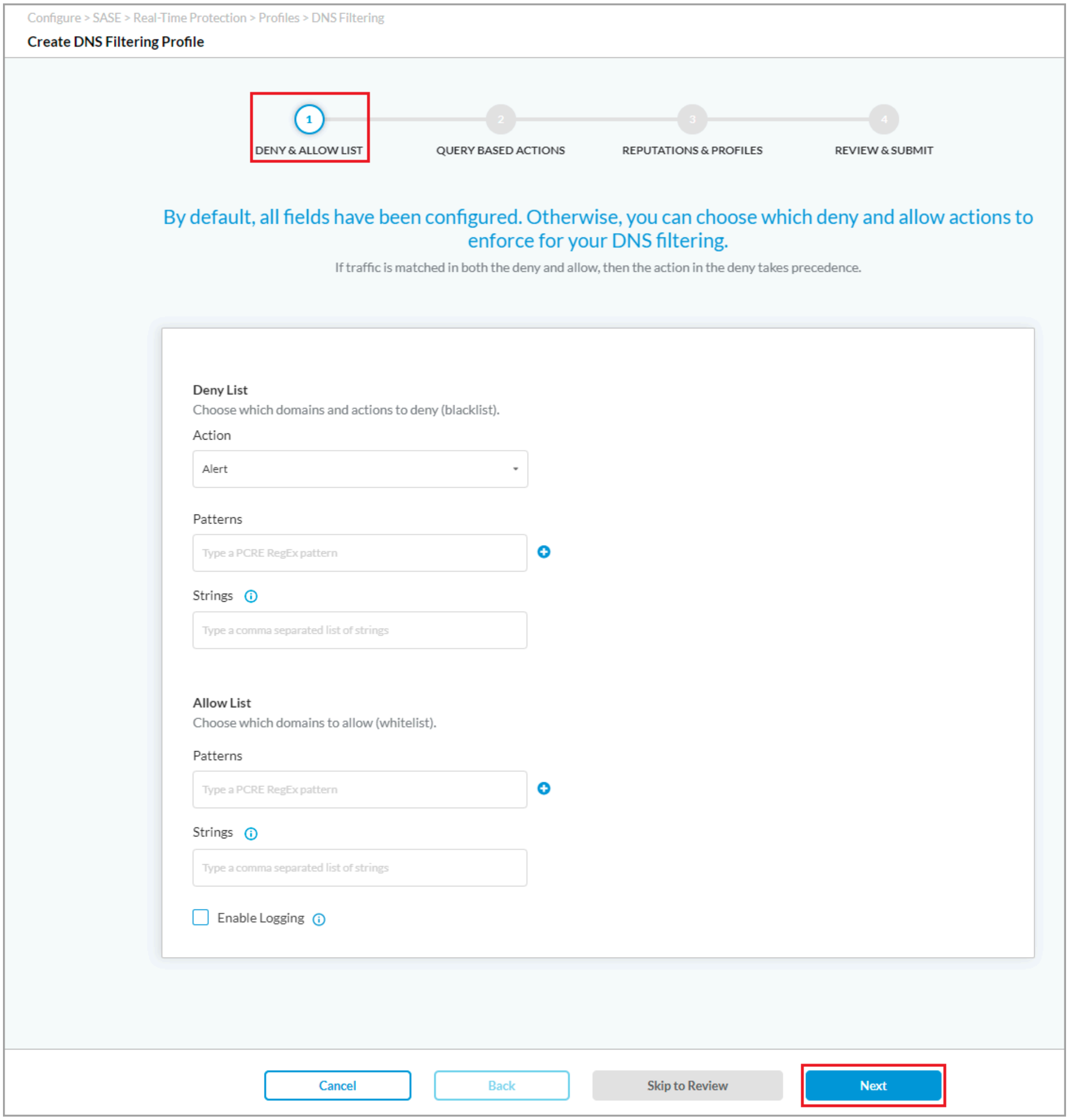
☑ Deny List

☑ Allow List

☐ Query Based Actions

☑ Reputations & Profiles

4. Click + Add to create a rule. The Create DNS Filtering screen displays, and the Deny and Allow List step is selected. By default, all fields are configured. To customize DNS-filtering actions, enter information for the following fields. Note that if the traffic matches both a deny list and an allow list, the action in the deny list takes precedence.



Configure > SASE > Real-Time Protection > Profiles > DNS Filtering

Create DNS Filtering Profile

By default, all fields have been configured. Otherwise, you can choose which deny and allow actions to enforce for your DNS filtering.

If traffic is matched in both the deny and allow, then the action in the deny takes precedence.

Deny List

Choose which domains and actions to deny (blacklist).

