FORESCOUT

Forescout

Core Extensions Module: DNS Query Extension Plugin

Configuration Guide

Version 1.3

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About the Documentation

- Refer to the Resources page on the Forescout website for additional technical documentation: https://www.forescout.com/company/resources/
- Have feedback or questions? Write to us at documentation@forescout.com

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About the DNS Query Extension

The DNS Query Extension Plugin is a component of the Forescout® Core Extensions Module. See Core Extensions Module Information for details about the module.

The DNS Query Extension Plugin is an internal component of the Forescout platform that provides a service for various features in the product. In addition, it provides stand-alone features that:

- Determine whether a given endpoint in the network is a DNS server.
- Check DNS lookups of specific domain names performed by network endpoints. For example, it can detect endpoints that browsed to a specific website, and then it can trigger an action to block those endpoints.

The DNS Query Extension sees traffic via the SPAN port. It detects and parses DNS messages in the network that reference specific host names. It does not report other DNS interactions.

This extension provides host properties in the Device Information folder. See Detecting Endpoints – DNS Query Properties.

Configure the Extension

No configuration is required to work with the extension.

Verify That the Plugin Is Running

After installation, verify that the plugin is running.

To verify:

1. Select **Tools**>**Options** and then select **Modules**.
2. Navigate to the plugin and select **Start** if the plugin is not running.

Tune the Performance of the Extension

By default, the DNS Query Extension Plugin reports DNS Event entries for every endpoint that requests or receives DNS addresses of interest. The reporting frequency of DNS Event entries can be high.

Forescout defines DNS addresses of interest as:

- DN patterns raised by policy conditions, or by the Flow Connector or NetFlow Plugin
- DNS names that determine which indicators are CNC IOCs

The plugin provides two rate settings to limit the frequency of DNS Events. You can define a *threshold* and a *period* for each setting, where the *threshold* is the

maximum number of events to handle per *period.* You must provide both rate settings to tune the performance of the plugin.

You can set rate limits for:

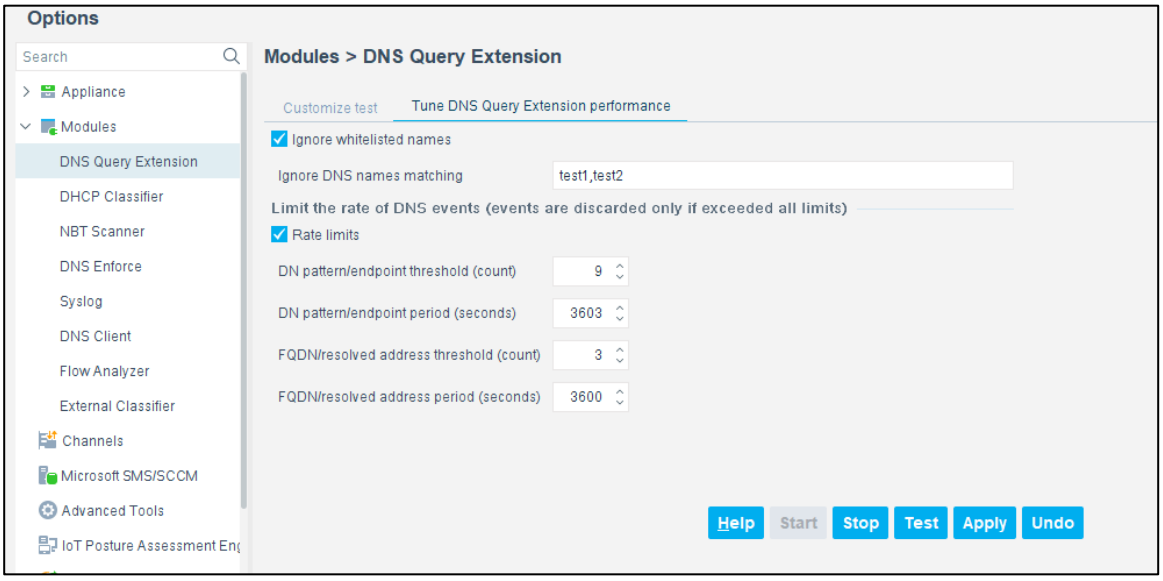
- DN Pattern/Endpoint limit: Used to avoid flooding an endpoint with entries after the policy condition matched the endpoint. By default: For a distinct combination of DN Pattern and Endpoint address, resolve only one DNS Event property per hour.
- FQDN/Resolved Address limit: Used to avoid flooding additional endpoints with entries, after a suspicious address is reported for the traffic on any endpoint. By default: For distinct combination of FQDN and Resolved Address, resolve only one DNS Event property per hour (regardless of actual arbitrary endpoint).

