ForeScout CounterACT®

Endpoint Module: HPS Inspection Engine

Configuration Guide

Version 10.8

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About the HPS Inspection Engine

The HPS (Host Property Scanner) Inspection Engine is a component of the ForeScout CounterACT® Endpoint Module. See Endpoint Module Information for details about the module.

The HPS Inspection Engine allows CounterACT to:

- Access Microsoft Windows endpoints
- Apply Classification procedures to endpoints to determine their Network Function.
- Perform comprehensive, deep inspection for the purpose of resolving an extensive range of endpoint information, such as operating system details, Windows security, machine, services, application information and more.
- Use CounterACT *actions* to manage, remediate or control endpoints.

This document describes how to configure HPS Inspection Engine and provides other information including supported operating systems, executables and processes generated by HPS Inspection Engine, and troubleshooting issues.

🗎 *Some of the functionality and configuration settings described here apply primarily to Windows endpoints. Configure with the OS X Plugin and the Linux Plugin to provide parallel functionality for OS X or Linux endpoints.*

Requirements

HPS Inspection Engine requires the following CounterACT releases and other CounterACT components:

- CounterACT version 8.0
- An active Maintenance Contract for CounterACT devices
- Core Extensions Module version 1.0 including the DNS Client Plugin
- The following Content Modules:
  - Windows Applications version 18.0.1
  - NIC Vendor DB version 17.0.12
  - Windows Vulnerability DB version 18.0.1.1001

Supported Windows Operating Systems

The HPS Inspection Engine can manage the following operating systems. 32-bit and 64-bit machines are supported.

- Windows 2000 Professional/Server/Advanced Server/Datacenter Server, with Service Pack 4 and above installed.
- Windows XP Home/Professional/Tablet PC and embedded packages
- Windows Vista Home/Business/Enterprise/Ultimate
- Windows 7 Starter/Home/Professional/Enterprise/Ultimate

- Windows 8 Standard/ Professional/Enterprise
- Windows 8.1 Standard/ Professional/Enterprise
- Windows 10 Home/Professional/Enterprise/Education/Enterprise LTSB
- Windows Server 2003 Standard/Enterprise/Datacenter/Web
- Windows Server 2008 Standard/Enterprise/Datacenter/Web Server and core packages
- Windows Server 2012 Standard/Essentials/Foundation/Datacenter
- Windows Server 2016 Standard/Essentials/Datacenter
- Windows Storage Server 2016

Accessing and Managing Endpoints

The plugin accesses endpoints to learn detailed information such as file metadata, operating system information, and more. In addition, the plugin is used to run scripts on endpoints and to perform other remediation actions.

When you configure the plugin, you determine the methods you want to use to access and manage endpoints. When CounterACT successfully implements these access methods on an endpoint, the endpoint is resolved as *Manageable* by CounterACT.

The plugin provides the following methods to access endpoints:

- Remote Inspection
- SecureConnector

Both methods can be deployed together in a single network environment.

Remote Inspection

Remote Inspection uses the SSH communications protocol to query the endpoint and to run scripts and implement remediation actions on the endpoint.

Agentless

Remote Inspection is *agentless* - CounterACT does not install any applications on the endpoint to query it. This makes Remote Inspection useful when administrators or end users do not want to install utilities or other executables on the endpoint.

Specify remote inspection settings in the Remote Inspection tab during plugin configuration.

The following properties indicate whether CounterACT accesses and manages an endpoint using Remote Inspection:

- Linux Manageable (SSH Direct Access)
- Macintosh Manageable (SSH Direct Access)
- Windows Manageable Domain
- Windows Manageable Domain (Current)
- Windows Manageable Local

SecureConnector

SecureConnector is a small-footprint executable that runs on the endpoint. It reports endpoint information to CounterACT, and implements actions on the endpoint. The *Start SecureConnector* action initiates SecureConnector installation on endpoints.

Agent-Based

The SecureConnector executable file must be installed and maintained on the endpoint. This may not be acceptable in certain network environments, or for some endpoints or users. SecureConnector can be installed in several ways:

SecureConnector on Endpoint	Windows Endpoints	Linux Endpoints	OS X Endpoints
As a dissolvable utility	✓	✓	✓
As a permanent application	✓	✗	✗
As a permanent service / system daemon	✓	✓	✓

The following properties indicate whether CounterACT accesses and manages an endpoint using SecureConnector:

- Linux Manageable (SecureConnector)
- Macintosh Manageable (SecureConnector)
- Windows Manageable SecureConnector
- Windows Manageable SecureConnector (via any interface)

Configure HPS Inspection Engine

You can configure HPS Inspection Engine to:

- Add or update Windows domain credentials
- Define general SecureConnector settings
- Define global options when working with the *Start Windows Updates* action
- Specify resolution methods and default values for various global parameters
- Specify test parameters and test connectivity

Configuration by Region or Appliance

By default, the settings defined for the HPS Inspection Engine are applied to all Appliances. If required, you can create separate configurations for each Appliance or for a group of Appliances in the same geographical region. See Configuration for an Appliance or Group of Appliances for details.

Troubleshooting Configuration

If you have configured HPS Inspection Engine but cannot access certain Windows endpoints or you see that deep inspection is not being carried out properly, see Appendix B: Troubleshooting the HPS Inspection Engine for details.

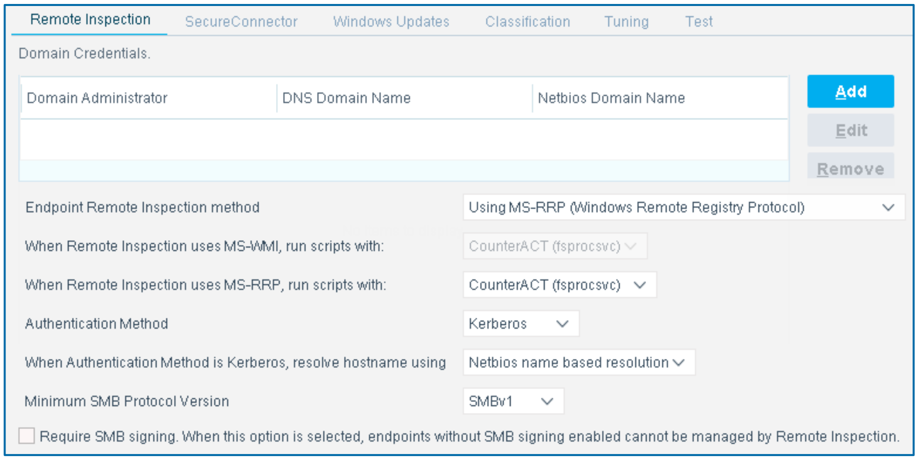
Access HPS Inspection Engine Configuration Pane

To configure HPS Inspection Engine:

1. In the CounterACT Console, select **Options** from the **Tools** menu.
2. Select **Modules > Endpoint > HPS Inspection Engine**. Then select **Configure**.
3. Configure as required. The options in each of the tabs are described in the following sections.
4. Select **Apply** to save your changes.

Remote Inspection

Remote Inspection uses MS-WMI, MS-RRP, RPC, and other standard inspection/management protocols to manage Windows endpoints. When you use Remote Inspection to manage endpoints, use this tab to configure how HPS Inspection Engine performs Remote Inspection.



Domain Credentials.

Domain Administrator	DNS Domain Name	Netbios Domain Name

Endpoint Remote Inspection method: Using MS-RRP (Windows Remote Registry Protocol)

When Remote Inspection uses MS-WMI, run scripts with: CounterACT (fsprocsvc)

When Remote Inspection uses MS-RRP, run scripts with: CounterACT (fsprocsvc)

Authentication Method: Kerberos

When Authentication Method is Kerberos, resolve hostname using: Netbios name based resolution

Minimum SMB Protocol Version: SMBv1

□ Require SMB signing. When this option is selected, endpoints without SMB signing enabled cannot be managed by Remote Inspection.

Domain Credentials

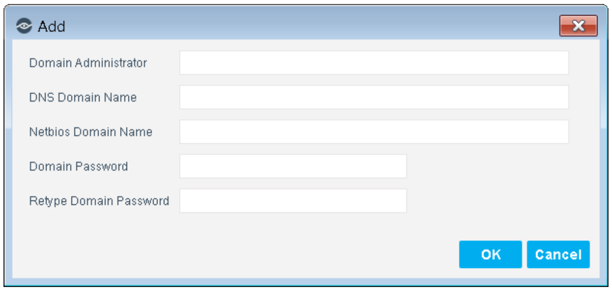
Domain credentials are credentials with local machine administrator privileges used by CounterACT to connect to network endpoints. Basic configuration of domain credentials is usually performed when setting up the CounterACT Console via the Console Initial Setup Wizard. For more information, see the *CounterACT Installation Guide*.

🗎 *Although Domain Administrator privileges are not required for Remote Inspection, local machine administrator credentials* are *required. Any user account in the Local Administrators group of the endpoints has sufficient privileges to perform Remote Inspection on that endpoint. You may use a Domain Administrator account, but it is only necessary to define a domain account which exists in the Local Administrators group of endpoints in the relevant network segment.*

Domain credentials defined during initial setup appear in the Domain Credentials table of the Default tab. For more efficient network communication, and to support networks with distinct regions or segments, you can define separate lists of domain credentials for Appliances or groups of Appliances. For example, you can create a list of credentials that are used by Appliances that monitor a specific network segment or regional subnet. The list of domain credentials defined during initial setup is used if none of the local-specific credentials succeeds. See the *CounterACT Administration Guide* for details of the Initial Setup Wizard.

Select **Add** to define new domain credentials, or **Edit** to modify existing credentials.

🗎 *At least one set of administrator credentials must be defined.*



The following options are available in the Add and Edit dialog boxes:

Domain Administrator	The user name of an administrator account for endpoints that are handled by HPS Inspection Engine.
DNS Domain Name	The Windows domain (name) to which managed endpoints belong. The administrator account must also belong to this domain. To authenticate endpoints, NTLMv2 requires a domain name in upper-case letters. To use Kerberos, enter the FQDN.
NetBIOS Domain Name	(Optional) The NetBIOS domain name of the matching DNS Domain name. This field is optional and may result in better Kerberos authentication.
Domain Password	The password of the administrator account. (CyberArk only) When the Extended Module for CyberArk is installed, the **Password source** field appears. When you select CyberArk as the domain administrator password source, the password is provided by the CyberArk Password Vault. Refer to the ForeScout Extended Module for CyberArk Configuration Guide for more information. See Additional CounterACT Documentation for information on how to access the guide.

General Remote Inspection Settings

Define the following general settings:

Endpoint Remote Inspection method

Choose the protocol that is used to communicate with Windows endpoints. Options include:

- **Using MS-RRP** – HPS Inspection Engine interacts with the endpoint using remote procedure calls (RPCs) to the Windows Remote Registry Service (MS-RRP) on the endpoint.
- **Using MS-WMI** – HPS Inspection Engine uses only the Windows Management Instrumentation (WMI) service to interact with the endpoint. Because WMI does not support interactive scripts on all Windows endpoints, these scripts are implemented using the method you select in the Script Execution Method field.
- **MS-WMI with fallback to MS-RRP** - HPS Inspection Engine first tries to use the Windows Management Instrumentation (WMI) service to interact with each endpoint. If WMI services are not running on an endpoint, HPS Inspection Engine uses the Windows Remote Registry Service to interact with that endpoint.

See Working with Remote Inspection for more information about Remote Inspection options and the services that must be running on Windows endpoints.

When Remote Inspection uses MS-WMI, run scripts with

Choose the service HPS Inspection Engine uses to run scripts on the endpoint. Options include:

- **MS-WMI** – note that interactive scripts are not supported by WMI on all Windows endpoints. Functionality that relies on interactive endpoint scripts is not implemented when you choose this option. For example, the Start Antivirus and Update Antivirus actions require interactive scripts to manage some antivirus packages.
- **CounterACT fsprocsvc** – fsprocsvc is a proprietary ForeScout service utility downloaded by HPS Inspection Engine to endpoints. This utility is able to implement interactive scripts on endpoints.

When Remote Inspection uses MS-RRP, run scripts with

Choose the service HPS Inspection Engine uses to run scripts on the endpoint. Options include:

- **CounterACT fsprocsvc** - a proprietary ForeScout service utility downloaded by HPS Inspection Engine to endpoints.
- **Windows Task Scheduler** – this standard service launches scripts and other processes on most Windows platforms.

See Script Execution Services for more information about these options.

Authentication Method

Choose the protocol CounterACT uses to authenticate connections to endpoints for Remote Inspection. Options include:

- **Kerberos** - CounterACT uses the Kerberos servers installed in domain controllers of your environment. See About Kerberos for details.
- **NTLMv1 only** - this option is provided for backwards compatibility, but for security reasons it is not recommended.
- **NTLMv2 only** - for security reasons, CounterACT does not fall back to NTLMv1 when this option is selected.

For enhanced security, it is strongly recommended to use the NTLMv2 or Kerberos protocols for authentication.

🗎 *For security reasons, LMv2 responses are disabled by default. To enable use of LMv2 responses, change this setting in the Tuning tab of the HPS Inspection Engine configuration pane.*

When Authentication Method is Kerberos, resolve hostname using

Choose whether Kerberos resolves the hostname using information from the SPNEGO handshake, or using a DNS query.

Minimum SMB Protocol Version

SMB clients and servers negotiate the SMB version they will use. Choose the minimum SMB version that CounterACT uses to connect with endpoints.

When you configure this setting, you must balance between two considerations:

- The enhanced security provided by newer SMB versions
- The presence of endpoints in your network that run Windows versions with limited SMB support.

The following table summarizes SMB version support in recent Windows versions.

🗎 *Early Windows 10 and Windows Server 2016 previews used SMB dialect version 3.1.*

SMB Version	Earliest Windows Support
SMB 3.1.1	Windows 10 Windows Server 2016
SMB 3	Windows 8 Windows Server 2012
SMB 2	Windows Vista Windows Server 2008
SMB 1	Previous versions

Require SMB signing

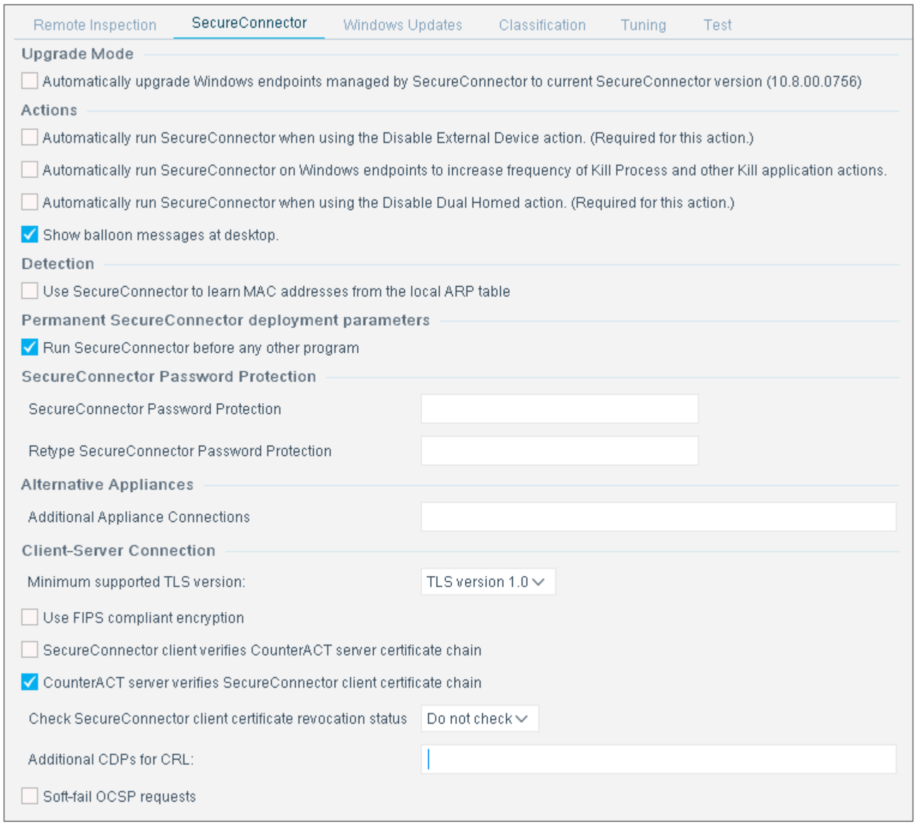
When this option is selected, CounterACT requires digitally signed SMB communication for every new connection to an endpoint. When this option is cleared, CounterACT supports SMB signing but does not require it.

SMB signing is supported by most Windows endpoints; Microsoft has issued patches that support SMB signing on most legacy Windows versions. It is strongly recommended to enable this option to enhance security during Remote Inspection interactions. See Working with SMB Signing.

SecureConnector

SecureConnector is a light footprint executable that can be run on endpoints to make them manageable by CounterACT. For more information about how SecureConnector works, see Working with SecureConnector.

The following SecureConnector configuration and deployment options are set from the SecureConnector tab of HPS Inspection Engine configuration screen.