Action: Alert

Patterns: Type a PCRE RegEx pattern

Strings: Type a comma separated list of strings

Allow List

Choose which domains to allow (whitelist).

Patterns: Type a PCRE RegEx pattern

Strings: Type a comma separated list of strings

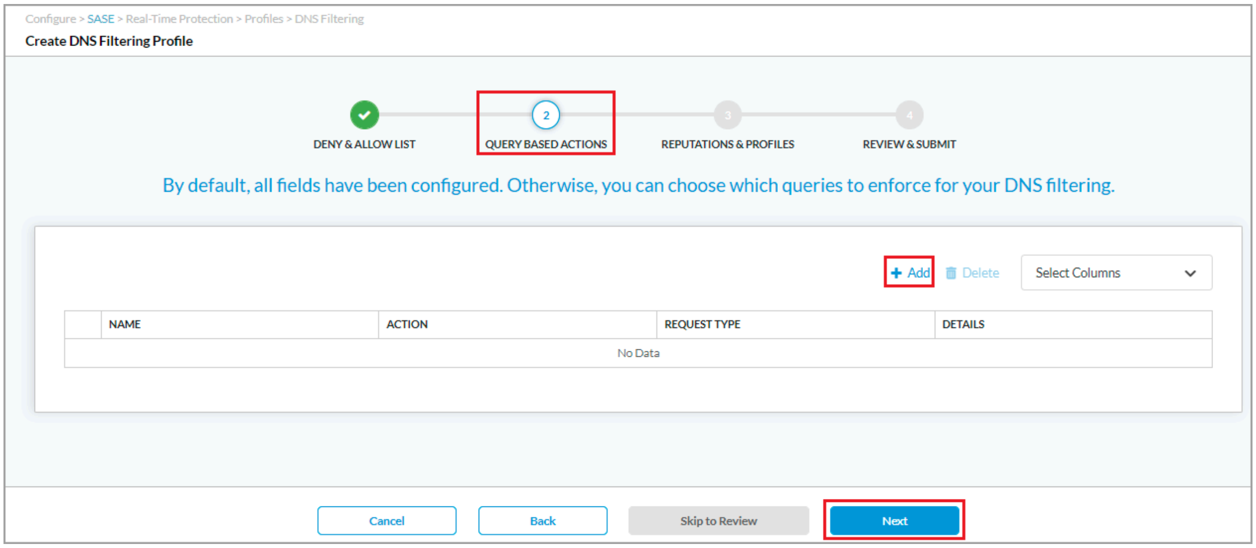
□ Enable Logging

Field	Description
Deny List (Group of Fields)	Choose the domains and actions to deny (block).
◦ Action	Select the action to take for domain names or IP addresses when denying (blocking) incoming DNS requests:

Field	Description
	◦ Alert—Allow the DNS response and generate an entry in the DNS filtering log in Versa Analytics. ◦ Allow—Allow the DNS response without generating an entry in the DNS filtering log in Versa Analytics. ◦ Drop Packet—The browser waits for a response from the DNS server and then drops the packet. It is not possible to determine whether the packet was dropped because of a delayed response from the DNS server or because a firewall blocked access to the website. ◦ Drop Session—The browser waits for a response from the server and drops the session. It is not possible to determine whether the session was dropped because of a delayed response from the DNS server or because a firewall blocked access to the website. ◦ Reject—Send an ICMP unreachable message back to the client. ◦ Sinkhole—Return a false IP address to the URL, thus blocking a DNS sinkhole. A DNS sinkhole spoofs DNS servers to prevent the resolution of the hostnames associated with URLs. This action can help you identify infected hosts in a network if a firewall is unable to find the original source IP address of DNS request sender. Sinkhole malware DNS queries create responses to the client host queries directed at malicious domains and try to connect to a sinkhole IP address instead of connecting to malicious domains. You can check the traffic logs to identify infected hosts.
◦ Patterns	Click the ⊕ Add icon to add a domain name or an IP address to deny. You can specify a fixed string or a Perl-Compatible Regular Expression (PCRE). Note that if the pattern matches the same domain name or IP address in a deny list and an allow list, the action in the deny list takes precedence. Click the ⊕ Add icon again to add more patterns. Click the ⊖ Delete icon to delete a pattern.
◦ Strings	Enter a complete string for matching a domain name or IP address to block. Note that if the string matches

Field	Description
	the same domain name or IP address in a deny list and an allow list, the action in the deny list takes precedence.
Allow List (Group of Fields)	Choose the domains and actions that you want to allow.
◦ Patterns	Click the ⊕ Add icon to add a domain name or an IP address to allow. You can specify a fixed string or a Perl-Compatible Regular Expression (PCRE). Note that if the pattern matches the same domain name or IP address in a deny list and an allow list, the action in the deny list takes precedence. Click the ⊕ Add icon again to add more patterns. Click the ⊖ Delete icon to delete a pattern.
◦ Strings	Enter a complete domain name for matching a domain name or IP address to allow. You can add multiple comma-separated strings. Note that if the string matches the same domain name or IP address in a deny list and an allow list, the action in the deny list takes precedence.
◦ Enable Logging	Click to log information about the allowed domain names and IP addresses.