To tune the extension:

1. In the Forescout Console, select **Options** from the **Tools** menu. The Options dialog box opens.
2. Navigate to and select the **Modules** folder.
3. Select **DNS Query Extension**, and select the **Tune DNS Query Extension performance** tab.
4. Configure the following fields to fine-tune the CounterACT device's connection to the DNS servers it detects.

Ignore whitelisted names:	Enable this option for ignoring any matching whitelisted entries.
Ignore DNS names matching	Do not resolve the DNS Event property for names that match any of the entries (regular expressions) in this list. You must separate the entries in the list with commas.
Limit the rate of DNS events (events are discarded only if all limits are exceeded):	Enable this option for ignoring DNS Events when either of the rate limits is reached. Note: You must apply *both* rate limits to tune the plugin's performance.
DN pattern/endpoint threshold (count):	In accordance with DN Pattern / Endpoint *period* (seconds) defined below: Do not report the DNS Event property more than the *threshold* number of times specified in this field, per *period*.
DN pattern/endpoint period (seconds):	For any given distinct combination of Endpoint and DN Pattern: Do not report the DNS Event property more than the above-defined *threshold* number of times, per *period* defined in this field.
FQDN/resolved address threshold (count):	In accordance with FQDN / resolved address period (seconds) defined below: Do not report the DNS Event property more than the *threshold* number of times specified in this field, per *period*.

FQDN / resolved address period (seconds):	For any given distinct combination of FQDN and Resolved Address: Do not report the DNS Event property more than the above-defined *threshold* number of times, per *period* defined in this field.



5. Select **Apply** to configure the CounterACT device with the specified performance tuning values.
6. Select **Test** to test the performance.

Test the Extension

Run a test to:

- Verify that the Appliance can see traffic via the SPAN port.
- See the DNS traffic detected in the test time-frame or within a packet count limit.
- Develop and verify regular expressions to use as policy conditions for the DNS Event Property.

Running a test does not let you:

- See the *Is a DNS Server* and *DNS Event* property values.

Use the following procedure to test the extension's ability to parse DNS messaging.

To test the extension:

1. In the Forescout Console, select **Options** from the **Tools** menu. The Options dialog box opens.
2. Navigate to and select the **Modules** folder.
3. Select **DNS Query Extension**, and select the **Customize test** tab.

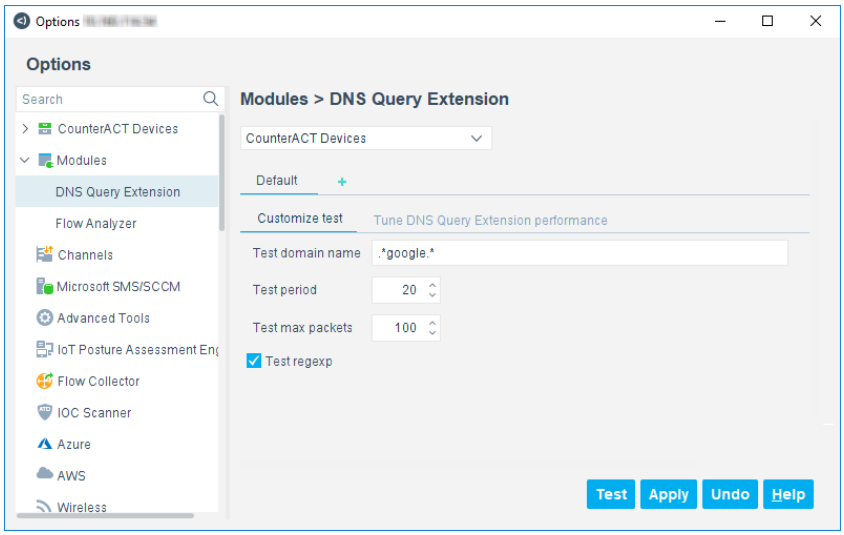
4. Configure the following fields to test the CounterACT device's connection to the DNS servers it detects.