Upgrade Mode

□ Automatically upgrade Windows endpoints managed by SecureConnector to current SecureConnector version (10.8.00.0756)

Actions

□ Automatically run SecureConnector when using the Disable External Device action. (Required for this action.)

□ Automatically run SecureConnector on Windows endpoints to increase frequency of Kill Process and other Kill application actions.

□ Automatically run SecureConnector when using the Disable Dual Homed action. (Required for this action.)

☑ Show balloon messages at desktop.

Detection

□ Use SecureConnector to learn MAC addresses from the local ARP table

Permanent SecureConnector deployment parameters

☑ Run SecureConnector before any other program

SecureConnector Password Protection

SecureConnector Password Protection

Retype SecureConnector Password Protection

Alternative Appliances

Additional Appliance Connections

Client-Server Connection

Minimum supported TLS version: TLS version 1.0

□ Use FIPS compliant encryption

□ SecureConnector client verifies CounterACT server certificate chain

☑ CounterACT server verifies SecureConnector client certificate chain

Check SecureConnector client certificate revocation status: Do not check

Additional CDPs for CRL:

□ Soft-fail OCSP requests

Upgrade Mode

Automatically upgrade Windows endpoints managed by SecureConnector to current SecureConnector version

Use this setting to enable or disable automatic updates of SecureConnector for Windows. For details, see Updating SecureConnector.

Actions

Automatically run SecureConnector when using the Disable External Device action

The *Disable External Device* action disables external devices currently connected to the endpoint. This feature is supported only when SecureConnector is installed at the endpoint. Select this option to automatically install SecureConnector when the *Disable External Device* action is used.

Automatically run SecureConnector on Windows endpoints to increase frequency of Kill Process and other Kill application actions

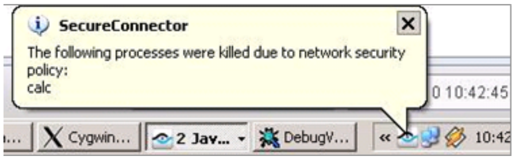
The *Kill Process*, *Kill Instant Messaging* and *Kill Peer-to-peer* actions halt Windows processes related to these features. When SecureConnector is installed the process is killed once a second; if not, the process is killed once a minute. Select this option to automatically install SecureConnector and increase kill frequency (recommended).

Automatically run SecureConnector when using the Disable Dual Homed action

SecureConnector is required to implement the *Disable Dual Homed* action on endpoints. Select this option to install SecureConnector on endpoints that are not running it, when a policy applies the *Disable Dual Homed* action. When this option is not enabled, SecureConnector is not installed on endpoints that do not already run it, and the *Disable Dual Homed* action is not applied to these endpoints.

Show balloon messages at desktop

Select this option to display balloon messages generated by SecureConnector when the *Disable External Devices*, *Kill Process*, *Kill Instant Messaging* and *Kill Peer-to-peer* actions are performed. The message indicates which processes were killed.



SecureConnector

The following processes were killed due to network security policy:
calc

Detection

Use SecureConnector to learn MAC address from local ARP tables

Select this option to instruct CounterACT to learn MAC addresses from the endpoint ARP table when the endpoint is managed by SecureConnector. This enables detection of endpoints that may be otherwise unreachable. When this option is cleared, other methods of MAC learning are used, for example from the Switch Plugin. This option is not available if SecureConnector is located behind a NAT address.

Permanent SecureConnector Deployment Parameters

These settings apply when you deploy SecureConnector as a permanent application.

Run SecureConnector before any other program

Select this option to run SecureConnector before any other desktop program is launched. It is recommended to launch SecureConnector before other programs to prevent other services or applications from blocking SecureConnector. This option is applicable when you install SecureConnector as a permanent application.

SecureConnector Password Protection

You can prevent users from uninstalling, exiting or stopping SecureConnector at the desktop by enforcing password access to these options. Type the password in the field. The password is limited to 24 characters.

Additional Options

This section of the tab includes other options for SecureConnector.

Additional Appliance Connections

Specify CounterACT devices that SecureConnector connects to when it cannot connect to the managing Appliance of the endpoint. SecureConnector first tries to connect to the Enterprise Manager that manages the Appliance, and then to the CounterACT devices listed here. Enter a comma-separated list of IP addresses. Typically this list contains other Appliances managed by this Enterprise Manager.

Minimum supported TLS version

Select the minimum TLS version that is accepted during TLS negotiation for SecureConnector communication.

🗎 *When you configure SecureConnector to require TLS version 1.1 or 1.2 to connect to an Appliance, the following versions of Windows cannot be managed by SecureConnector due to their TLS support limitations:*

- Windows XP
- Windows Vista
- Windows 2008 Server (pre-R2)

Use FIPS compliant encryption

When this option is enabled, SecureConnector communication uses encryption that complies with Federal Information Processing Standard (FIPS) requirements.

🗎 *Enabling this option restricts the ciphers that CounterACT accepts for encrypted communication. Due to limitations in Microsoft cipher support, applications hosted on machines running Windows Server 2008 R2 or below will not have access to ciphers accepted by CounterACT.*

SecureConnector client verifies CounterACT server certificate chain

When this option is enabled, CounterACT presents a certificate to SecureConnector clients when they connect to CounterACT. Clients validate the certificate chain. When you change this setting, CounterACT distributes a new version of SecureConnector to endpoints.

To support certificate-based authentication of the server, use the Certificates pane of the Console to import a server certificate and trust chain into CounterACT, and distribute the server's trust chain to the endpoints.

SecureConnector uses the native Windows API on the endpoint to verify the certificate, including CRL/OCSP revocation checks. When OCSP is used to check revocation, reponses fail hard.

CounterACT server verifies SecureConnector client certificate chain

When this option is enabled, SecureConnector clients on Windows endpoints present a certificate when they connect to CounterACT. CounterACT validates the certificate chain. When you select this option, additional required settings are active.

To support certificate-based authentication of clients, endpoints managed by SecureConnector must have a signed client certificate and trust chain. Your PKI may define several certificates that can be used by SecureConnector, for example certificates defined by geographical location or endpoint roles and permissions. Use the Certificates pane of the Console to import the trust chain(s) into CounterACT.

The following options allow you to check whether client certificates were revoked:

Check SecureConnector client certificate revocation status

Check that the client certificate was not revoked. In the drop-down, specify how the client certificate revocation status is determined:

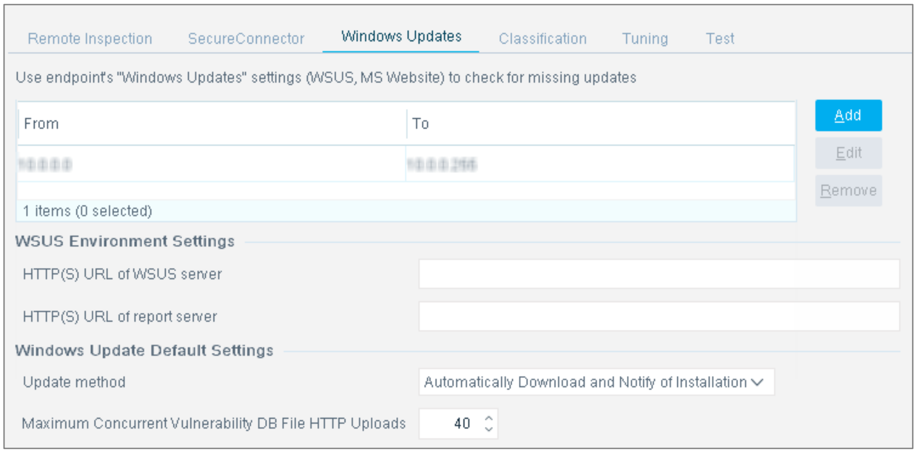
- **Using CRL**: Check if the certificate is in the Certificate Revocation List (CRL) of the issuing Certificate Authority.
- **Using OCSP**: Send an Online Certificate Status Protocol (OCSP) request for the certificate revocation status.

Soft-fail OCSP requests

If CounterACT could not receive a response from the OCSP Responder, the certificate is considered valid. By default, hard-fail is applied.

Windows Updates

Specify parameters to use when scanning for vulnerabilities and installing missing updates. Scanning is activated when you create policies that use the *Microsoft Vulnerabilities* and *Microsoft Vulnerabilities Fine-tuned* properties, and the *Start Windows Updates* and *Windows Self Remediation* actions.



Use endpoint's "Windows Updates" settings (WSUS, MS Website) to check for missing updates

From	To
[redacted]	[redacted]

1 items (0 selected)

WSUS Environment Settings

HTTP(S) URL of WSUS server

HTTP(S) URL of report server

Windows Update Default Settings

Update method: Automatically Download and Notify of Installation

Maximum Concurrent Vulnerability DB File HTTP Uploads: 40

Distributing Vulnerability Information to Windows Endpoints

It may be more efficient for endpoints to retrieve vulnerability information from WSUS or Windows Updates, rather than use the information provided by the Windows Vulnerability DB. It is recommended to continue using WSUS or Windows Update in the following situations:

- When a local WSUS instance is deployed in your network environment.
- When endpoints are connected to your network through a VPN and are physically located at a distance from the Appliance, it may be faster for the endpoint to retrieve vulnerability information directly from the Microsoft Updates website or a local WSUS.

When they are available, you may use other methods to distribute the Microsoft Vulnerability CAB file to endpoints in your environment. HPS Inspection Engine looks for the following file on Windows endpoints:

`%systemroot%\temp\wsusscn2.cab`

If this file is different than the CAB file provided by the Windows Vulnerability DB, CounterACT downloads its own CAB file to the endpoint.

> 🗎 *Refer to the Windows Vulnerability DB Configuration Guide for details of CAB file distribution by CounterACT.*

Using Windows Server Update Services (WSUS) or Windows Update

This section describes how to configure CounterACT to work with vulnerability information retrieved directly from WSUS or Windows Updates.

> 🗎 *In large, geographically dispersed networks with several WSUS instances you can define settings for specific Appliances or groups of Appliances. See Configuration by Region or Appliance for details.*

To use vulnerability information from WSUS or Windows Updates:

1. In the Windows Updates tab, select **Add**. Enter a range of endpoint IP addresses that should retrieve vulnerability information directly from the Windows Updates website or a WSUS instance, depending on the configuration of the Windows endpoint. Note that:
   - When at least one IPv4 range is defined in the table, CounterACT treats all IPv6 subnets covered by this configuration as if they are included in the table. Although they do not appear in the table, IPv6 addressable endpoints use Windows Updates/WSUS.
   - IPv4-only endpoints not included in the specified ranges receive vulnerability information from CounterACT using the Windows Vulnerability DB.
2. If a local WSUS instance exists, enter the URLs of the target WSUS server and WSUS report server in the WSUS Environment Settings area.
3. Select **Apply** to save changes. To test the server connection, select **Test**.

When a local WSUS instance is present and endpoints are configured to use WSUS, only vulnerabilities tracked by the local WSUS instance can be specified in CounterACT policy conditions. In this case, vulnerabilities of interest are determined at the WSUS, and CounterACT policy conditions should detect endpoints with any vulnerability tracked by the WSUS instance. Configure policy conditions as follows:

1. In the CounterACT Console, select the **Policy** tab.
2. Use the search field to locate policies that use the **Microsoft Vulnerabilities** or **Microsoft Vulnerabilities Fine-tuned** host property.
3. For each condition based on these properties:
   - Add all currently listed vulnerabilities to the condition (**Add>Select All**).
   - Select the **Check new vulnerabilities automatically** checkbox.

   The condition now checks for all vulnerabilities tracked by the WSUS instance associated with an endpoint.

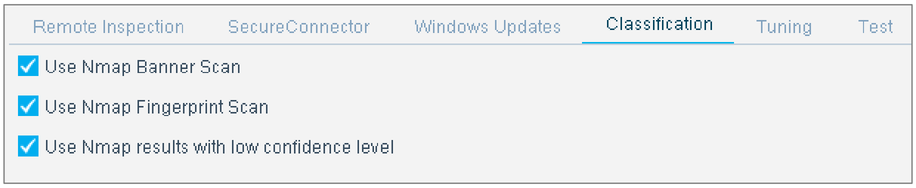
Windows Update Default Settings

The following parameters can be configured in this section:

- Update method
- Maximum Concurrent Vulnerability DB File HTTP Uploads - You can minimize bandwidth usage during Microsoft vulnerability file download processes by limiting the number of concurrent HTTP downloads to endpoints. The default is 20 endpoints simultaneously.

Classification

This tab contains controls that determine how HPS Inspection Engine performs endpoint classification.



☑ Use Nmap Banner Scan

☑ Use Nmap Fingerprint Scan

☑ Use Nmap results with low confidence level

The HPS Inspection Engine powers CounterACT tools used for classifying endpoints. These tools include the classification engine that is part of HPS Inspection Engine, the Primary Classification, Asset Classification and Mobile Classification templates, the **Classify** actions, and **Classification**/**Classification (Advanced)** properties.

The classification engine attempts to identify the category of network asset to which each endpoint belongs. The **Network Function** property reports the results, sorting endpoints into categories.

Use classification policy templates and advanced properties to further refine these categories, or to classify devices into groups which are relevant to your deployment.

The HPS Inspection Engine uses several methods to retrieve information used for classification, such as: knowledge of domain credentials; analysis of HTTP and SMB banners; passive TCP/IP fingerprinting; information resolved on devices managed by CounterACT or switches configured to work with CounterACT; and Nmap scans. Nmap is typically used when other methods do not yield sufficient information to classify an endpoint.

Information reported by other means during endpoint discovery or resolution of host properties is used to aid classification; similarly, information discovered by classification tools is used to populate relevant host properties.

CounterACT Classification Version

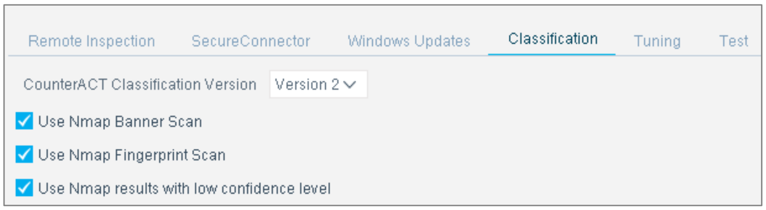
The set of methods used for classification in CounterACT evolves over time to include different tools and larger endpoint fingerprint databases.

- Classification Version 3 is the default version and uses Nmap 7.0.1.
- Classification Version 2 uses the same classification algorithms as Version 3 but uses Nmap 5.21.

For new (scratch) installations, or if you previously ran Classification Version 3 before upgrading to this release:

- Classification Version 3 is used for classification.
- The CounterACT Classification Version drop-down *does not appear in the Classification tab*.

If you were using Classification Version 2 before you upgraded to this release, the CounterACT Classification Version drop-down is provided *to allow you to upgrade. It is strongly recommended to upgrade to Classification Version 3. For details see* Upgrading the Classification Version.



CounterACT Classification Version: Version 2

☑ Use Nmap Banner Scan

☑ Use Nmap Fingerprint Scan

☑ Use Nmap results with low confidence level

🗎 *Even if you continue to use Classification Version 2, CounterACT uses Classification Version 3 to classify IPv6 addressable endpoints.*

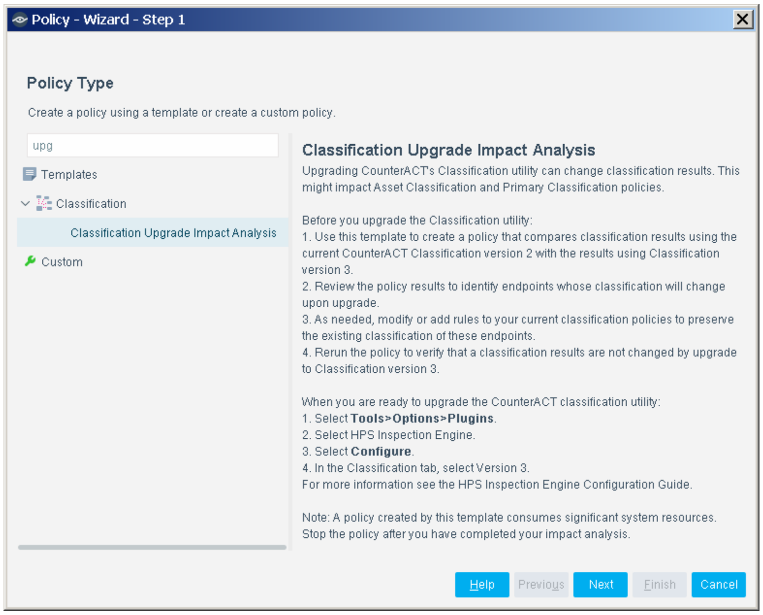
Upgrading the Classification Version

Follow the procedure in this section to upgrade from Classification Version 2 to Classification Version 3. *It is strongly recommended to upgrade to Classification Version 3.*

When you change the set of classification methods used by CounterACT, there may be significant changes in the results of HPS Inspection Engine's classification processes. These changes are evident when some endpoints receive new values for the **Function**, **Operating System**, **Vendor and Model**, **Network Function** and **OS Fingerprint** properties, and can strongly influence how classification policies evaluate endpoints.