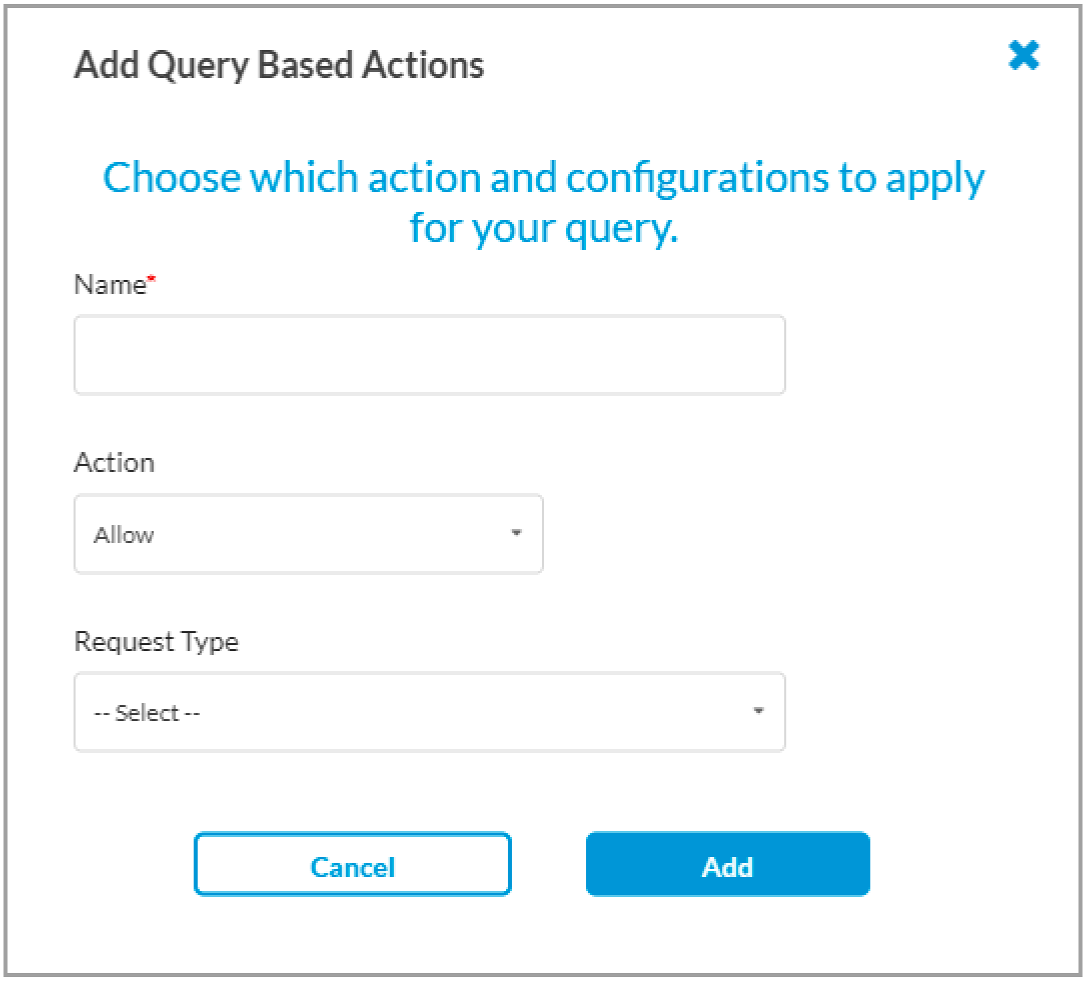
5. Click Next to go to the Query-Based Actions screen, to define rules for DNS operation codes (opcodes), which are commands that are sent to the DNS server to have it perform an action.



By default, all fields have been configured. Otherwise, you can choose which queries to enforce for your DNS filtering.

	NAME	ACTION	REQUEST TYPE	DETAILS
		No Data		

6. Click the + Add icon, and in the Add Query-Based Actions popup window, enter information for the following fields.



Add Query Based Actions

Choose which action and configurations to apply for your query.