Test domain name	Indicates a domain name used in test queries sent to DNS servers.
Test period	Indicates the maximum time period of the test, in seconds.
Text max packets	Indicates the maximum number of packets that are processed during the test.
Test regexp	Indicates whether the text in the **Test domain name** field should be evaluated as a regular expression.

5. Select **Apply** to configure the CounterACT device with the specified test values.
6. Repeat this procedure to configure test values on other CounterACT devices.
7. Select **Test** to test the extension.

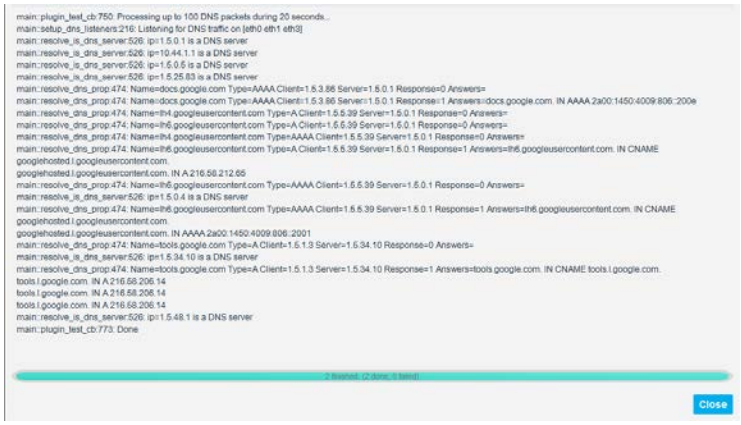
Sample Test

- Test domain name: ***.*google.***
- Test period: ***20***
- Test max packets: ***100***
- Test regexp: ***(Checked)***



This example runs a traffic sniffer (pcap) for a maximum of 20 seconds or until the packet count is reached.

While capturing, it displays the packets that match the exact name unless "regexp" was selected, in which case it prints all those that constitute a regular expression.



In order to generate traffic for the sample text, open an internet browser and navigate to ***drive.google.com*** or ***mail.google.com*** on a computer connected to a network monitored by the Forescout platform.

The output appears as follows:

```
Processing up to 100 DNS packets during 20 seconds...

Listening for DNS traffic on [eth0 eth1]

Name=drive.google.com Type=A Client= endpoint-ip Server= dns-server-ip Response=0 Answers=

<…etc…>

Done.
```

Detecting Endpoints – DNS Query Properties

This extension provides the following host properties in the Device Information folder:

- Is a DNS Server
- DNS Event

You can use these properties in custom policies. Refer to the *Forescout Administration Guide* for more information on custom policies.