Before you upgrade it is highly recommended to follow this procedure:

1. Create and run a policy based on the Classification Upgrade Impact Analysis template. This policy detects endpoints for which the new and old classification methods yield different results.



Policy Type

Create a policy using a template or create a custom policy.

Classification Upgrade Impact Analysis

Upgrading CounterACT's Classification utility can change classification results. This might impact Asset Classification and Primary Classification policies.

Before you upgrade the Classification utility:
1. Use this template to create a policy that compares classification results using the current CounterACT Classification version 2 with the results using Classification version 3.
2. Review the policy results to identify endpoints whose classification will change upon upgrade.
3. As needed, modify or add rules to your current classification policies to preserve the existing classification of these endpoints.
4. Rerun the policy to verify that a classification results are not changed by upgrade to Classification version 3.

When you are ready to upgrade the CounterACT classification utility:
1. Select **Tools>Options>Plugins**.
2. Select HPS Inspection Engine.
3. Select **Configure**.
4. In the Classification tab, select Version 3.
For more information see the HPS Inspection Engine Configuration Guide.

Note: A policy created by this template consumes significant system resources. Stop the policy after you have completed your impact analysis.

   Refer to the Console Online Help for details about this template.

2. Carefully analyze the endpoints which are classified differently by the two classification versions, especially these cases:
   - Endpoints classified correctly by classification version 2, but not classified at all under version 3
   - Endpoints classified correctly by classification version 2, but classified incorrectly under classification version 3

3. Decide how to handle changes in classification results. If necessary, adjust existing classification policies so that all endpoints are correctly classified by classification version 3. You may need to create rules that use the **Classify** action to apply a desired classification to some endpoints.

   You may find that many endpoints which were not accurately classified by classification version 2 are now handled correctly by the improved capabilities of classification version 3. In these cases, remove rules that you inserted to correct automatic classification, simplifying classification policies.

Nmap Scan Options

The following options enable Nmap scanning for classification:

Use Nmap Banner Scan

When this option is selected, HPS Inspection Engine uses Nmap banner scans to improve the resolution of device services, application versions and other operating system details.

Use Nmap Fingerprint Scan

When this option is selected, HPS Inspection Engine uses Nmap fingerprint scans to resolve the classification properties.

Use Nmap results with low confidence level

Typically HPS Inspection Engine must detect one open port and one closed port on an endpoint to implement an Nmap fingerprint scan. When this option is enabled, HPS Inspection Engine uses low-confidence Nmap estimates when it cannot detect the open and closed ports required for a full Nmap fingerprint scan.

Nmap Scan Commands Used by HPS Inspection Engine

Nmap output is not logged. For troubleshooting purposes, set the following Boolean properties create log files in the HPS Inspection Engine’s log file directory.

> 🗎 *Nmap output logging consumes significant resources, and should only be enabled as needed for troubleshooting purposes.*

Property	Equivalent Nmap Flag
config.nmap_log_banners_normal.value	**-oN** : enables normal output
config.nmap_log_banners_xml.value	**-oX** : enables XML output
config.nmap_log_banners_grepable.value	**-oG** : enabled grep output
config.nmap_log_banners_all.value	Enables all output formats

To enable logging, log in to the CLI of the Appliance that handles the range of IP addresses you wish to examine, and submit the following command:

fstool va set_property *<config_property>* **true**

where *<config_property>* is one of the Nmap logging configuration properties.

To disable logging, submit the following command:

fstool va set_property *<config_property*> **false**

Banner Scan

When the **Use Nmap Banner Scan** option is enabled, Nmap is used to scan endpoints using the following command line parameters:

```
-T Insane -sV -p T: 21,22,23,53,80,135,88,1723,3389,5900
```

Fingerprint Scan

When the **Use Fingerprint Scan** option is enabled, the following Nmap scans are implemented as needed for discovery and detection:

1. The endpoint is subjected to an initial Nmap scan of a small set of ports of interest. The following line parameters are passed to Nmap:

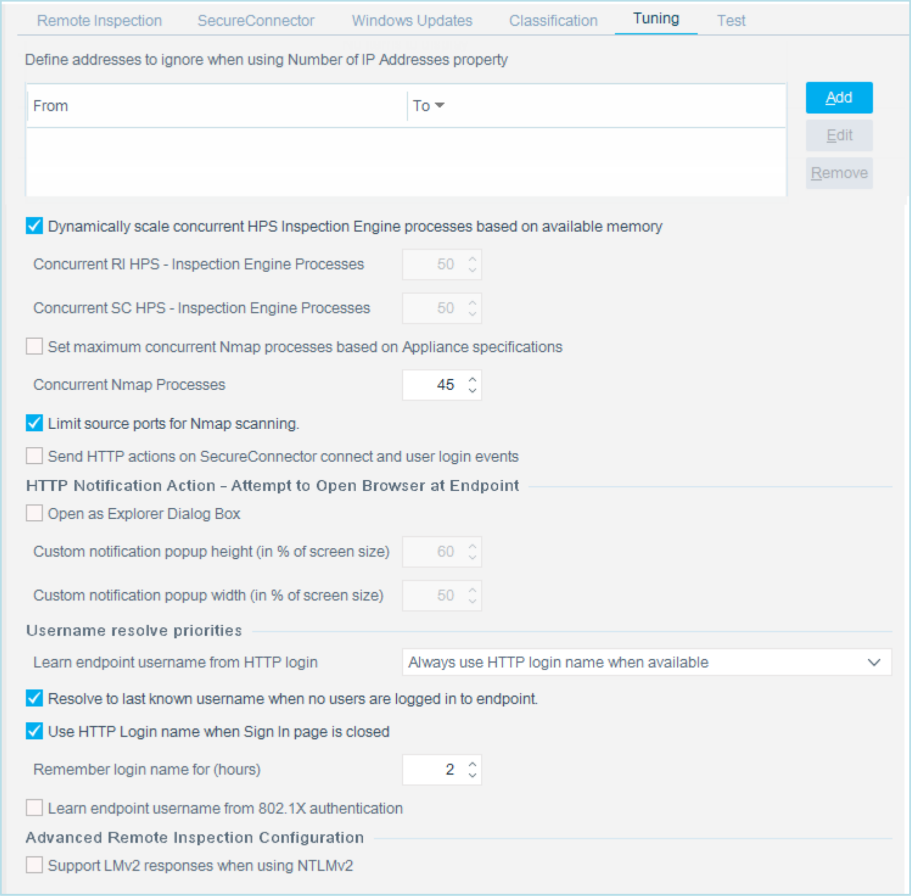
   ```
   -T Insane -v -v -v -O -P 0 -p T: 80,9100,515
   ```

2. If the scan does not yield enough information to classify the device, HPS Inspection Engine repeats the Nmap scan against a greater range of ports:

   ```
   T:4,21,22,23,25,79,80,110,111,135,139,220,445,513,631,143,8080,41351,
   62078
   ```

Tuning

Use the settings in this tab to modify various global parameters and behaviors.



Define addresses to ignore when using Number of IP Addresses property

From	To

☑ Dynamically scale concurrent HPS Inspection Engine processes based on available memory

Concurrent RI HPS - Inspection Engine Processes: 50

Concurrent SC HPS - Inspection Engine Processes: 50

□ Set maximum concurrent Nmap processes based on Appliance specifications

Concurrent Nmap Processes: 45

☑ Limit source ports for Nmap scanning.

□ Send HTTP actions on SecureConnector connect and user login events

HTTP Notification Action – Attempt to Open Browser at Endpoint

□ Open as Explorer Dialog Box

Custom notification popup height (in % of screen size): 60

Custom notification popup width (in % of screen size): 50

Username resolve priorities

Learn endpoint username from HTTP login: Always use HTTP login name when available

☑ Resolve to last known username when no users are logged in to endpoint.

☑ Use HTTP Login name when Sign In page is closed

Remember login name for (hours): 2

□ Learn endpoint username from 802.1X authentication

Advanced Remote Inspection Configuration

□ Support LMv2 responses when using NTLMv2

Specify Endpoint IP Addresses to Ignore

The table lists endpoint IP addresses that are ignored when calculating the **Number of IPv4 Addresses** host property.

- Select **Add** to add an IPv4 address to the table.
- Select **Edit** to modify an address in the table.
- Select an entry in the table, then select **Remove** to delete it from the table.

Tune HPS Inspection Engine Processes

You can tune the number of Remote Inspection and SecureConnector processes that run concurrently on each Appliance to resolve endpoint properties. You can use automatic tuning or customize tuning.

To enable automatic tuning:

- Select the **Dynamically scale concurrent HPS Inspection Engine processes based on available memory** checkbox to enable automatic tuning of HPS Inspection Engine processes.

  For each Appliance to which this setting applies, the maximum number of concurrent Remote Inspection and SecureConnector processes is determined dynamically as memory usage changes.

To customize tuning (for advanced use only):

- Deselect the **Automatic Tuning for HPS Inspection Engine Processes** checkbox.
- Enter a value in the **Concurrent RI HPS - Inspection Engine Processes** field to set the maximum number of processes which communicate with endpoints managed by Remote Inspection that can be active at one time.
- Enter a value in the **Concurrent SC HPS - Inspection Engine Processes** field to set the maximum number of processes which communicate with endpoints managed by Secure Connector that can be active at one time.

  🗎 *Configuring a higher maximum value allows more concurrent endpoint connections, but consumes more Appliance resources. Tune these settings carefully. If Appliance performance is impacted, reduce these values.*

Tune Nmap Processes

You can tune the number of concurrent Nmap processes that run on each Appliance. You can use automatic tuning or customize tuning. The following default maximum values are defined. HPS Inspection Engine selects a default value based on total Appliance memory.

Available Memory	Default Concurrent Processes
Up to 1 GB	5
Up to 2 GB	10
Up to 4 GB	20
More than 4 GB	40

To enable automatic tuning:

- Select the **Set maximum concurrent Nmap processes based on Appliance specifications** checkbox to enable automatic tuning of Nmap processes.

  HPS Inspection Engine does not exceed the default maximum concurrent processes on each Appliance.

To customize tuning (for advanced use only):

- Deselect the **Automatic Tuning for Nmap Processes** checkbox. Enter a value in the **Concurrent Nmap Processes** field.

To limit Nmap ports:

In very rare instances, Nmap OS and banner scanning processes may cause storms of ACK messages. In such cases, select the **Limit source ports for Nmap scanning** checkbox. Nmap fingerprinting processes use source ports higher than 61000.

Send HTTP Actions on SecureConnector Connect and User Login

Start *HTTP Login*, *HTTP Notification* and *HTTP Redirection to URL* actions immediately after SecureConnector connection or user login events.

These actions have an **Attempt to open a browser at the detected endpoint** option. If this option is selected, the action tries to open a browser immediately, rather than waiting for the endpoint user to browse.

If the **Send HTTP actions on SecureConnector connect and user login events** option is not selected and the user is not logged in at the time that the action is issued, the HTTP message will not be displayed. With this option set, the message will be displayed when the user logs in or connects via SecureConnector.

HTTP Notification Action - Attempt to Open Browser at Endpoint

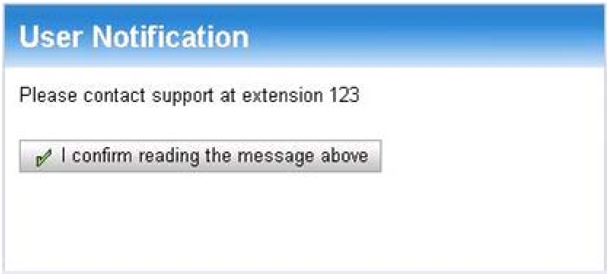
These options apply if the **Attempt to open a browser at the detected endpoint** option is selected in the Message tab of the *HTTP Notification* action.

Open as Explorer Dialog Box

Selecting this option causes the *HTTP Notification* action to open an Explorer dialog box rather than the default Web browser.

Customize notification popup height / width (in % of screen size)

These options let you customize the appearance of redirected HTTP notification pages when **Open as Explorer Dialog Box** is selected.

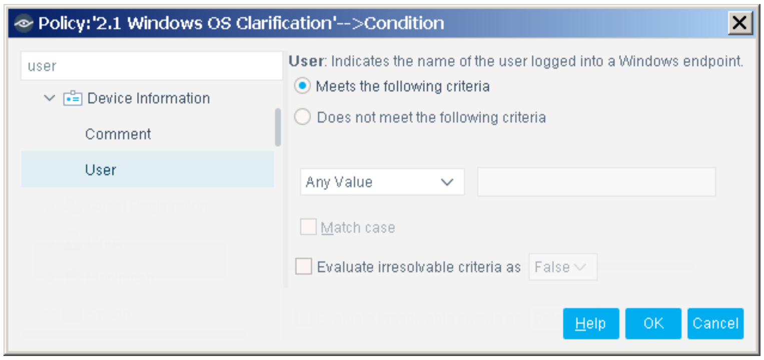


User Notification

Please contact support at extension 123

User Name Resolve Priorities

Several options are available for customizing the *Device Information> User* property resolution.



User: Indicates the name of the user logged into a Windows endpoint.

● Meets the following criteria

○ Does not meet the following criteria

Any Value

□ Match case

□ Evaluate irresolvable criteria as False

Learn endpoint user name from HTTP login

Instruct CounterACT how to learn endpoint user names. Three options are available:

- Always use HTTP login name when available.

  The name will be accessed when working with the **HTTP Login** action.
- Only use HTTP login name when machine user name is not available
- Only use machine login name

Resolve to last known username when no users are logged in to endpoint

When this option is selected, the last known username is used when the property cannot be resolved on an endpoint. When this option is cleared, the User property is evaluated as *Irresolvable* when no users are detected on the endpoint.

Use HTTP Login name when Sign In page is closed

Use this option to instruct CounterACT to use the HTTP login name when the HTTP sign in page is closed.

Remember name for (hours)

Use this option to instruct CounterACT for how long to remember the login name. This time is calculated from the last successful login.

Learn endpoint user name from 802.1x authentication configuration

In environments that use 802.1X authentication, there may be conflicts between the user/account information reported by the 802.1x Plugin and the HPS Inspection Engine. The **Learn endpoint user name from 802.1x authentication configuration** option gives priority to 802.1x user information

When this option is selected, CounterACT ignores local user accounts that the HPS Inspection Engine discovers on an endpoint, and assigns the user name based on the supplicant user associated with the endpoint during 802.1x resolution.

Advanced Remote Inspection Configuration

When Remote Inspection is used, HPS Inspection Engine uses the NT LAN Manager protocol to authenticate its connection to endpoints for remote inspection.

The **Support LMv2 responses when using NTLMv2** option controls whether HPS Inspection Engine uses the less secure LMv2 authentication variant. It is recommended to only enable this option if backwards compatibility with LMv2 is required.

Verify That the Plugin Is Running

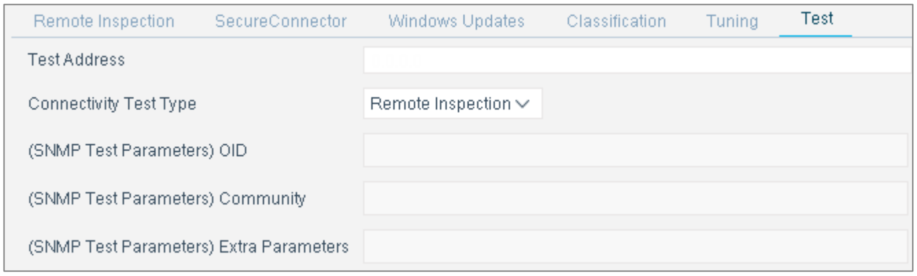
After configuring the plugin, verify that it is running.

To verify:

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

Testing and Verifying Connectivity

In the Test tab, specify parameters used for connectivity testing.



Test Address

Connectivity Test Type: Remote Inspection

(SNMP Test Parameters) OID

(SNMP Test Parameters) Community

(SNMP Test Parameters) Extra Parameters

The following options are available:

Test Address	A test IP address. Depending on the test type, the address can be used to verify: ▪ Connectivity to the domain name, administrator and password. ▪ Remote registry connection. ▪ CounterACT identifies a running Windows service. It is recommended to use an address that grants permissions and access to your entire network, for example the domain controller or the LDAP server.
Connectivity Test Type	Specifies whether to test connectivity via SNMP or SMB/RPC. If you are testing via SNMP, you must enter the SNMP access parameters listed below.
(SNMP Test Parameters) OID	The OID number to test.
(SNMP Test Parameters) Community	The community name to test.

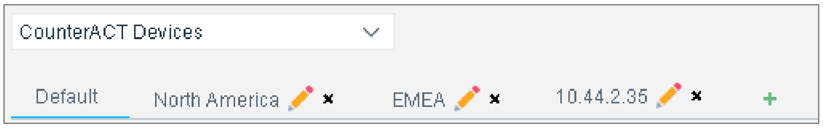
(SNMP Test Parameters) Extra Parameters	This option controls the SNMP retry and timeout requests. You may need to use this to handle SNMP timeout problems. These problems may occur if the network is extremely busy. **Timeout** – The number of seconds to wait for a response. The default timeout is 25 seconds. **Retry** – The number of times to retry sending an SNMP message. The default number of retries is 1. The upper limit is 20. For example, to indicate a timeout of five seconds and three retries, enter the following: **`-t 5 -r 3`**

Configuration for an Appliance or Group of Appliances

You can create and apply configurations for individual Appliances, or for a group of Appliances.