Name*

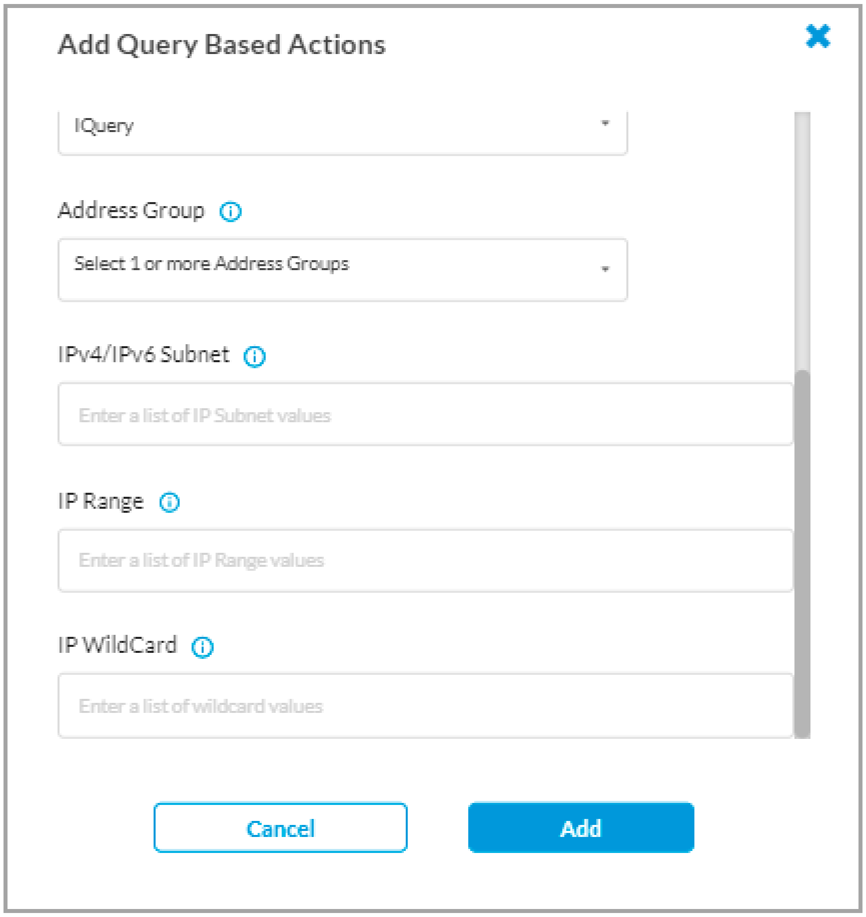
Action: Allow

Request Type: -- Select --

Field	Description
Name (Required)	Enter a name for the query-based action.
Action	Select the action to take on the DNS request: ◦ Alert—Allow the DNS response and generate an entry in the DNS filtering log in Versa Analytics. ◦ Allow—Allow the DNS response without generating an entry in the DNS filtering log in Versa Analytics. ◦ Drop Packet—The browser waits for a response from the DNS server and then drops the packet. It is not possible to determine whether the packet was dropped because of a delayed response from the DNS server or because a firewall blocked access to the website. ◦ Drop Session—The browser waits for a response from the server and drops the session. It is not possible to determine whether the session was dropped because of a delayed response from the DNS server or because a firewall blocked access to the website. ◦ Reject—Send an ICMP unreachable message back to the client. ◦ Sinkhole—Return a false IP address to the URL, thus blocking a DNS sinkhole. A DNS sinkhole spoofs DNS servers to prevent the resolution of the hostnames associated with URLs. This action can help you identify infected hosts in a network if a firewall is unable to find the original source IP address of DNS request sender. Sinkhole malware DNS queries create responses to the client host queries directed at malicious domains and try to connect to a sinkhole IP address instead of connecting to malicious domains. You can check the traffic logs to identify infected hosts.
Request Type	Select the type of DNS opcode to which the rule applies: ◦ IQuery—Send a request for an inverse DNS query command. ◦ Notify—Send a request for a DNS notify command.

	◦ Query—Send a request for a DNS query command. ◦ Status—Send a request for a DNS status command. ◦ Update—Send a request for a DNS update command. For each request type, you must enter additional information, as described in the following steps.