Is a DNS Server

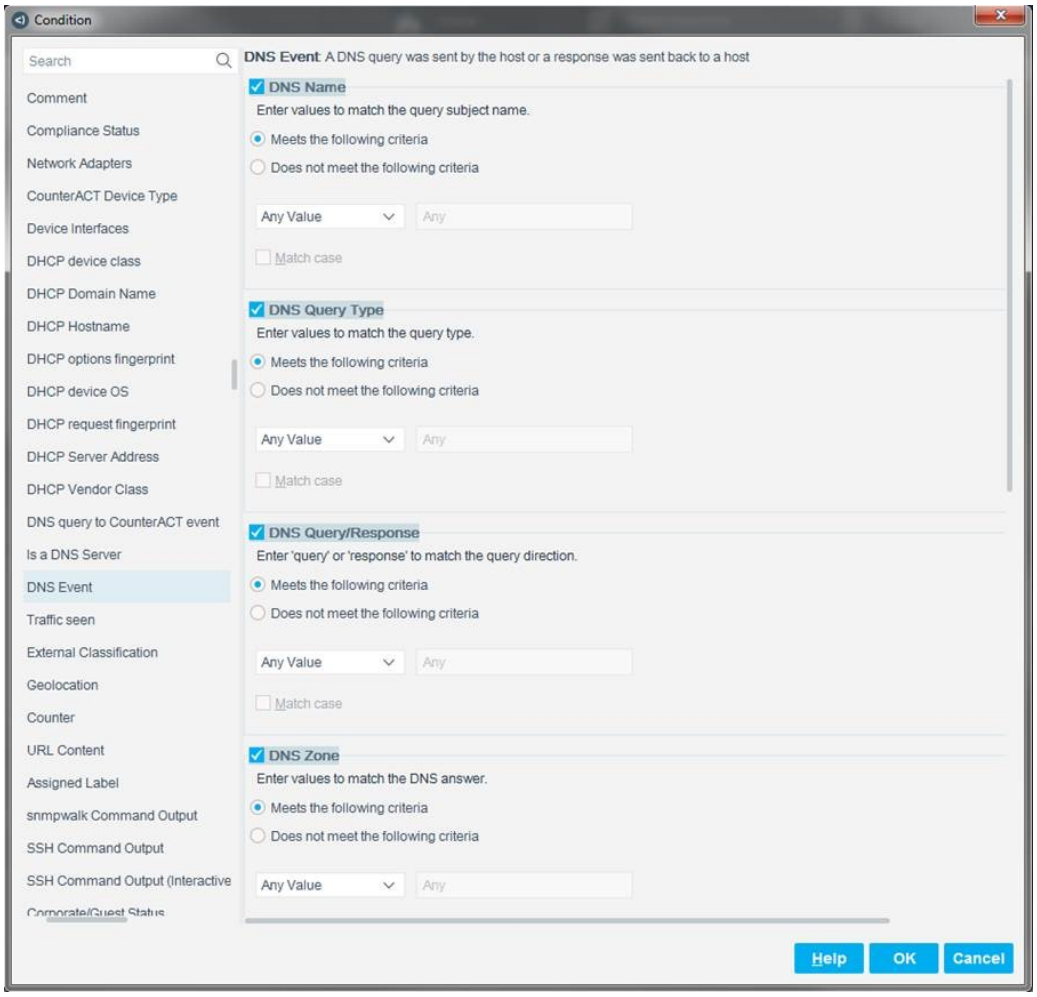
This Boolean property indicates if the DNS Query Extension has observed the host accepting and responding to DNS queries.

DNS Event

This composite property indicates details of DNS messages to and from the host that were parsed by the DNS Query Extension during any of the following:

- DNS Monitoring for Policy Conditions

- DNS Monitoring for IOCs



Enter values to filter the condition search.

If the filters are not restrictive enough and the number of searches is high, the condition will not work properly.

The following information is reported for all DNS messages.

DNS Name	Indicates the hostname that the DNS server is asked to resolve.
DNS Query Type	Indicates the Query Type of the DNS message. This is also known as the Request Type, Record Type, or Lookup Type.
DNS Query/Response	Indicates whether this message is the initial query or the response of the DNS Server. Valid string values are “query” and “response”.
DNS Zone	In DNS response messages, contains the response message in zone file format.
DNS Addresses	In DNS response messages, indicates the IP addresses returned by the DNS server.

DNS Server Address	Indicates the IP address of the DNS server to which the query is addressed.
DNS Monitoring Tag	Indicates the reason that the Forescout platform monitors messaging for the specified hostname. Valid values are: ▪ **Policy** – Indicates that this hostname is specified in a policy condition using this host property. See DNS Monitoring for Policy Conditions. ▪ **ATD** – Indicates that Advanced Threat Detection mechanisms have identified this hostname for monitoring. See DNS Monitoring for IOCs. ▪ **FLOW** – Indicates that the Flow Analyzer has identified this hostname for monitoring. See DNS Monitoring for the Flow Analyzer. All values can be valid simultaneously for a single DNS name.