Configurations are organized using a row of tabs. ***Each tab duplicates all the configuration fields in the pane.***

Initially, only the Default tab is present. In the following example, an additional tab has been added, with the configuration for a specific Appliance.



Use the following controls to create and manage configurations:

- Select the Plus sign **+** to create a new configuration.
- When there are several configurations, it may be difficult to locate the configuration that applies to a specific device. Select the device from the *CounterACT Devices* drop-down. The configuration that applies to that device is highlighted for editing.

For more information about creating and applying configurations, see the *CounterACT Administration Guide*.

Working with Remote Inspection

Remote Inspection uses WMI and other standard domain/host management protocols to query the endpoint, and to run scripts.

Support for WMI and other protocols can vary depending on how they are implemented in the general network environment. When you configure HPS Inspection Engine, you specify a set of standard protocols that are available in your environment, and CounterACT uses these to support detailed inspection and to run scripts.

Individual endpoints may not support some features, or may require additional configuration steps due to their operating system or other configuration settings.

This section describes the Windows protocols and services that support Remote Inspection. For an overview of features supported by Remote Inspection, see Appendix D: Remote Inspection and SecureConnector – Feature Support.

About MS-WMI

Windows Management Instrumentation is a Microsoft tool for web based enterprise management. CounterACT can use WMI to inspect endpoints, and to run background scripts on endpoints.

Basic Requirements

To use WMI on a Windows endpoint, verify the following settings:

- Port 135/TCP must be available for WMI communication.
- The following services should be running:
  - Server
  - Windows Management Instrumentation (WMI)
- WMI communication must be enabled in network firewalls.

Additional Configuration/Troubleshooting Options

Verify/implement the following configuration settings to work with WMI.

1. Configure the following Active Directory settings. You can configure some of these settings on endpoints using a Group Policy.
   - Member of Domain Administrators or Local Administrators group
   - Member of the following domain groups:

     Performance Log Users

     Distributed COM Users
   - Member of a group with the following permissions:

     Act as part of Operating System

     Log on as a batch job

     Log on as a service

     Replace a process
2. Run the **`dcomcnfg`** utility and configure the following endpoint permissions:
   - Access Permissions: Enable all
   - Launch and Activation Permissions: Enable all
3. Run the **`wmimgmt.msc`** utility and configure WMI namespace security settings. Assign permissions to the following namespaces:
   - root\CIMv2
   - root\Default
   - root\SecurityCenter
   - root\SecurityCenter2

Assign the following permissions to each of the namespaces:

- Execute Methods
- Enable Account
- Remote Enable
- Read Security

About Registry Service (MS-RRP) and Remote Procedure Calls (RPCs)

CounterACT can submit a Remote Procedure Call (RPC) to the registry services of a Windows machine to inspect the endpoint, or to run scripts. To use RPCs on a Windows endpoint, verify the following settings:

- On endpoints with Windows 7 and above, Port 445/TCP must be available. On earlier versions of Windows, port 139/TCP must also be available.
- The following services should be running:
  - Server
  - Remote Procedure Call
  - Remote Registry

CounterACT provides safeguards against SMB Relay behavior in Remote Procedure Calls. See Detecting SMB Relay Behavior.

About SMB

Server Message Block (SMB) is a protocol for file and resource sharing. CounterACT uses this protocol with WMI or RPC methods to inspect and manage endpoints. This protocol must be available to perform the following:

- Resolve file-related properties
- Resolve script properties
- Run script actions

To use SMB on a Windows endpoint, verify the following settings:

- On endpoints with Windows 7 and above, Port 445/TCP must be available. On earlier versions of Windows, port 139/TCP must also be available.
- The Server service must be running.
- Local hard drives must be shared: file and printer sharing must be enabled for the network adapter.

Detecting SMB Relay Behavior

SMB relay attacks exploit challenge-response authentication of the SMB protocol to allow an endpoint to capture authentication information. This method of attack is similar to Pass-the-Hash and other Man-in-the-Middle attacks.

When CounterACT establishes a new RPC connection to an endpoint, it performs tests to determine if the endpoint is a relay. If relay behavior is detected:

- The connection is no longer used by CounterACT.
- The **SMB Relay** property is set to *True*.
- The **Windows Manageable Domain** and **Windows Manageable Domain (Current)** properties are set to *False*.
- Host properties that are resolved using RPC are set to *Irresolvable.* This includes the following properties:
  - Most properties in the Windows, Windows Applications, and Windows Security folders of the Condition tree.
  - Several properties in the Device Information folder of the Condition tree.
  - Related properties in the Track Changes folder of the Condition tree.

To modify handling of SMB relays:

1. Log in to the Appliance and submit the following command:

   `fstool va set_property` **<***property_name***>** **<***property_value***>**

   Where <*property_name*> and <*property_value*> are taken from the following table, as desired.

Property Name	Property Value
config.verify_smb_relay.value	0 - No testing of RPC connections. 1 – (default) CounterACT tests every new RPC connection for SMB relay behavior.
config.response_err_if_smb_relay.value	0 - Resolve properties as for normal endpoints. 1 – (default) Set all RPC related properties to Irresolvable for SMB relay endpoints.

2. Restart the HPS Inspection Engine.
3. Repeat this procedure on each Appliance.

Working with SMB Signing

SMB Signing is an optional feature that secures SMB communication with a digital signature. SMB Signing is useful to help identify SMB Relay behavior and prevent man-in-the-middle attacks.

Use the **Require SMB Signing** option on the Remote Inspection tab to configure whether CounterACT requires SMB signing for communication with endpoints.

SMB signing is supported by most Windows endpoints; Microsoft has issued patches that support SMB signing on most legacy Windows versions. It is strongly recommended to enable this option to secure Remote Inspection interactions.

When you enable this option, an endpoint that can perform SMB signing will use SMB signing when they communicate with CounterACT.

When you require SMB signing, CounterACT can no longer use Remote Inspection to manage endpoints that cannot work with SMB signing, for example:

- Old Windows XP / Server 2003 systems that are not patched/up to date
- Endpoints behind WAN optimization devices that require unsigned SMB packets.

Create a policy that uses the **SMB Signing** host property to detect these endpoints and remediate them. Remediation options include:

- (Recommended) Enable SMB signing on all endpoints. Use Group Policies to configure SMB signing as described by the following Microsoft support article:

  https://support.microsoft.com/en-us/kb/887429
- Use the **Start SecureConnector** action to install SecureConnector on endpoints that do not support SMB signing.

About Kerberos

Kerberos is a network authentication protocol that uses secret-key cryptography. When you choose Kerberos authentication, CounterACT interacts with Kerberos authentication servers deployed in your environment (typically on existing Active Directory instances).

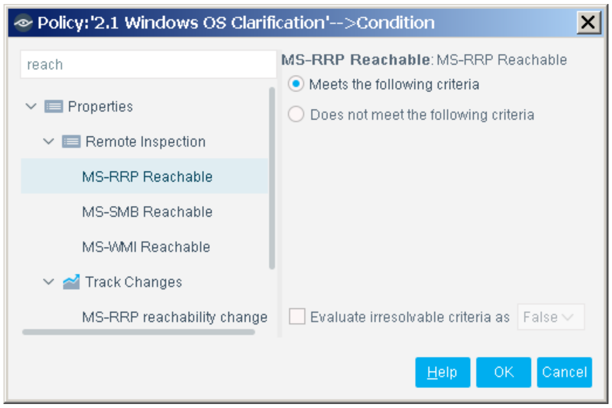
When CounterACT uses Kerberos authentication for Remote Inspection, a dedicated administrator account should be defined in the domain controller and entered in the Domain Credentials tab. The HPS Inspection Engine uses this account to interact with Kerberos servers, and to perform Remote Inspection on endpoints. In accordance with Kerberos best practices, delegation permissions should be disabled for this user.

CounterACT uses hostnames for Kerberos authentication. If an endpoint's hostname is unknown, CounterACT performs a reverse DNS query to determine the hostname. When you work with Kerberos authentication, ensure that DNS records are regularly updated in your environment.

Kerberos authentication uses Ticket Granting Tickets (TGTs) with limited validity periods. When CounterACT has previously logged in successfully to an endpoint using Kerberos, and the endpoint is removed from the Domain and then rejoins, CounterACT cannot reconnect to the endpoint until the domain controller renews the TGT used for Kerberos authentication; typically the TGT is renewed every 10 hours. During this period, resolution of properties and other Remote Inspection tasks are not performed for the endpoint.

Detecting Services Available on Endpoints

The following host properties provide detailed information about the Remote Inspection methods available on an endpoint.



MS-RRP Reachable: MS-RRP Reachable

● Meets the following criteria

○ Does not meet the following criteria

□ Evaluate irresolvable criteria as False

The following Boolean properties are listed in the Properties tree under the Remote Inspection folder:

MS-RRP Reachable	Indicates whether CounterACT can use the Remote Registry Protocol for Remote Inspection tasks on the endpoint.
MS-SMB Reachable	Indicates whether CounterACT can use the Server Message Block protocol for Remote Inspection tasks on the endpoint.
MS-WMI Reachable	Indicates whether CounterACT can use Windows Management Instrumentation for Remote Inspection tasks on the endpoint.

These properties do not have an *Irresolvable* state. When HPS Inspection Engine cannot establish connection with the service, the property value is *False.* Do not use the **Evaluate Irresolvable Criteria as** option with these properties.

The following corresponding Track Changes policies are listed under the Track Changes folder:

- MS-RRP reachability changed
- MS-SMB reachability changed
- MS-WMI reachability changed

Script Execution Services

This section describes the services that CounterACT uses to execute scripts on endpoints. PowerShell scripts and all common script file types are supported. The prefix **`cscript`** is added to files with the *.vbs* file extension.

🗎 *CounterACT cannot run PowerShell scripts when the PowerShell Execution Policy is set to* Restricted *on the endpoint. See PowerShell documentation.*

🗎 *When SecureConnector is installed on an endpoint, it is used to run scripts.*

🗎 *If you choose to use WMI for Remote Inspection,*

🗎 *When WMI is used for Remote Inspection:*

- CounterACT runs most background scripts using WMI.
- WMI does not support interactive scripts (such as scripts that support Guest Registration and other HTTP-based actions) on some Windows endpoints. CounterACT uses the fsprocsvc service or Microsoft Task Scheduler to run interactive scripts on these endpoints.
- Scripts that reside at another network location cannot be run on endpoints due to Windows security features.

By default, scripts are downloaded to and run from the following locations on Windows endpoints:

- On endpoints managed by SecureConnector:
  - When SecureConnector is deployed as a Service, all scripts are downloaded to and run from the following secured directory:
    `%TEMP%\fstmpsc\`

    Typically **`%TEMP%`** is **`c:\windows\temp\`**
  - When SecureConnector is deployed as a Dissolvable or Permanent Application, all scripts are downloaded to and run from the **`%TEMP%`** directory of the currently logged in user.

  🗎 *If the* ***Start SecureConnector*** *action was used to install SecureConnector when no user was logged in, SecureConnector initially runs in the system context, and scripts are downloaded and run as described for deployment as a Service. For SecureConnector deployed as a Permanent Application, the next time SecureConnector is run, it runs from the logged-in user context, and scripts are downloaded to and run from the %TEMP% directory. For details about the* Install as system *option of the* ***Start SecureConnector*** *action, see the* CounterACT Administration Guide*.*

- On endpoints managed by Remote Inspection:
  - Non-interactive scripts are downloaded to and run from the following secured directory:
    `%TEMP%\fstmp\`

    Typically **`%TEMP%`** is **`c:\windows\temp\`**
  - Interactive scripts are downloaded to and run from the **`%TEMP%`** directory of the currently logged in user.

You can use the following configuration property to customize the directory used to download and run scripts:

`config.script_run_folder.value`

It is strongly recommended to specify a secured directory.

About Secured Directories and Script Files

Because scripts that run on endpoints can be targets for malicious attack, CounterACT applies ACL permissions to directories that store scripts. This prevents unauthorized modification of script files. When scripts run in the user context, or when you customize the target directory, scripts may be vulnerable to attack. It is recommended to specify a folder with secured access.

You can add an additional layer of security by applying ACL permissions to the script file itself to prevent unauthorized modification.

About fsprocsvc.exe

The **fsprocsvc.exe** service, installed on endpoints by the HPS Inspection Engine, is used to run interactive scripts for several CounterACT tasks. It is a ForeScout service similar to Microsoft's PsTools (Part of Windows Sysinternals tools: http://technet.microsoft.com/en-us/sysinternals/default.aspx).

The service is downloaded to, and runs from, the folder used by the HPS Inspection Engine to run scripts.

The service does not open any new network connection or generate traffic. Communication is carried out over Microsoft's SMB/RPC (445/TCP and 139/TCP) and the authentication is performed with the domain credentials. If there is no request to run a new command within two hours, the service stops automatically.

Item	Description
Footprint	▪ Size on disk: Approximately 250KB ▪ Memory acquired during runtime: 2 MB ▪ Runs under: System ▪ Start type: Automatic ▪ After 2 hours of inactivity the service stops
Properties requiring the service **(With remote inspection, i.e. not via SecureConnector)**	▪ Windows Expected Script Result ▪ Device Interfaces ▪ Number of IP Addresses ▪ External Devices ▪ Windows File MD5 Signature ▪ Windows Is Behind NAT ▪ Microsoft Vulnerabilities
Actions requiring the service **(With remote inspection, i.e. not via SecureConnector)**	▪ Run Script On Windows ▪ HTTP Redirection to URL (If **Attempt to open a browser at the detected endpoint** is selected) ▪ Start SecureConnector ▪ Set Windows Registry Key ▪ Start Antivirus ▪ Update Antivirus ▪ Start Windows Updates ▪ Kill Process on Windows, Kill Instant Messaging, Kill Peer-to-peer

Microsoft Task Scheduler

An option is available to work with Microsoft Task Scheduler, rather than with **`fsprocsvc.exe`**.

Task Scheduler is a component of Microsoft Windows that lets user schedule the launch of programs or scripts at pre-defined times or after specified time intervals. This utility can be used to run CounterACT scripts.

Task Scheduler Limitations

- Requires the relevant service to be started on the endpoint.
- Interactive tasks do not work on Windows Vista and Windows 7 if the remote process is triggered from Task Scheduler.
- The *Update Antivirus* action does not work on Windows Vista and Windows 7 if the HPS remote inspection is configured to work as a "Scheduled Task".
- Opening a browser window does not work on Windows Vista and Windows 7 if the HPS remote inspection is configured to work as a "Scheduled Task". When redirected with this option checked, the browser does not open automatically and relies on the packet engine seeing this traffic.
- On Windows Vista and Windows 7 configurations, SecureConnector via remote inspection is invisibly installed if the HPS remote inspection is configured to work as a *Scheduled Task* and SecureConnector is set to be visible.

Working with SecureConnector

SecureConnector is a light footprint executable that runs on the endpoint to make endpoints manageable, and to perform or optimize certain actions.

SecureConnector is also available when working with Mac OS X and Linux endpoints. Refer to the *Linux Plugin Configuration Guide* and the *OS X Plugin Configuration* Guide for details.

Making Windows Endpoints Manageable

You can use SecureConnector to access Windows endpoints and make them manageable for deep inspection. In general, Windows endpoints are unmanageable if their remote registry or file system cannot be accessed by CounterACT. This is typical for:

- Machines that are guests on the network
- Endpoints that are not part of the domain

Several policy properties are available for detecting *unmanageable* endpoints.

🗎 *To work with SecureConnector, Windows endpoints must be running MS-WMI (Windows Management Instrumentation).*

Performing or Optimizing Certain Actions

SecureConnector is required to perform the following actions on endpoints:

- **Assign to VLAN** behind VoIP devices without resetting port
- **Disable External Device**
- **Send Balloon Notification**
- **Disable Dual Homed**

SecureConnector can be used to improve kill frequency when working with the following actions:

- **Kill Cloud Storage on Windows**
- **Kill Instant Messaging on Windows**
- **Kill Peer-to-peer on Windows**
- **Kill Process on Windows**

These actions detect and halt specific Windows processes. If the endpoint has SecureConnector installed the actions run once per second; if not, the actions run once per minute.

How SecureConnector Works

SecureConnector creates a secure (encrypted TLS) connection to the Appliance through port 10003. SecureConnector receives inspection and action requests and responds to them via this connection; all CounterACT traffic between SecureConnector and the Appliance goes via the secure connection.

When an endpoint is reassigned to another Appliance, the secure connection is seamlessly re-created between the endpoint and the newly assigned Appliance.

Permanent vs. Dissolvable Deployment

SecureConnector can be configured to run once and terminate itself upon user logout, reboot, or disconnection from the network, and then reopen at reconnection to the network and readmission to the relevant policy. This is called *dissolvable* installation.

Alternatively, it can be configured to install *permanently* so that it remains at reboot or disconnection.