7. For the IQuery request type, enter information for the following fields.



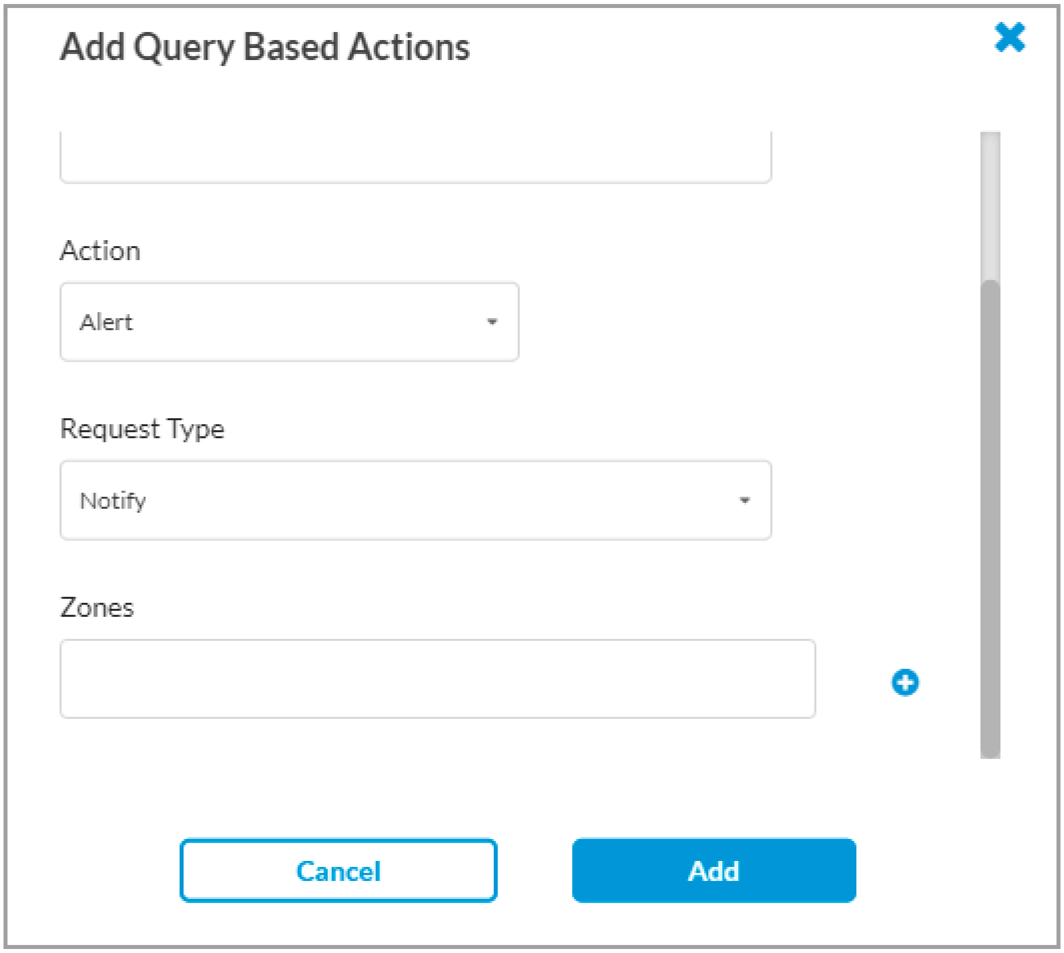
Add Query Based Actions

IQuery

Address Group
Select 1 or more Address Groups
IPv4/IPv6 Subnet
Enter a list of IP Subnet values
IP Range
Enter a list of IP Range values
IP WildCard
Enter a list of wildcard values
Cancel
Add

Field	Description
Address Group	Select one or more address groups.
IPv4/IPv6 Subnet	Enter a list of IPv4 or IPv6 subnet values.
IP Range	Enter a list of IP address ranges.
IP Wildcard	Enter a list of IP address wildcard values.