DNS Monitoring for Policy Conditions

When you create a policy condition using the **DNS Event** property provided by the extension, the Forescout platform monitors DNS traffic that matches the host name you specify. Only messages that reference the specific host names of interest are reported.

DNS Monitoring for IOCs

When a *DNS Query* IOC (indicator of compromise) is reported to the Forescout platform, the IOC Scanner initiates DNS monitoring that detects all DNS interactions that reference the suspect host name mentioned in the IOC. Only messages that reference the specific host names of interest are reported.

DNS Monitoring for the Flow Analyzer

When the Flow Analyzer is configured to collect flow data statistics, the Forescout platform monitors DNS traffic samples.

Core Extensions Module Information

The DNS Extensions plugin is installed with the Forescout Core Extensions Module.

The Forescout Core Extensions Module provides an extensive range of capabilities that enhance the core Forescout solution. These capabilities enhance detection, classification, reporting, troubleshooting and more. The following components are installed with the Core Extensions Module:

Advanced Tools Plugin	Dashboard Plugin	NBT Scanner Plugin
CEF Plugin	Device Classification Engine	Packet Engine
DHCP Classifier Plugin	External Classifier Plugin	Reports Plugin
DNS Client Plugin	Flow Analyzer Plugin	Syslog Plugin
DNS Enforce Plugin	Flow Collector	Technical Support Plugin
DNS Query Extension Plugin	IOC Scanner Plugin	Web Client Plugin

IoT Posture Assessment Engine

The Core Extensions Module is a Forescout Base Module. Base Modules are delivered with each Forescout release. This module is automatically installed when you upgrade the Forescout version or perform a clean installation.

Additional Forescout Documentation

For information about other Forescout features and modules, refer to the following resources:

- Documentation Downloads
- Documentation Portal
- Forescout Help Tools

Documentation Downloads

Documentation downloads can be accessed from the Forescout Resources Page, or one of two Forescout portals, depending on which licensing mode your deployment is using.

- ***Per-Appliance Licensing Mode*** – Product Updates Portal
- ***Flexx Licensing Mode*** – Customer Portal

Software downloads are also available from these portals.

To identify your licensing mode:

- From the Console, select **Help > About Forescout**.

Forescout Resources Page

The Forescout Resources Page provides links to the full range of technical documentation.

To access the Forescout Resources Page:

- Go to https://www.Forescout.com/company/resources/, select **Technical Documentation** and search for documents.

Product Updates Portal

The Product Updates Portal provides links to Forescout version releases, Base and Content Modules, and eyeExtend products, as well as related documentation. The portal also provides a variety of additional documentation.

To access the Product Updates Portal:

- Go to https://updates.forescout.com/support/index.php?url=counteract and select the version you want to discover.

Customer Portal

The Downloads page on the Forescout Customer Portal provides links to purchased Forescout version releases, Base and Content Modules, and eyeExtend products, as well as related documentation. Software and related documentation will only appear on the Downloads page if you have a license entitlement for the software.

To access documentation on the Forescout Customer Portal:

- Go to https://Forescout.force.com/support/ and select **Downloads**.

Documentation Portal

The Forescout Documentation Portal is a searchable, web-based library containing information about Forescout tools, features, functionality, and integrations.

If your deployment is using Flexx Licensing Mode, you may not have received credentials to access this portal.

To access the Documentation Portal:

- Go to https://updates.forescout.com/support/files/counteract/docs_portal/ and use your customer support credentials to log in.

Forescout Help Tools

Access information directly from the Console.

Console Help Buttons

Use context sensitive *Help* buttons to quickly access information about the tasks and topics you are working with.

Forescout Administration Guide

- Select **Forescout Help** from the **Help** menu.

Plugin Help Files

- After the plugin is installed, select **Tools** > **Options** > **Modules**, select the plugin and then select **Help**.

Online Documentation

- Select **Online Documentation** from the **Help** menu to access either the Forescout Resources Page (Flexx licensing) or the Documentation Portal (Per-Appliance licensing).