Event Driven Monitoring of Host Properties

When SecureConnector is installed on a host, it continuously monitors host properties and only reports changes to CounterACT. Event driven monitoring significantly reduces network traffic, and provides the most updated information without policy rechecks.

Host properties that are updated using event-driven monitoring are listed in Appendix D: Remote Inspection and SecureConnector – Feature Support.

Installing and Running SecureConnector

The following methods can be used to install and run SecureConnector on endpoints:

- *Policy-based deployment:* By including the **Start SecureConnector** action in a policy, you can selectively deploy SecureConnector in response to classification or other policy-based evaluation of endpoints.

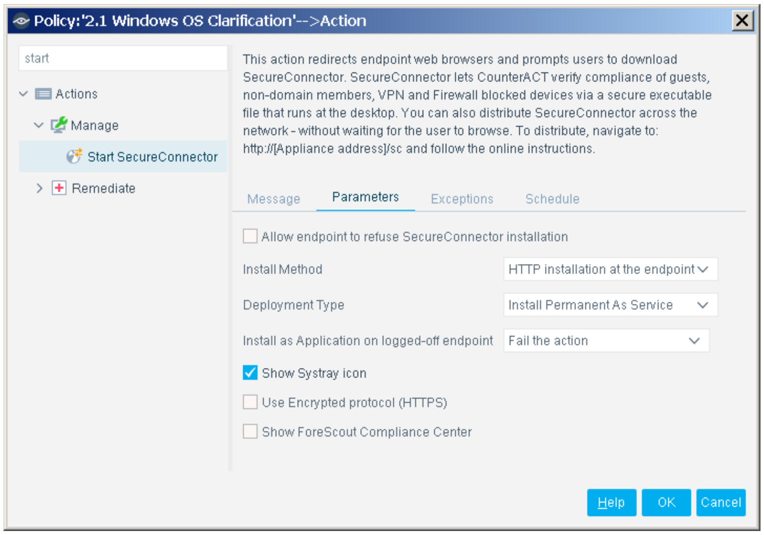
  The **Start SecureConnector** action supports background or interactive installation:

  – Background installation connects to endpoints using Remote Inspection.

  – Interactive installation redirects endpoint browsers to a download page, from which end users install SecureConnector.

  If the SecureConnector package is already installed on an endpoint, applying the **Start SecureConnector** action upgrades and restarts SecureConnector on the endpoint.

  For deployment options and other details of working with this action, refer to the *CounterACT Administration Guide*.



Policy:'2.1 Windows OS Clarification'-->Action

This action redirects endpoint web browsers and prompts users to download SecureConnector. SecureConnector lets CounterACT verify compliance of guests, non-domain members, VPN and Firewall blocked devices via a secure executable file that runs at the desktop. You can also distribute SecureConnector across the network - without waiting for the user to browse. To distribute, navigate to: http://[Appliance address]/sc and follow the online instructions.

□ Allow endpoint to refuse SecureConnector installation

Install Method: HTTP installation at the endpoint

Deployment Type: Install Permanent As Service

Install as Application on logged-off endpoint: Fail the action

☑ Show Systray icon

□ Use Encrypted protocol (HTTPS)

□ Show ForeScout Compliance Center

- *Installer-based deployment:* You can deploy SecureConnector on any number of endpoints by downloading an installer package from a CounterACT device, and then distributing the file.

  Two types of installers are supported:

  – Use the same installer package used by the **Start SecureConnector** action. See Download or Link to a SecureConnector Installer Package.

  – Generate an MSI installer package. Your deployment tools use Windows Installer commands to install or uninstall SecureConnector. See Generate an MSI Installer for SecureConnector.

🗎 *You can use SecureConnector log files to troubleshoot SecureConnector issues. See Appendix C: SecureConnector Log Files.*

Download or Link to a SecureConnector Installer Package

You can distribute SecureConnector to endpoints by downloading an installation file from an Appliance, and then using the following methods to distribute the file:

- Windows login script or domain group policy – an advantage to this method is that installation is silent.
- Any third-party software maintenance tool.
- Direction installation by IT staff using physical media such as a USB stick.

  🗎 *It is also possible to deploy SecureConnector as part of a machine image. For details refer to the* Deploying SecureConnector as a Service as Part of a Machine Image How-to Guide.

- Email distribution of a link to the installer package on a CounterACT device. Users must save and launch the installer.

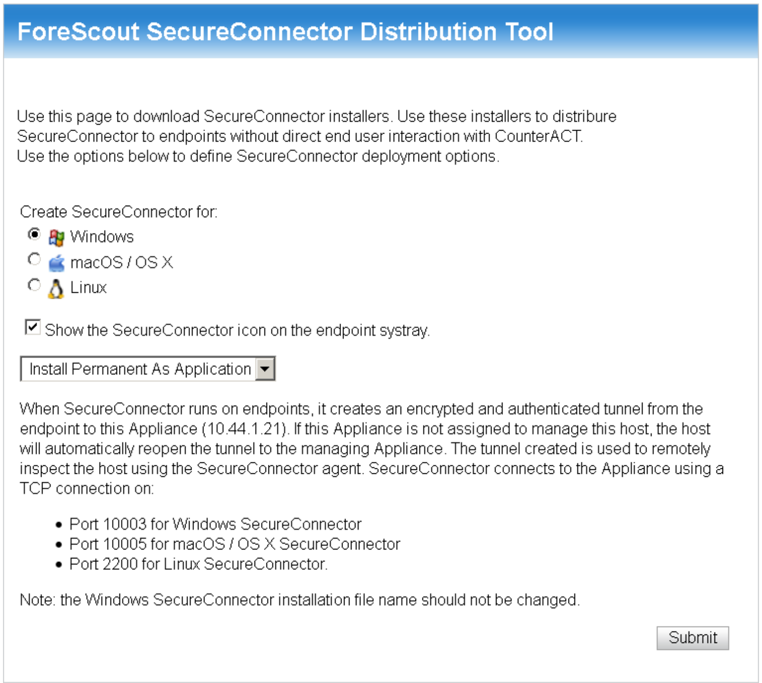
🗎 *The ForeScout SecureConnector Distribution Tool page used to access these installers is not accessible whenever HTTP Redirection is disabled (Options>General>Web Server Configuration>Disable Web Portals).*

To distribute SecureConnector via file or link:

1. Browse to the following location:

   http://<*Appliance_IP*>/sc

   where <*Appliance_IP*> is the IP address of Enterprise Manager or an Appliance. The ForeScout SecureConnector Distribution Tool page opens.



ForeScout SecureConnector Distribution Tool

Use this page to download SecureConnector installers. Use these installers to distribute SecureConnector to endpoints without direct end user interaction with CounterACT.
Use the options below to define SecureConnector deployment options.

Create SecureConnector for:
● Windows
○ macOS / OS X
○ Linux

☑ Show the SecureConnector icon on the endpoint systray.

Install Permanent As Application ▾

When SecureConnector runs on endpoints, it creates an encrypted and authenticated tunnel from the endpoint to this Appliance (10.44.1.21). If this Appliance is not assigned to manage this host, the host will automatically reopen the tunnel to the managing Appliance. The tunnel created is used to remotely inspect the host using the SecureConnector agent. SecureConnector connects to the Appliance using a TCP connection on:

- Port 10003 for Windows SecureConnector
- Port 10005 for macOS / OS X SecureConnector
- Port 2200 for Linux SecureConnector.

Note: the Windows SecureConnector installation file name should not be changed.

2. Define SecureConnector settings (described above).

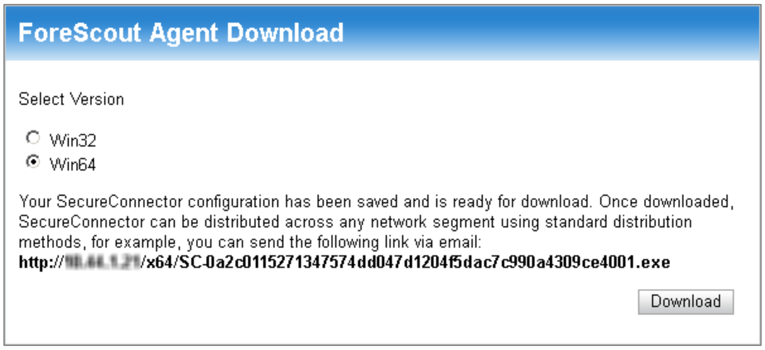
- Whether to place an icon on the endpoint systray.
- How to install SecureConnector on the endpoint:

  As a permanent service

  As a permanent application

  As a dissolvable utility

3. Select **Submit**. The ForeScout Agent Download page opens.



ForeScout Agent Download

Select Version

○ Win32
● Win64

Your SecureConnector configuration has been saved and is ready for download. Once downloaded, SecureConnector can be distributed across any network segment using standard distribution methods, for example, you can send the following link via email:
http://[redacted]/x64/SC-0a2c0115271347574dd047d1204f5dac7c990a4309ce4001.exe

4. Specify whether the SecureConnector agent is for 32-bit or 64-bit system.

   🗎 *To support end users who are redirected to this page, the installer for the browsing machine is selected by default.*

5. Select **Download** to download the SecureConnector installation file, or copy the link at the bottom of the window. Do not change the file name or path.
6. Send the file or link to endpoints via login script, email or any other method.
   - If the file is distributed, end users double-click the file to install.

     When SecureConnector is installed as a *Permanent Service* or a *Permanent Application*, a popup notification message indicates installation success or failure.
   - If the link is distributed, instruct end users to select **Run** when prompted.
7. Create a policy that uses the **Windows Manageable (SecureConnector)** property to verify that SecureConnector is installed on target endpoints.

After installation using this method, SecureConnector initially it connects to the Appliance from which the installer link or file was copied. SecureConnector is then redirected to the Appliance that manages the endpoint. These initial connections place a momentary load on the Appliance that provides the installer package.

Generate an MSI Installer for SecureConnector

Use this procedure to generate a SecureConnector installer package in .msi format. This installer can be used with Windows Installer tools and commands to deploy and uninstall SecureConnector on Windows endpoints.

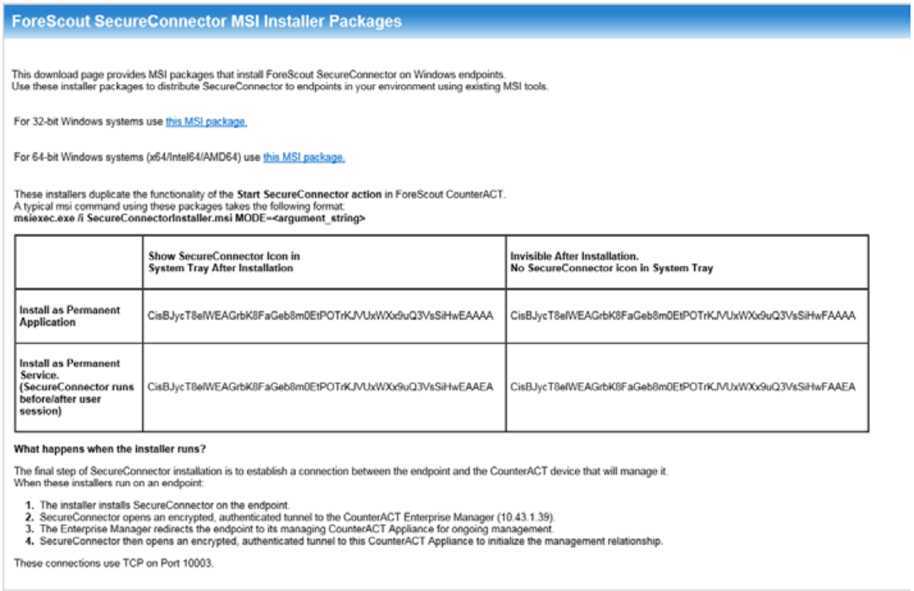
🗎 *The ForeScout Agent Download page is not accessible whenever HTTP Redirection is disabled (Options>General>Web Server Configuration>Disable Web Portals).*

To generate an MSI installer for SecureConnector:

1. Browse to the following location:

   `http://<`*`EM_IP`***`>/sc-installer`**

   where <*EM_IP*> is the IP address of Enterprise Manager . The **ForeScout SecureConnector MSI Installer Packages** page opens.



ForeScout SecureConnector MSI Installer Packages

This download page provides MSI packages that install ForeScout SecureConnector on Windows endpoints.
Use these installer packages to distribute SecureConnector to endpoints in your environment using existing MSI tools.

For 32-bit Windows systems use this MSI package.

For 64-bit Windows systems (x64/Intel64/AMD64) use this MSI package.

These installers duplicate the functionality of the **Start SecureConnector action** in ForeScout CounterACT.
A typical msi command using these packages takes the following format:
msiexec.exe /i SecureConnectorInstaller.msi MODE=<argument_string>

	Show SecureConnector Icon in System Tray After Installation	**Invisible After Installation. No SecureConnector icon in System Tray**
Install as Permanent Application	CisBJycT8elWEAGrbK8FaGeb8m0EtPOTrKJVUxWXx9uQ3VsSiHwEAAAA	CisBJycT8elWEAGrbK8FaGeb8m0EtPOTrKJVUxWXx9uQ3VsSiHwFAAAA
Install as Permanent Service. (SecureConnector runs before/after user session)	CisBJycT8elWEAGrbK8FaGeb8m0EtPOTrKJVUxWXx9uQ3VsSiHwEAAEA	CisBJycT8elWEAGrbK8FaGeb8m0EtPOTrKJVUxWXx9uQ3VsSiHwFAAEA

What happens when the installer runs?

The final step of SecureConnector installation is to establish a connection between the endpoint and the CounterACT device that will manage it.
When these installers run on an endpoint:

1. The installer installs SecureConnector on the endpoint.
2. SecureConnector opens an encrypted, authenticated tunnel to the CounterACT Enterprise Manager (10.43.1.39).
3. The Enterprise Manager redirects the endpoint to its managing CounterACT Appliance for ongoing management.
4. SecureConnector then opens an encrypted, authenticated tunnel to this CounterACT Appliance to initialize the management relationship.

These connections use TCP on Port 10003.

2. Download the installer for 32-bit or 64-bit machines, as appropriate.
3. When these installers run, they parse the MODE parameter to determine the options used to install SecureConnector. Your Windows Installer statement must specify the MODE parameter, and provide one of the string values shown on the download page.

   🗎 *One installer package supports several SecureConnector configurations, depending on the MODE value specified.*

4. Create a policy that uses the **Windows Manageable (SecureConnector)** property to verify that SecureConnector is installed on target endpoints.

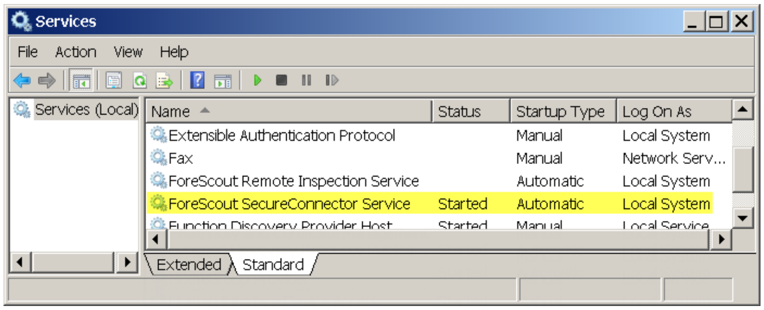
After installation using this method, SecureConnector initially connects to the Enterprise Manager that provided the installer. SecureConnector is then redirected to the Appliance that manages the endpoint. These initial connections place a momentary load on the Enterprise Manager.

The SecureConnector Executable

`SecureConnector.exe`, activated by the HPS Inspection Engine, runs on Windows endpoints. Activation occurs when the *Start* SecureConnector action is chosen or when SecureConnector is otherwise installed. See Appendix C: SecureConnector Log Files for details.

Changes to the executable are reported in the release notes for this module.

SecureConnector can run as an application or as a service, depending on how it is installed. Installation options are defined when running the *Start SecureConnector* action. When run as a service, the ForeScout SecureConnector service appears at the endpoint's Services window. The service is started in automatic mode.



Name	Status	Startup Type	Log On As
Extensible Authentication Protocol		Manual	Local System
Fax		Manual	Network Serv...
ForeScout Remote Inspection Service		Automatic	Local System
ForeScout SecureConnector Service	Started	Automatic	Local System
Function Discovery Provider Host	Started	Manual	Local Service

When SecureConnector is installed as a service, several processes run and can be seen from the endpoint Task Manager.