8. For the Notify or Status request type, click the + Add icon to add zone names.



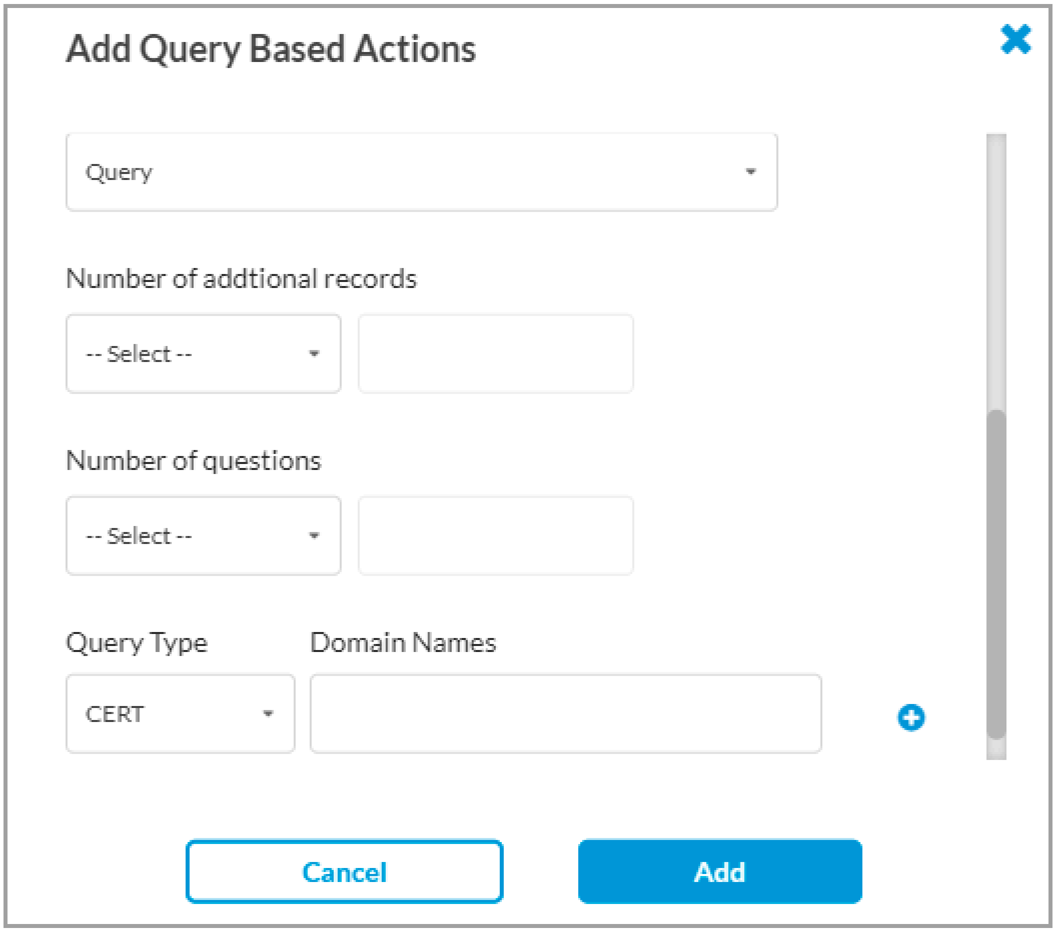
Add Query Based Actions

Action: Alert

Request Type: Notify

Zones

9. For the Query request type, enter information for the following fields.



Add Query Based Actions

Query

Number of addtional records

-- Select --

Number of questions

-- Select --

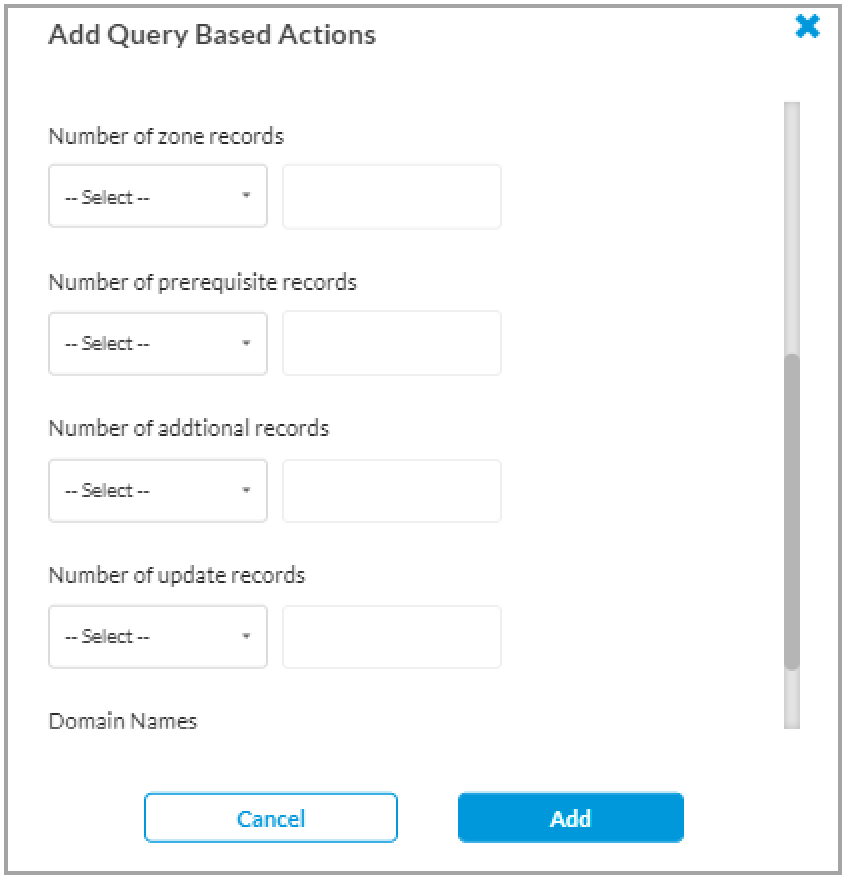
Query Type: CERT

Domain Names

Field	Description
Number of Additional Records	Enter the number of additional records and select one of the following operators: ◦ equal-to ◦ greater-than ◦ less-than ◦ not-equal-to
Number of Questions	Enter the number of questions and select one of the following operators: ◦ equal-to ◦ greater-than ◦ less-than ◦ not-equal-to

Query Type	Select the query type.
Domain Names	Enter the domain name. Click the + Add icon to add more domain names.