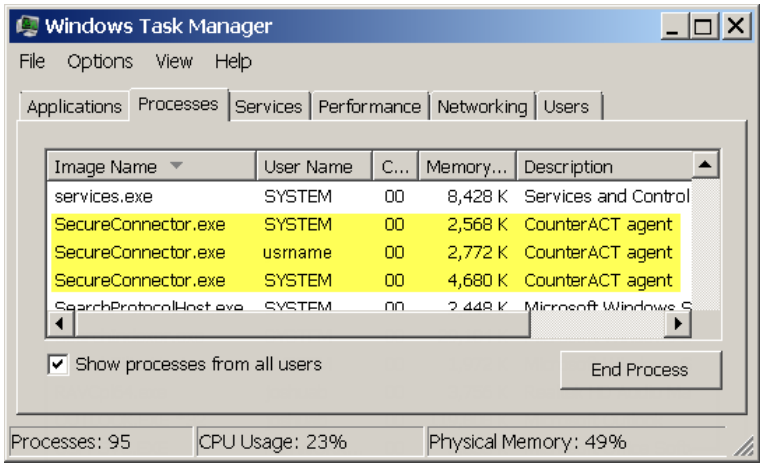


Image Name	User Name	C...	Memory...	Description
services.exe	SYSTEM	00	8,428 K	Services and Control
SecureConnector.exe	SYSTEM	00	2,568 K	CounterACT agent
SecureConnector.exe	usrname	00	2,772 K	CounterACT agent
SecureConnector.exe	SYSTEM	00	4,680 K	CounterACT agent
SearchProtocolHost.exe	SYSTEM	00	2,448 K	Microsoft Windows S

☑ Show processes from all users

Processes: 95 CPU Usage: 23% Physical Memory: 49%

In the example shown above there are three SecureConnector.exe processes:

- One SecureConnector.exe process manages communication with the CounterACT Appliance.
- One SecureConnector.exe process is responsible for the user interface (such as Systray icon, View Compliance Center).
- One SecureConnector.exe process is the SecureConnector service. (If SecureConnector is installed as an application then this process does not appear and SecureConnector only uses two processes.)

The fsprocsvc.exe process may appear briefly in Task Manager when it is used to install SecureConnector.

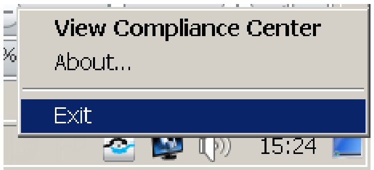
The SecureConnector ID

When SecureConnector connects to the CounterACT Appliance, it sends CounterACT a unique ID which helps to identify the endpoint. CounterACT may perform an identity change if one of the following events occurs:

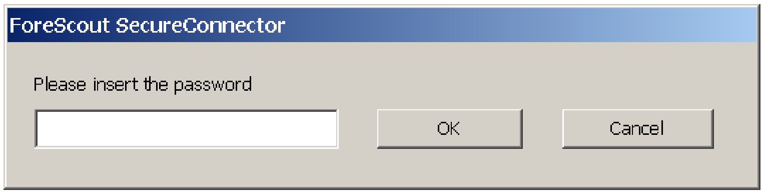
- The current IP address was used by another machine – This occurs if another SecureConnector ID was learned for this IP address. If another endpoint with SecureConnector previously used the same IP address, then the system will conclude this is a new machine, will delete all previous information and will relearn the properties from the new machine.
- The current machine previously used another IP address – This occurs if this SecureConnector ID was learned on another IP address. If this endpoint previously used another IP address then all the information learned on the older IP address will be moved to the new IP address (The old IP address will be changed to the new one).

Stop SecureConnector

When the SecureConnector toolbar icon is visible, end users can stop SecureConnector on their devices by selecting **Exit** from the SecureConnector toolbar menu. SecureConnector stops, *but is not uninstalled*.



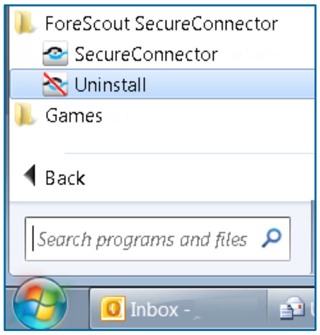
When you configure HPS Inspection Engine you can enable password protection for SecureConnector on endpoints. When password protection is enabled, users who try to **Exit** SecureConnector are prompted for a password.



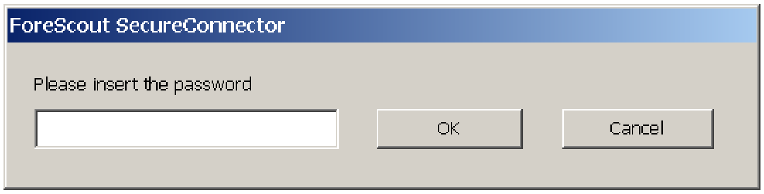
Uninstall SecureConnector

The following methods can be used to stop and uninstall and SecureConnector:

- *Policy-based uninstall* by using the **Stop SecureConnector** action in a CounterACT policy. SecureConnector is uninstalled from endpoints that match policy conditions.
- *Interactive uninstall* when end users or IT staff select the **Uninstall** option from the ForeScout SecureConnector folder.



When you configure HPS Inspection Engine you can enable password protection for SecureConnector on endpoints. When password protection is enabled, users who try to **Uninstall** SecureConnector are prompted for a password.



Please insert the password

- *CLI or script-based uninstall* using the following command:

  ```
  SecureConnector.exe -uninstall [-silent] [-p <password>]
  ```

  Where

  -silent suppresses an on-screen confirmation message

  -p <*password***>** is used when SecureConnector is password protected.

- *MSI-based uninstall* using the packages and parameters described in Generate an MSI Installer for SecureConnector.

  If password protection was enabled for SecureConnector, use the PASSWORD parameter in your Windows Installer statement to provide the password string. The password string should be unencrypted (clear text).

Updating SecureConnector

Several versions of SecureConnector can be present in your environment simultaneously. For example:

- When you upgrade the Endpoint Module, endpoints still run the previous version of SecureConnector until you distribute the updated version. New functionality is not yet available.
- New versions of the Endpoint Module may contain updates to SecureConnector. This updated version of SecureConnector is installed on endpoints when you apply the **Start SecureConnector** action, or if you download and distribute an installation package from the Enterprise Manager.

- Similarly, if you roll back the Endpoint Module, endpoints still run the SecureConnector version that they received before rollback - which may contain functionality not supported after rollback of the Endpoint Module.
- Endpoints may not be present on the network to receive a SecureConnector update.

This section describes how to distribute updates to SecureConnector on Windows endpoints.

In the SecureConnector tab of the HPS Inspection Engine configuration pane, the **Automatically upgrade Windows endpoints managed by SecureConnector to current SecureConnector version** option indicates the version of SecureConnector for Windows provided by the Endpoint Module.

Use this option to determine how SecureConnector is updated on Windows endpoints.

- Select this option to automatically distribute new versions of SecureConnector to all Windows endpoints managed by SecureConnector. When you upgrade the Endpoint Module, CounterACT automatically downloads the new version of SecureConnector to Windows endpoints that are running SecureConnector.

  🗎 *This was the default behavior of the HPS Inspection Engine until this release.*

  In networks with large numbers of endpoints managed by SecureConnector, this download behavior can cause a spike in network resource usage.
- Clear this option to disable automatic updates of SecureConnector. SecureConnector is no longer updated automatically each time you upgrade the Endpoint Module. Use one or more policies based on the **Windows SecureConnector Update** template to update SecureConnector on endpoints gradually, and with greater control.

When you enable automatic updates, no further configuration is required.

When you disable automatic updates of SecureConnector, use the following tools to manage the versions of SecureConnector for Windows that run in your environment.

- The **Windows SecureConnector Version** property indicates the SecureConnector version installed on a Windows endpoint.
- The **SecureConnector Compatibility** property indicates whether the SecureConnector version running on the endpoint is compatible with your CounterACT environment. When this property is evaluated as *Partially Compatible*, only functionality common to both endpoint and CounterACT is supported.
- The **Update Installed SecureConnector** action updates SecureConnector on the endpoint so it is fully compatible with CounterACT. This action only affects endpoints that are already running SecureConnector. Depending on the version running on the endpoint, this action will either upgrade or rollback SecureConnector. The update preserves the existing deployment type and other settings - for example, if SecureConnector runs as a permanent service with a visible System Tray icon, these settings are duplicated during update.

- The **Windows SecureConnector Update** template provides a sample policy for SecureConnector version management. This template uses the **SecureConnector Compatibility** property to detect Windows endpoints on which SecureConnector must be updated. The policy uses the **Update Installed SecureConnector** action to deploy.

To manage SecureConnector versions on Windows endpoints, create one or more policies based on the **Windows SecureConnector Update** template. Each time an Endpoint Module upgrade includes a new version of SecureConnector for Windows, run these policies to detect endpoints that require SecureConnector update.

🗎 *To gradually update SecureConnector across your network environment, you can define several policies with different network scopes, or additional policy conditions that detect endpoints based on endpoint type or function.*

🗎 *To fine-tune update behavior, examine Inventory views for the SecureConnector Compatibility property. Many endpoints may require SecureConnector update when significant new functionality is introduced.*

SecureConnector Details

Item	Description
Size on disk	Approximately 2 MB
Endpoint memory utilization	***Process mode***: ▪ Main process: 3MB – 6MB ▪ Watchdog process: 400kB – 600kB ***Service mode***: ▪ Agent process: 3 MB – 5 MB ▪ Performer process: 4 MB – 6 MB ▪ Service: 3 MB – 5 MB
Deployment type	Permanent or dissolvable. Defined in the **Start SecureConnector** action.
Visibility options	Visible (Icon in System tray) or non-visible Defined in the **Start SecureConnector** action
Installation methods	▪ Using Remote inspection methods ▪ Browser – using HTTP redirection. Defined in the **Start SecureConnector** action. ▪ Browser – direct setup file download. Described in this guide. See Activating SecureConnector.
SecureConnector privilege level	Ideally, SecureConnector should be installed as a service on corporate endpoints. This ensures that all SecureConnector related features will be available irrespective of the user logged on to the machine. When SecureConnector is installed as a service, it runs with Administrator privileges even when the current logged in users are not administrators. When SecureConnector is installed as an application, privileges are determined by the user currently logged in, even if a user with administrator privileges was used to install SecureConnector. The

Item	Description
	following actions will not work if the user currently logged in does not have administrator privileges: ▪ **Disable External Devices** ▪ **Kill Process** (for processes that do not belong to the SecureConnector user) ▪ **Disable Dual Homed** Privilege levels are determined in part by the mode in which SecureConnector is installed. The mode is determined when configuring the **Start SecureConnector** action. When User Account Control (UAC) is active, it prevents SecureConnector installation from modifying specific system critical folders such as Program Files. However, SecureConnector can be installed to the user home folder, where it has all user privileges.
Installation folder when installed permanently	Under %ProgramFiles% if setup runs with Administrator (or SYSTEM) privileges. Under %AppData% when setup runs with non- Administrator privileges or setup is affected by UAC.
Folder used when deployed in dissolvable mode	Under %Temp%.

Restrict SecureConnector Access to the Appliance

By default, all endpoints with the SecureConnector executable connect to their managing Appliance using SecureConnector, and are managed by SecureConnector. You can configure the Appliance to only accept a SecureConnector connection from specified ranges of endpoints – thereby forcing management of all other endpoints by Remote Inspection, even if they have the SecureConnector executable.

To restrict access to the SecureConnector service by IP address

1. Log in to the Appliance.
2. Issue the following command:

   `fstool va set_property config.va_port_val.value "<`*`IPs`*`>"`

   where <*IPs*> is a comma-separated list of individual IPv4 addresses or subnet/masks that can access the SecureConnector service on the Appliance. For example, the following command limits SecureConnector access to subnets of two Class C addresses:

   ```
   fstool va set_property config.va_port_val.value "192.185.100.1/20,
   192.180.100.1/255.255.255.0"
   ```
3. Restart the HPS Inspection Engine.
4. Repeat this procedure on each Appliance to restrict access to its SecureConnector service.

Detecting NAT Behavior Based on SecureConnector Connections

To detect endpoints that are NAT devices, CounterACT can examine the IP addresses used by endpoints to connect to SecureConnector on Appliances. After an endpoint connects to SecureConnector HPS Inspection Engine uses SecureConnector to learn the IP address of the endpoint. If the IP address found by SecureConnector does not match the IP address at the source of the TCP socket connection, the **Device is NAT** host property is resolved as *True* for the endpoint.

By default, this check is not enabled. The **`conf.report_nat_device_sc.value`** property of the relevant HPS Inspection Engine instance controls this behavior.

To enable or disable NAT detection in SecureConnector connections:

1. Log in to the Enterprise Manager CLI.
2. To enable NAT detection, submit the following commands:

   ```
   fstool va set_property config.report_nat_device_sc.value true
   ```

3. Repeat this command on all Appliances.
4. From the Console, restart all instances of HPS Inspection Engine.
5. To disable NAT detection, submit the following commands, as relevant:

   ```
   fstool va set_property config.report_nat_device_sc.value false
   ```

6. Repeat this command on all Appliances.
7. From the Console, restart all instances of HPS Inspection Engine.

Resolving Dual-homed Endpoints Managed by SecureConnector

When a device has multiple network interfaces (such as wired and wireless NICs) each NIC is detected and listed in the Console as a separate endpoint.

When such a device is managed with SecureConnector, only one of the endpoints listed in the Console for this device is identified as *Managed by SecureConnector* - the endpoint corresponding to the interface used by SecureConnector. The other NICs are listed in the Console as endpoints *Not Managed by SecureConnector*. This means that network access policies can apply restrictive action to secondary NICs of a device that is managed by SecureConnector through another NIC.

When the Advanced Tools Plugin is installed, the optional **Windows Manageable SecureConnector (via any interface)** property can be used to resolve a secondary (unmanaged) interface on the device as *Managed* when another NIC on the endpoint is already managed by SecureConnector. Refer to the *Advanced Tools Plugin Configuration Guide* for details.

Certificate Based Rapid Authentication of Endpoints

Typically CounterACT endpoint detection capabilities are combined with endpoint authentication and compliance policies to enforce network access control: Upon connection, network access of endpoints is restricted (typically to the DHCP and DNS servers and to CounterACT for detection and remediation interactions) until the user/endpoint is authenticated and compliance is proven. Only then is the necessary network access granted. However, authenticating endpoints and verifying compliance can cause a delay during which even legitimate endpoints have only restricted access. If complex compliance policies are in place, this delay in network access may be noticeable, resulting in an unsatisfactory user experience for corporate users.

Certificate based rapid authentication provides a strong, secure and extremely fast endpoint authentication mechanism. It uses your corporate PKI (Public Key Infrastructure) to provide immediate, authenticated network access for corporate users and other known endpoints.

The following describes a typical scenario when endpoints connect to the network:

- Corporate endpoints and other trusted endpoints managed by SecureConnector immediately initiate certificate-based authentication as part of SecureConnector’s TLS interaction with CounterACT. Endpoints are granted immediate network access based on a signed X.509 digital certificate. CounterACT continues the compliance checks defined in active policies, and may revoke or change endpoint access if these checks fail.
- A corporate policy may grant limited network access to endpoints without a valid rapid authentication certificate, or with an expired or revoked certificate, or endpoints not managed by SecureConnector, until normal, policy-driven compliance checks are run.

For more information about implementing certificate-based rapid authentication in your environment, see the *SecureConnector Advanced Features How-to Guide*.

Appendix A: Executable Files Used by HPS Inspection Engine

The following executable files are installed on endpoints by the HPS Inspection Engine. Refer to the *HPS Inspection Engine Release Notes* for information regarding changes made to these files.

EXE files	
Name	**Description**
fsprocsvc.exe	fsprocsvc.exe runs scripts for several CounterACT tasks. The service is similar to Microsoft's PsTools (part of Windows Sysinternals tools: http://technet.microsoft.com/en-us/sysinternals/default.aspx). The service does not open new network connections or generate traffic. The connection uses Microsoft SMB/RPC/WMI (445/TCP and 139/TCP) and is authenticated with domain credentials. If there is no request to run a new command within two hours, the service stops automatically.
SecureConnector.exe	The SecureConnector executable.
fs_DeviceControl.exe	Resolves the *External Devices* property.
fs_md5.exe	Resolves the *Windows File MD5 Signature* property.
fs_NBTDomain.exe	Resolves the *NetBIOS Domain* property
Additional Files	
fs_apps.vbs	Resolves the *Windows Applications Installed* property.
fs_auto_updates.vbs	Performs the *Windows Self Remediation* action.
fs_dot1x.vbs	Resolves host properties provided by the RADIUS Plugin.
fs_http_notify_g4.vbs	Supports the *HTTP Notification* action.
fs_http_upload.vbs	Resolves the *Microsoft Security >Vulnerabilities* property.
fs_kb.vbs	Resolves the *Microsoft Security >Vulnerabilities* property.
fs_kill_proc.vbs	Kills local processes to support *Kill…* actions.

fs_reg_edit.vbs	Performs the *Set Registry Key on Windows* action.
fs_sched_task_rm.vbs	Utility for running scripts with Task Scheduler.
fs_user.vbs	Supports the *User* property.
fs_wmi.vbs	Resolves the *Windows Security Center Antivirus Status* property.
fs_workgroup.vbs	Resolves the *Device Information>User* property for endpoints running Vista on WORKGROUP.
fs_wua_full.vbs	Performs the *Start Windows Updates* action.
fs_wua_search.vbs	Used for *Microsoft Security >Vulnerabilities* properties.

HPS Inspection Engine sometimes uses other methods to perform some of the tasks supported by these scripts. For example, SecureConnector can directly implement some of these tasks.

Appendix B: Troubleshooting the HPS Inspection Engine

This section describes troubleshooting procedures if the HPS Inspection Engine test fails. The following categories are available:

- Operational Requirements
- Testing the Domain Credentials

Operational Requirements

If the HPS Inspection Engine is not operating effectively, you should verify that the following requirements are met:

- Endpoints are running supported versions of Windows. See Supported Windows Operating Systems.
- Endpoints are running services required for remote inspection and to run scripts. See Working with Remote Inspection.
- You have domain-level administrator privileges on each computer being scanned or it is a member of the *Domain Admins* group. This group allows writing to the file system but not to the Windows Registry.
- On endpoints running Windows 7 and above, Port 445/TCP must be available. On earlier versions of Windows, port 139/TCP must also be available.

> 🗎 *If your network includes endpoints that run under Windows XP SP2, you changed the Windows Firewall Settings so that CounterACT can perform remote inspection on these machines. This means that you should have access to 445/TCP or 139/TCP. Allowing access means CounterACT can retrieve Windows-related information. By default, these ports are open on Windows 2000 machines.*

- CounterACT has access to the endpoint's file system. If RRP is used for Remote Inspection, CounterACT must also access the remote registry. Refer to the *CounterACT Administration Guide* for more information about verifying this information.
- (For XP systems only) You have cleared **Use Simple File Sharing** for the endpoint.

To clear Simple File Sharing on Windows XP:

1. Double click the **My Computer** icon on your desktop.
2. Select **Folder Options** from the Tools menu.
3. Select the View tab.
4. Clear **Use Simple File Sharing** and select **OK**.

Testing the Domain Credentials

Perform the following steps to test the domain credentials.

1. Log onto a desktop machine using the CounterACT username and password. If this fails, check the counteract user settings on the Domain Controller.
2. Check that the desktop machine is a member of the Domain and is authenticating against the Domain Controller.
3. Check that the login is using the Domain, rather than localhost credentials.

Testing the Credentials on a Desktop Using a Localhost Query

This test ensures that a query can be performed using the domain credentials.

1. Log on to a desktop machine using any credentials other than the **counteract** user. This desktop should be a member of the domain.
2. Open a command window (Start>Run>**cmd**).
3. Run the following command:

   ```
   net use \\127.0.0.1\C$ /USER:<domain>\<username>
   ```

4. Where <*domain*> is the fully qualified domain name of the network and <*username*> is the user account defined in CounterACT.
5. If the command completes successfully, it should return the following:

   ```
   Local name
   Remote name   \\127.0.0.1\C$
   ```

```
Resource type   Disk
Status   OK
# Opens   0
# Connections   1
```

If this test fails:

- Check the domain syntax. Perhaps it needs to be more fully qualified. For example DOMAIN, DOMAIN.COM or HQ.DOMAIN.COM
- Check the credentials on the Domain Controller.

Testing the Credentials on a Desktop Using Remote Query

1. Log onto another desktop machine that is also a member of the domain.
2. Open a command window (Start>Run>**cmd**).
3. Run the command:

   ```
   net use \\<IP> \c$ <password> /USER:<domain>\<username>
   ```

   Where

   <*IP*> is the IP address of the target machine

   <*password*> is the password for the **counteract** user

   <*domain*> is the fully qualified domain name of the network

   <*username*> is the user account defined in CounterACT

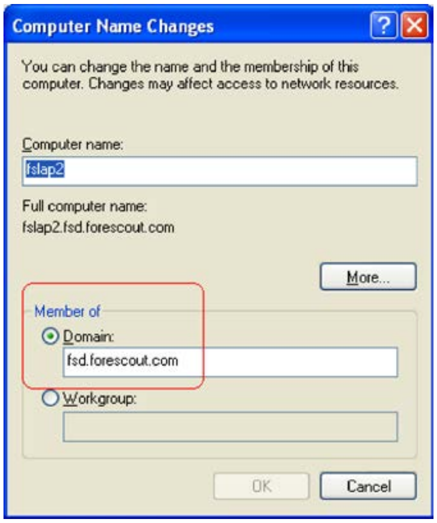
If this fails, check the following:

- Domain Configuration Test
- TCP/IP Configuration Test
- Port Setup Test
- NetBIOS over TCP/IP Setup Test
- Services Test
- Sharing Test

Domain Configuration Test

To perform a domain configuration test:

1. Open the System dialog box. Select **Start>Control Panel>System**. See the domain configuration – in the Computer Name tab, select **Change**. Verify that the machine is a member of the domain and that the domain is spelled correctly.



You can change the name and the membership of this computer. Changes may affect access to network resources.

Computer name: fslap2

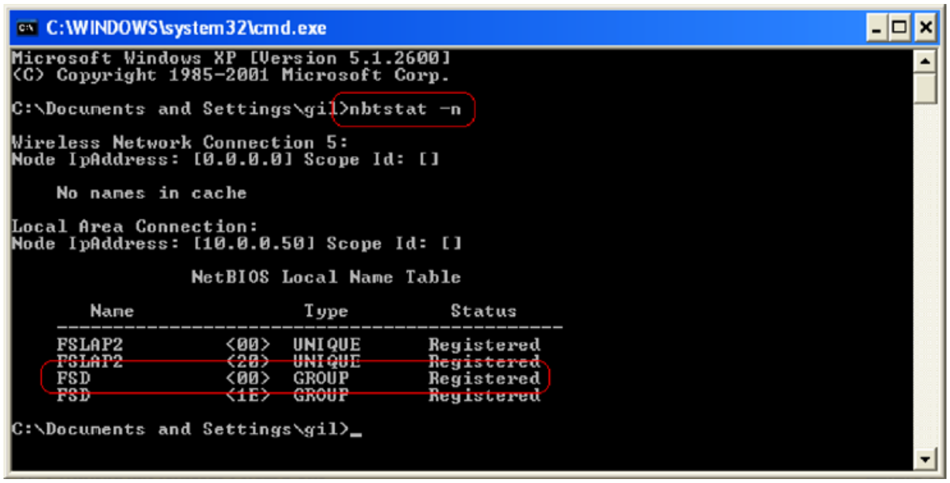
Full computer name:
fslap2.fsd.forescout.com

Member of

● Domain: fsd.forescout.com

○ Workgroup:

2. Verify that the NetBIOS domain name is identical to the one configured in the configuration screen. This is done by running ‘nbtstat –n’, see the following output.



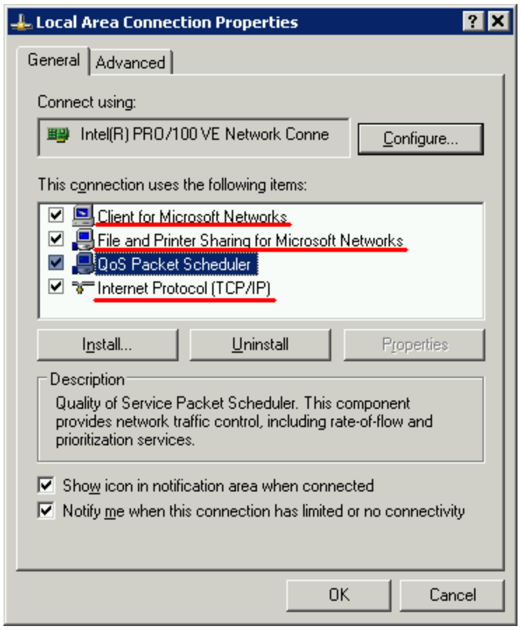
```
Microsoft Windows XP [Version 5.1.2600]
(C) Copyright 1985-2001 Microsoft Corp.

C:\Documents and Settings\gil>nbtstat -n

Wireless Network Connection 5:
Node IpAddress: [0.0.0.0] Scope Id: []

    No names in cache

Local Area Connection:
Node IpAddress: [10.0.0.50] Scope Id: []

                NetBIOS Local Name Table

       Name               Type         Status
    ---------------------------------------------
    FSLAP2         <00>  UNIQUE      Registered
    FSLAP2         <20>  UNIQUE      Registered
    FSD            <00>  GROUP       Registered
    FSD            <1E>  GROUP       Registered

C:\Documents and Settings\gil>_
```

TCP/IP Configuration Test

Open the properties dialog box of the relevant network connection.

To open the dialog box:

1. Select **Start>Settings>Control Panel>Network Connections**.
2. Right-click the network connection and select **Properties**. The following components should be installed (marked in red in the figure below):
   - **Client for Microsoft Networks**
   - **File and Printer Sharing for Microsoft Networks**
   - **Internet Protocol (TCP/IP)**


Local Area Connection Properties

Connect using: Intel(R) PRO/100 VE Network Conne

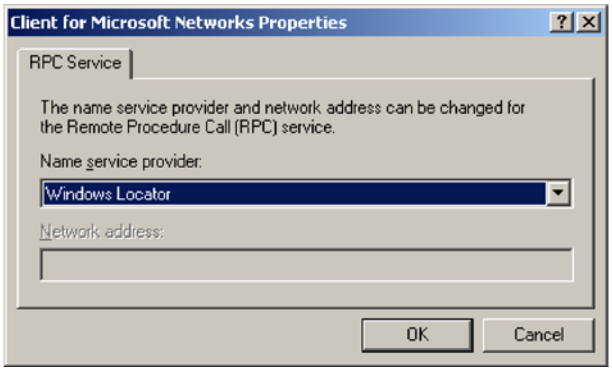
This connection uses the following items:

☑ Client for Microsoft Networks
☑ File and Printer Sharing for Microsoft Networks
☑ QoS Packet Scheduler
☑ Internet Protocol (TCP/IP)

Description: Quality of Service Packet Scheduler. This component provides network traffic control, including rate-of-flow and prioritization services.

☑ Show icon in notification area when connected
☑ Notify me when this connection has limited or no connectivity

3. **Client for Microsoft Networks** should be configured as follows:


Client for Microsoft Networks Properties

The name service provider and network address can be changed for the Remote Procedure Call (RPC) service.

Name service provider: Windows Locator

Network address:

Port Setup Test

Depending on the Remote Inspection method that is used, and the Windows versions running on target endpoints, CounterACT should have access to ports 445/TCP and 139/TCP.

Group Policy Test

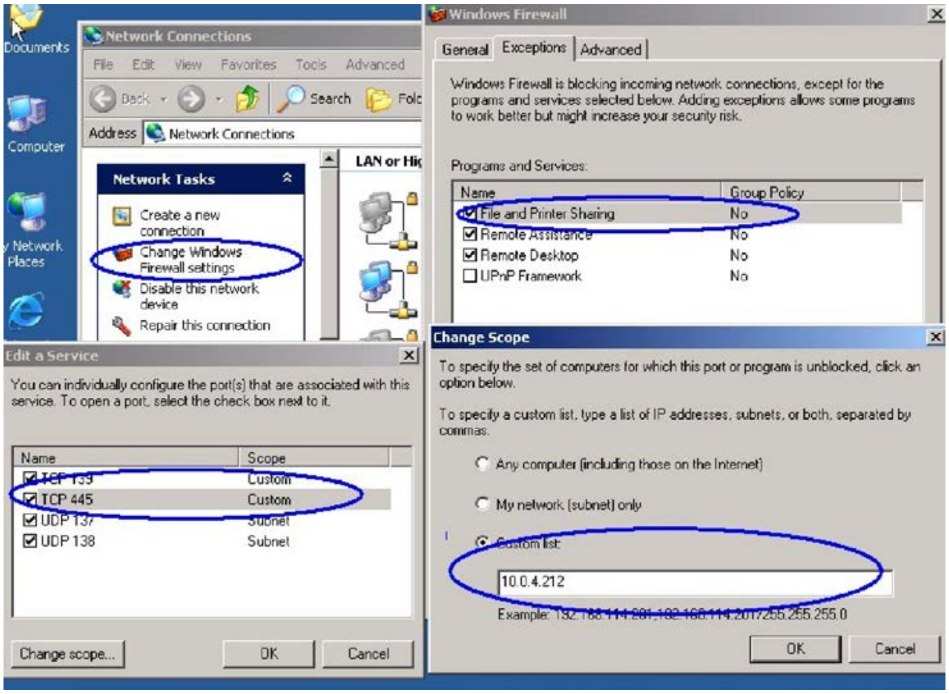
In a Windows XP group policy, the domain can be configured to set the end-system’s Windows Firewall settings. Refer to *Appendix 3: Remote Access to Network Hosts>Working with Windows XP SP2 Machines* in the CounterACT *Administration Guide* for more information.

Local Configuration of Windows Firewall

To allow incoming network connections:

1. Select **Start>Settings>Control Panel>Windows Firewall>Exceptions>File and Printer sharing**. Ports 445/TCP and 139/TCP should be selected.

2. Choose **Change Scope** for each port and in the Custom List add the CounterACT IP address.



Windows Firewall is blocking incoming network connections, except for the programs and services selected below. Adding exceptions allows some programs to work better but might increase your security risk.

Programs and Services:

Name	Group Policy
☑ File and Printer Sharing	No
☑ Remote Assistance	No
☑ Remote Desktop	No
☐ UPnP Framework	No

You can individually configure the port(s) that are associated with this service. To open a port, select the check box next to it.

Name	Scope
☑ TCP 139	Custom
☑ TCP 445	Custom
☑ UDP 137	Subnet
☑ UDP 138	Subnet

To specify the set of computers for which this port or program is unblocked, click an option below.

To specify a custom list, type a list of IP addresses, subnets, or both, separated by commas.

○ Any computer (including those on the Internet)

○ My network (subnet) only

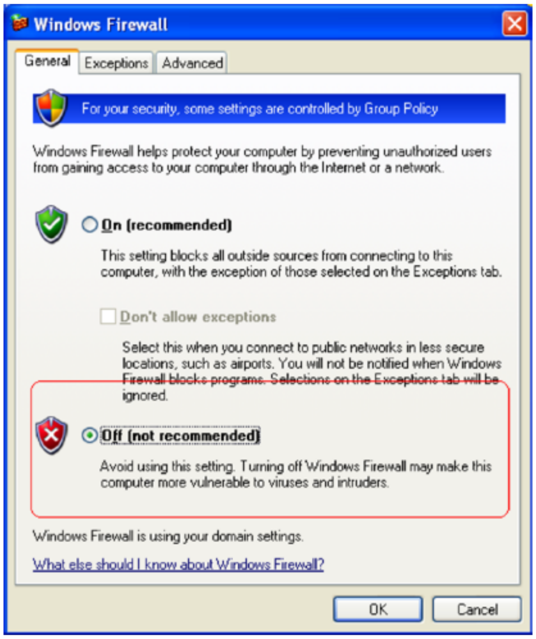
● Custom list:

10.0.4.212

Example: 192.168.114.201,192.168.114.201/255.255.255.0

Disabling Windows Firewall

For testing purposes Windows Firewall can be disabled.



For your security, some settings are controlled by Group Policy

Windows Firewall helps protect your computer by preventing unauthorized users from gaining access to your computer through the Internet or a network.

○ On (recommended)

This setting blocks all outside sources from connecting to this computer, with the exception of those selected on the Exceptions tab.

☐ Don't allow exceptions

Select this when you connect to public networks in less secure locations, such as airports. You will not be notified when Windows Firewall blocks programs. Selections on the Exceptions tab will be ignored.

● Off (not recommended)

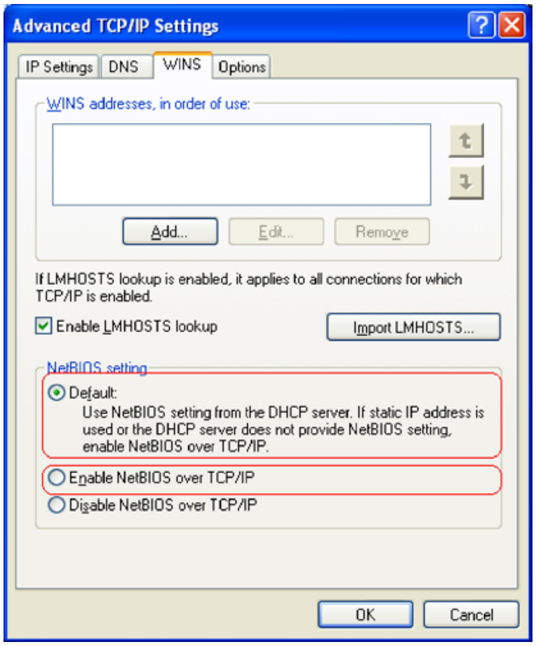
Avoid using this setting. Turning off Windows Firewall may make this computer more vulnerable to viruses and intruders.

Windows Firewall is using your domain settings.

What else should I know about Windows Firewall?

NetBIOS over TCP/IP Setup Test

NetBIOS over TCP/IP should be enabled either directly or from the DHCP server. One of the options in red below should be enabled:



WINS addresses, in order of use:

If LMHOSTS lookup is enabled, it applies to all connections for which TCP/IP is enabled.

☑ Enable LMHOSTS lookup

NetBIOS setting

● Default:
Use NetBIOS setting from the DHCP server. If static IP address is used or the DHCP server does not provide NetBIOS setting, enable NetBIOS over TCP/IP.