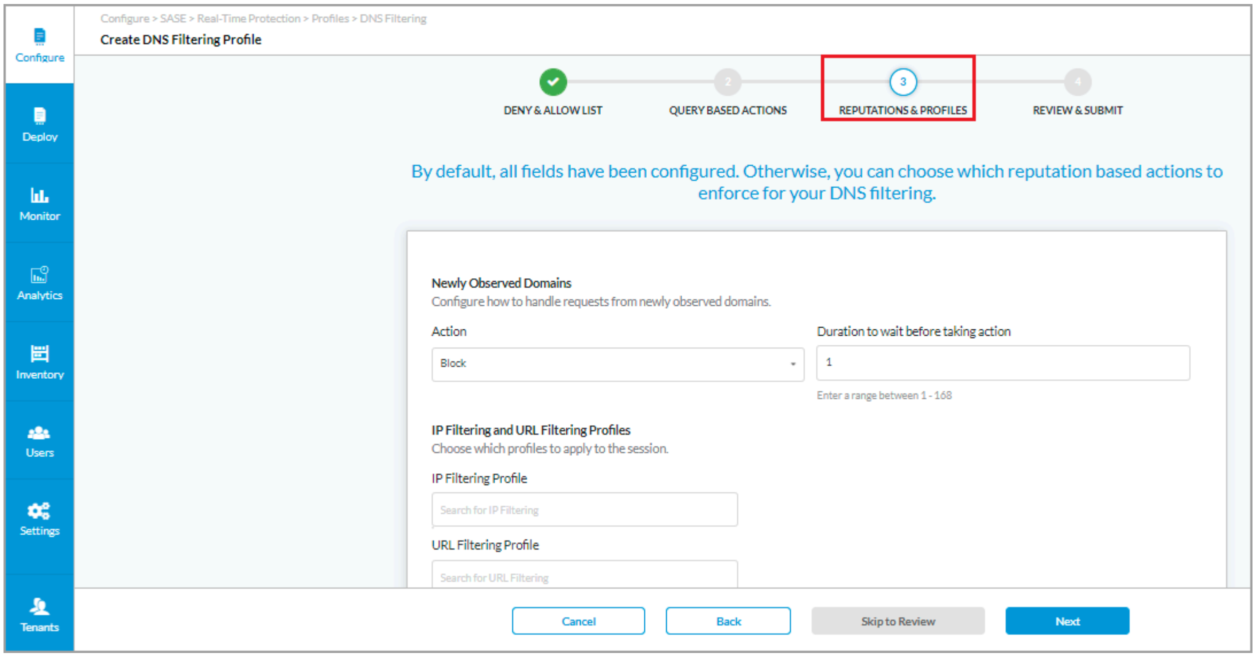
10. For the Update request type, enter information for the following fields.



Field	Description
Number of Zone Records	Enter the number of zone records and select one of the following operators: ◦ equal-to ◦ greater-than ◦ less-than ◦ not-equal-to
Number of Prerequisite Records	Enter the number of prerequisite records and select one of the following operators:

	◦ equal-to ◦ greater-than ◦ less-than ◦ not-equal-to
Number of Additional Records	Enter the number of additional records and select one of the following operators: ◦ equal-to ◦ greater-than ◦ less-than ◦ not-equal-to
Number of Update Records	Enter the number of update records and select one of the following operators: ◦ equal-to ◦ greater-than ◦ less-than ◦ not-equal-to
Domain Name	Click the ⊞ Add icon to add domain names.

11. Click Next to go to the Reputations and Profiles screen, to define how to handle DNS requests from newly observed website domains. Enter information for the following fields.



Configure > SASE > Real-Time Protection > Profiles > DNS Filtering

Create DNS Filtering Profile

By default, all fields have been configured. Otherwise, you can choose which reputation based actions to enforce for your DNS filtering.

Newly Observed Domains

Configure how to handle requests from newly observed domains.

Action: Block

Duration to wait before taking action: 1

Enter a range between 1 - 168

IP Filtering and URL Filtering Profiles

Choose which profiles to apply to the session.