○ Enable NetBIOS over TCP/IP

○ Disable NetBIOS over TCP/IP

Services Test

Verify that required services are running.

To verify:

1. Open the services view by selecting **Start>Control Panel>Administrative Tools>Services**.
2. Verify that the following services are running:
   - Server

   When RRP is used for Remote Inspection:

   - Remote Procedure Call (RPC).
   - Remote Registry Service

   When WMI is used for Remote Inspection:

   - Windows Management Instrumentation
3. If a service is not running:
   a. Start the service (right-click and select **Start**).
   b. Configure the service to automatically run on startup.
4. If services are running, but CounterACT reports that services are not running, for example:

   rpc_service_server_down:err

   There may be a memory related issue on the endpoint which is preventing Windows from properly using those services.

   For more information on memory related issues in Windows, see:

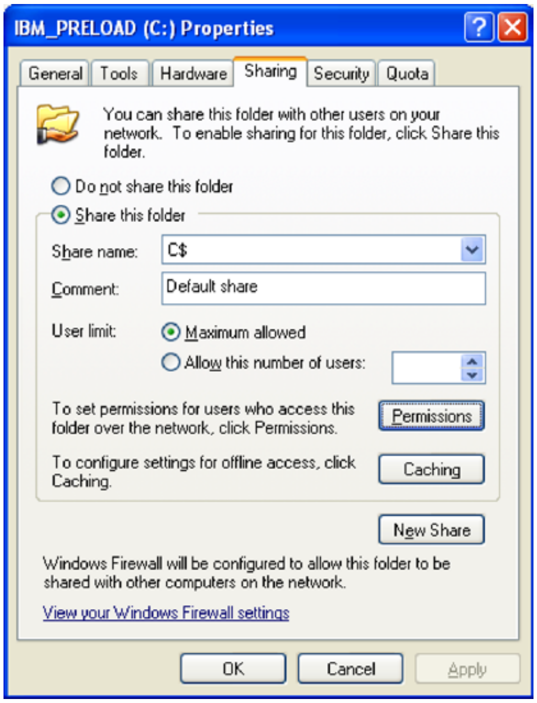
   https://support.microsoft.com/en-us/kb/2404366 https://support.microsoft.com/en-us/kb/981314

Sharing Test

Verify the default **C$** share exists.

To verify C$ on endpoints running Windows XP or Windows 2000:

1. From My computer, right-click drive C and select **Properties**.
2. In the Sharing tab, the following should be configured:



IBM_PRELOAD (C:) Properties

You can share this folder with other users on your network. To enable sharing for this folder, click Share this folder.

○ Do not share this folder
● Share this folder

Share name: C$

Comment: Default share

User limit: ● Maximum allowed
○ Allow this number of users:

To set permissions for users who access this folder over the network, click Permissions.

To configure settings for offline access, click Caching.

Windows Firewall will be configured to allow this folder to be shared with other computers on the network.

View your Windows Firewall settings

Disable the "Use simple file sharing" Option

In some rare incidents, this option prevents endpoints running Windows XP or Windows 2000 from performing remote inquiries.

To disable simple file sharing:

- From **My computer>Tools>Folder Options**, select the View tab, disable the **Use simple file sharing** option.

Appendix C: SecureConnector Log Files

SecureConnector creates log files on a continuous basis. Crash dump diagnostics are generated only when the SecureConnector application crashes. Log and crash dump files are created and stored at the following locations:

- On endpoints running Vista and later Windows releases:

  `%ALLUSERSPROFILE%\ForeScout SecureConnector\Logs`

%ALLUSERSPROFILE%\ForeScout SecureConnector\Dump

- On endpoints running Windows XP:

  %ALLUSERSPROFILE%\Application Data\ForeScout SecureConnector\Logs

  %ALLUSERSPROFILE%\Application Data\ForeScout SecureConnector\Dump

Where **%ALLUSERSPROFILE%** is the pathname specified in the AllUsersProfile Windows environment variable.

Log Files - Individual log files can have a maximum size of 40M. When the active log file **sc.log** reaches this size limit, it is saved as a time stamped archive file. The timestamp indicates the date and time range of events recorded in the file. By default 2 archive files are retained, in addition to the active log file. For example, the following files may typically appear in the **\Logs** directory:

```
sc.log
sc_2013-12-11_121052_2013-12-19_214626.log
```

The timestamp indicates the date and time range of events recorded in the file. The archive file in the example shown above covers the period from 12:10:25 AM on December 11 to 09:46:26 PM on December 19, 2013.

You can configure the number of log files that are retained on each endpoint, and other log settings.

Crash Dump Files – SecureConnector crash dump information is written to the **\Dump** directory. This directory is only created if a crash occurs. The contents of the **\Dump** directory are packaged as an archive named *Dump.zip*, which is placed in the parent **\ForeScout SecureConnector** directory.

Configure and Retrieve Log files – the fstool sc_config Command

The **fstool sc_config** command lets you configure log settings on any endpoint, and retrieve log and crash dump files from any endpoint.

Configure Logging on an Endpoint

To configure logging behavior on an endpoint, use the following form of the command:

fstool sc_config *<ip>* **-log_level** *<lvl>* **-max_logs_number** *<max>* **-timespan_minutes** *<min>*

where

<ip> is the IP address of the endpoint

<lvl> is the severity level of events that should be recorded in the log. By default events up to severity level 4 are logged. In some cases, ForeScout support staff may ask you to use severity level 5 to capture additional events.

<max> is the maximum number of log files that are retained, including the current open log file. By default 2 files are retained. Each archived log file is 40M in size. When the active log file reaches 40 M it is archived, and the oldest archived file is deleted to keep the total number of files within the specified limit.

<min> is the time interval for which the settings specified in the command are applied. When this term is omitted, settings are permanent on the endpoint until the next sc_config command.

The following example applies the highest log level for a 12-hour period. Events at all severity levels are recorded in the log file during the next 12 hours. After 12 hours, the log level returns to the previous setting.

```
fstool sc_config 100.10.10.01 -log_level 5 -timespan_minutes 720
```

The following example permanently limits the number of log files on the endpoint to three.

```
fstool sc_config 100.10.10.01 -max_logs_number 3
```

Retrieve Files from an Endpoint

To retrieve log files from an endpoint, use the following form of the command:

```
fstool sc_config <ip> -get_logs <CT_path>
```

To retrieve crash dump files from an endpoint, use the following form of the command:

```
fstool sc_config <ip> -get_dump <CT_path>
```

where

<ip> is the IP address of the endpoint

<CT_path> is the pathname on the CounterACT Appliance to which files are copied.

Appendix D: Remote Inspection and SecureConnector – Feature Support

This table summarizes Windows-related CounterACT features that are supported by Remote Inspection and/or by SecureConnector and provides information about the benefits of using SecureConnector.

✓ a green checkmark indicates supported

✗ a red x indicates not supported

✔ a yellow checkmark indicates supported but requires the fsprocsvc.exe service.

SecureConnector supports event-driven real-time resolution of host properties. See Event Driven Monitoring of Host Properties.

Feature	Type	Technology			Benefits of SecureConnector
		RI WMI	RI RRP	Secure Connector	
Assign to VLAN	Action	✗	✗	✓	Can assign an endpoint behind VoIP to VLAN without bouncing switch port

Feature	Type	Technology			Benefits of
Device Interfaces	Property	✔	✓	✔	
Disable Dual Homed	Action	✗	✗	✔	
Disable External Device	Action	✗	✗	✔	
External Devices	Property	✔	✓	✔	Event-driven real-time resolution instead of polling
HTTP Redirection to URL (If Attempt to open a browser at the detected endpoint is selected)	Action	✓	✓	✔	
Intranet WSUS Server	Property	✔	✔	✔	
Kill Process on Windows	Action	✔	✓	✔	Process is killed every second instead of every minute
MAC Address	Property	✗	✗	✔	
Microsoft Applications Installed	Property	✔	✔	✔	Event-driven real-time resolution instead of polling
Microsoft Vulnerabilities	Property	✔	✓	✔	
Microsoft Vulnerabilities Fine-tuned	Property	✔	✓	✔	
MS-RRP Reachable	Property	✔	✔	✔	Can be resolved by SecureConnector, but not relevant for endpoints managed by SecureConnector.
MS-SMB Reachable	Property	✔	✔	✔	Can be resolved by SecureConnector, but not relevant for endpoints managed by SecureConnector.
MS-WMI Reachable	Property	✔	✔	✔	Can be resolved by SecureConnector, but not relevant for endpoints managed by SecureConnector.
NetBIOS Domain	Property	✔	✔	✔	
NetBIOS Hostname	Property	✔	✔	✔	

Feature	Type	Technology			Benefits of
NetBIOS Membership Type (Domain or Workgroup)	Property	✓	✓	✓	
Network Adapters	Property	✓	✓	✓	
Number of IP Addresses	Property	✓	✔	✓	
Run Script On Windows (non-interactive)	Action	✓	✔	✓	
Run Script On Windows (interactive)	Action	✔	✔	✓	
Send Balloon Notification	Action	✗	✗	✓	
Set Registry Key on Windows	Action	✓	✔	✓	
SMB Relay	Property	✓	✓	✓	
SMB Signing	Property	✓	✓	✓	
Start Windows Updates	Action	✓	✔	✓	
User	Property	✓	✔	✓	
Windows Applications Installed	Property	✓	✓	✓	Event-driven real-time resolution instead of polling
Windows Domain Member	Property	✓	✓	✓	
Windows Expected Script Result (non-interactive)	Property	✓	✔	✓	
Windows Expected Script Result (interactive)	Property	✔	✔	✓	
Windows File Date	Property	✓	✓	✓	Event-driven real-time resolution instead of polling
Windows File Exists	Property	✓	✓	✓	Event-driven real-time resolution instead of polling
Windows File MD5 Signature	Property	✓	✔	✓	
Windows File Size	Property	✓	✓	✓	Event-driven real-time resolution instead of polling

Feature	Type	Technology			Benefits of
Windows File Version	Property	✓	✓	✓	Event-driven real-time resolution instead of polling
Windows File Version Comparison	Property	✓	✓	✓	
Windows Hotfix Installed	Property	✓	✓	✓	
Windows Is Behind NAT	Property	✓	✓	✓	
Windows Last Login Event	Property	✗	✗	✓	Requires SecureConnector installed as a service
Windows Logged On	Property	✓	✓	✓	
Windows Manageable Domain	Property	✓	✓	N/A	
Windows Manageable Domain (Current)	Property	✓	✓	N/A	
Windows Manageable Local	Property	✓	✓	N/A	
Windows Manageable SecureConnector	Property	N/A	N/A	✓	
Windows Processes Running	Property	✓	✓	✓	Event-driven real-time resolution instead of polling
Windows Registry Key Exists	Property	✓	✓	✓	Event-driven real-time resolution instead of polling
Windows Registry Value	Property	✓	✓	✓	Event-driven real-time resolution instead of polling
Windows Registry Value Exists	Property	✓	✓	✓	Event-driven real-time resolution instead of polling
Windows SecureConnector Deployment Type	Property	N/A	N/A	✓	
Windows SecureConnector Connection Encryption	Property	N/A	N/A	✓	
Windows SecureConnector Systray Display	Property	N/A	N/A	✓	
Windows Services Installed	Property	✓	✓	✓	Event-driven real-time resolution instead of polling

Feature	Type	Technology			Benefits of
Windows Services Running	Property	✓	✓	✓	Event-driven real-time resolution instead of polling
Windows Shared Folders	Property	✓	✓	✓	Event-driven real-time resolution instead of polling
Windows Update Agent Installed	Property	✓	✓	✓	
Windows Updates Installed – Reboot Required	Property	✓	✓	✓	

Related Plugins

SecureConnector and Remote Inspection both support the properties and actions provided by other components such as the NIC Vendor DB Content Module.

SecureConnector and Remote Inspection both support all the properties and actions provided by the Windows Applications Content Module. However, SecureConnector supports event-driven reporting of properties which detect the presence and running state of third-party applications.

User Accounts to Run Scripts on Managed Endpoints

CounterACT runs processes and scripts on managed endpoints to resolve host properties and implement actions. This table summarizes the user accounts that are used by these processes when different Remote Inspection methods are used and when SecureConnector is installed on the endpoint.

Refer to relevant sections of this guide for details of endpoint management functionality supported by each of these methods.

Method Used to Run Scripts	Non Interactive Scripts Run As	Interactive Scripts Run As
fsprocsvc.exe	System user	Current logged-in user
WMI	User configured in HPS Inspection Engine	(Not Available with WMI)
Task Scheduler	User configured in HPS Inspection Engine	Current logged-in user
SecureConnector installed as service	System user	Current logged-in user
SecureConnector installed as application	Current logged-in user	Current logged-in user

Endpoint Module Information

The HPS Inspection Engine is installed with the CounterACT Endpoint Module.

The Endpoint Module provides connectivity, visibility and control to network endpoints through the following CounterACT components:

- HPS Inspection Engine
- Linux Plugin
- OS X Plugin
- Microsoft SMS/SCCM
- Hardware Inventory Plugin

The Endpoint Module is a ForeScout Base Module. Base Modules are delivered with each CounterACT release.

Components listed above are released and rolled back with the Endpoint Module.

Refer to the *CounterACT Endpoint Module Guide* for basic information on other plugins included in this module, module requirements as well as upgrade and rollback instructions. See *Additional CounterACT Documentation* for information about how to access the module guide.

Additional CounterACT Documentation

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

- Documentation Downloads
- Documentation Portal
- CounterACT Help Tools

Documentation Downloads

Documentation downloads can be accessed from one of two ForeScout portals, depending on which licensing mode your deployment is using.

- ***Per-Appliance Licensing Mode*** - Product Updates Portal
- ***Centralized Licensing Mode*** - Customer Portal

🗎 *Software downloads are also available from these portals.*

To learn which licensing mode your deployment is using, see Identifying Your Licensing Mode in the Console.

Product Updates Portal

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

To access the Product Updates Portal:

1. Go to https://updates.forescout.com/support/index.php?url=counteract.
2. Select the CounterACT version you want to discover.

Customer Portal

The Downloads page on the ForeScout Customer Portal provides links to purchased CounterACT version releases, Base and Content Modules, and Extended Modules, 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. The Documentation page on the portal provides a variety of additional documentation.

To access documentation on the ForeScout Customer Portal:

1. Go to https://forescout.force.com/support/.
2. Select **Downloads** or **Documentation**.

Documentation Portal

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

🗎 *If your deployment is using Centralized Licensing Mode, you may not have credentials to access this portal.*

To access the Documentation Portal:

1. Go to www.forescout.com/docportal.
2. Use your customer support credentials to log in.
3. Select the CounterACT version you want to discover.

CounterACT Help Tools

Access information directly from the CounterACT Console.

Console Help Buttons

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

CounterACT Administration Guide

Select **CounterACT Help** from the **Help** menu.

Plugin Help Files

1. After the plugin is installed, select **Options** from the **Tools** menu and then select **Modules**.
2. Select the plugin and then select **Help**.

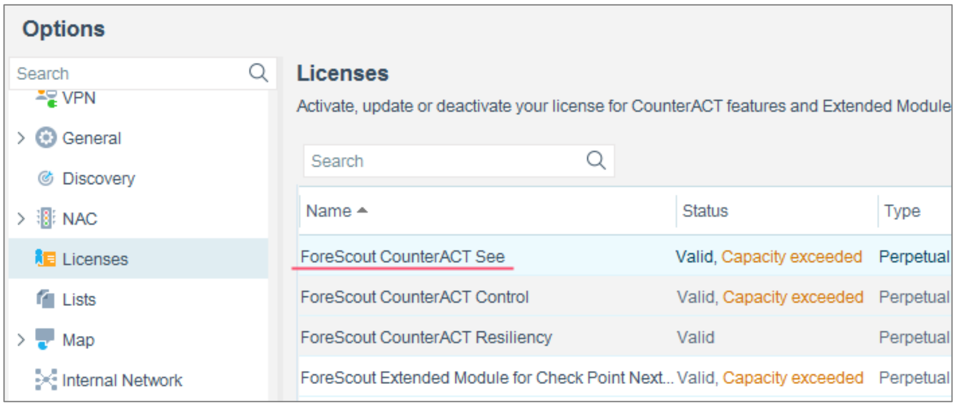
Documentation Portal

Select **Documentation Portal** from the **Help** menu.

Identifying Your Licensing Mode in the Console

If your Enterprise Manager has a *ForeScout CounterACT See* license listed in the Console, your deployment is operating in Centralized Licensing Mode. If not, your deployment is operating in Per-Appliance Licensing Mode.

Select **Options > Licenses** to see whether you have a *ForeScout CounterACT See* license listed in the table.



Activate, update or deactivate your license for CounterACT features and Extended Module

Name ▲	Status	Type
ForeScout CounterACT See	Valid, Capacity exceeded	Perpetual
ForeScout CounterACT Control	Valid, Capacity exceeded	Perpetual
ForeScout CounterACT Resiliency	Valid	Perpetual
ForeScout Extended Module for Check Point Next...	Valid, Capacity exceeded	Perpetual

Contact your ForeScout representative if you have any questions about identifying your licensing mode.

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