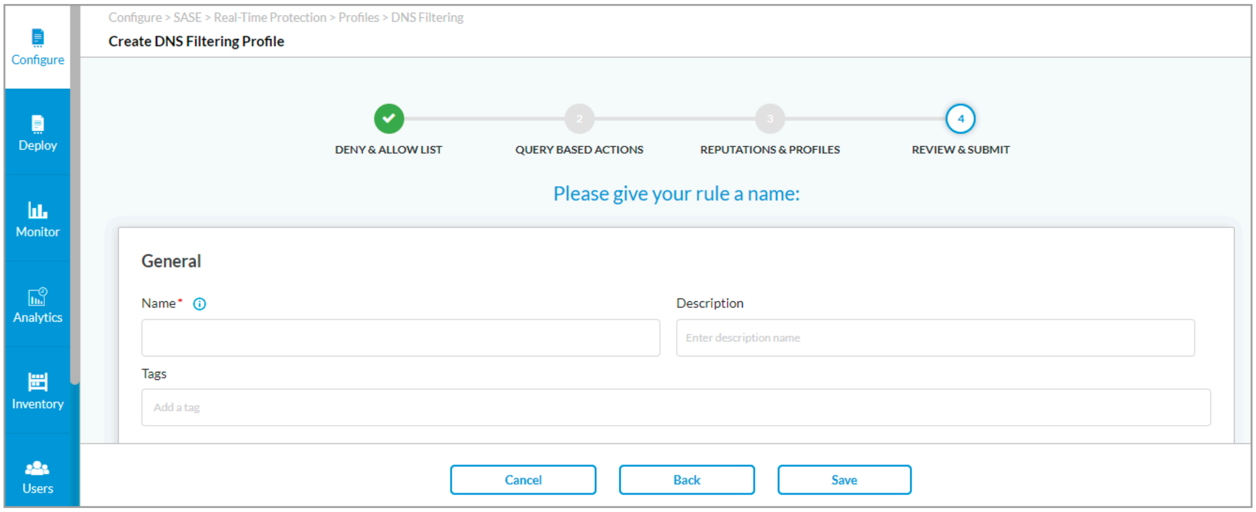
IP Filtering Profile: Search for IP Filtering

URL Filtering Profile: Search for URL Filtering

Field	Description
Newly Observed Domains (Group of Fields)	Configure how to handle requests from newly observed domains.
◦ Duration	How long to wait, in hours, before taking the configured action on a newly obs *Range:* 1 through 168 hours
◦ Action	Action to take on the newly observed domain: ◦ Alert—Allow the DNS response and generate an entry in the DNS filterin ◦ Allow—Allow the DNS response and do not an entry in the DNS filtering l ◦ Drop Packet—Have the browser wait for a response from the DNS serve not possible to determine whether the packet was dropped because of a because a firewall blocked access to the website. ◦ Drop Session—Have the browser waits for a response from the server ar possible to determine whether the session was dropped because of a no because a firewall blocked access to the website ◦ Reject—Send an ICMP unreachable message back to the client.

	◦ Sinkhole—Return a false IP address to the URL, thus blocking a DNS sir DNS servers to prevent the resolution of the hostnames associated with identify infected hosts in a network if a firewall is unable to find the origina request sender. Sinkhole malware DNS queries create responses to the malicious domains and try to connect to a sinkhole IP address instead of domains. You can check the traffic logs to identify infected hosts.
IP-Filtering and URL-Filtering Profiles (Group of Fields)	Choose the profiles to apply to the session.
◦ IP-Filtering Profile	Select an IP-filtering profile to use to evaluate the resolved IP addresses and associated with the domain. The action taken based on the IP-filtering profile select predefined and custom IP-filtering profiles. For more information, see C Profiles.
◦ URL-Filtering Profile	Select the URL-filtering profile to use to evaluate domain names and commor response messages. The action taken based on the URL-filtering profile appli predefined and custom URL-filtering profiles. For more information, see Confi Profiles.

12. Click Next to go to the Review and Submit screen.



Configure > SASE > Real-Time Protection > Profiles > DNS Filtering

Create DNS Filtering Profile

DENY & ALLOW LIST — QUERY BASED ACTIONS — REPUTATIONS & PROFILES — REVIEW & SUBMIT

Please give your rule a name:

General

Name*

Description: Enter description name

Tags: Add a tag

Cancel | Back | Save

13. In the General section, enter a name for the DNS-filtering profile and, optionally, a description and tags.
14. For all other sections, review the information. If you need to make changes, click the Edit icon.
15. Click Save.

To delete a file DNS profile, select the profile in the DNS Filtering tab and click the 🗑 Delete Delete icon.

Supported Software Information

Releases 11.2.1 and later support all content described in this article.

Additional Information

Configure Custom URL-Filtering Profiles
Configure SASE Internet Protection Rules