Configuring Symantec™ Protection Engine for Network Attached Storage 7.0.1 for Hitachi Unified and NAS Platforms
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Documentation version: 7.0.1

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  - Troubleshooting that was performed before contacting Symantec
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Configuring Symantec™ Protection Engine for Network Attached Storage 7.0.1 for Hitachi Unified and NAS Platforms

This document includes the following topics:

- About software components
- How Symantec Protection Engine works with the Hitachi Unified and NAS Platforms
- About preparing for installation
- About configuring Symantec Protection Engine
- About configuring the Hitachi NAS device
- Recommendations while integrating multiple protection engines

About software components

Symantec™ Protection Engine for Network Attached Storage provides virus scanning and repair capabilities for the Hitachi Unified and NAS Platforms.

Configure the following components to add antivirus scanning to the Hitachi NAS devices:
Symantec™ Protection Engine for Network Attached Storage version 7.0.1
Provides the virus scanning and repair services. For more information, see the
Symantec™ Protection Engine for Network Attached Storage Implementation
Guide.

Hitachi Unified and NAS Platforms operating on HNAS OS version 11.2 or later.
The Hitachi Unified and NAS Platforms are as follows:
- Hitachi NAS 3080
- Hitachi NAS 3090
- Hitachi NAS 4040
- Hitachi NAS 4060
- Hitachi NAS 4080
- Hitachi NAS 4100

Some options are configured directly on the NAS device. No additional code is
necessary to connect Symantec™ Protection Engine for Network Attached
Storage to the device.

Note: Symantec™ Protection Engine for Network Attached Storage is hereafter
referred to as Symantec Protection Engine.

How Symantec Protection Engine works with the
Hitachi Unified and NAS Platforms

Symantec Protection Engine provides virus scanning and repair capabilities for the
Hitachi Unified and NAS Platforms that support HNAS OS version 11.2 or later.
Virus scanning and repair are provided for files on the Common Internet File System
(CIFS).

Internet Content Adaptation Protocol (ICAP) is used to communicate with Symantec
Protection Engine. In a typical NAS environment, a minimum of two protection
engines are required to handle the scan volume. A maximum of 32 protection
engines can be supported per NAS device. The NAS service handles load balancing
across multiple protection engines automatically.

Hitachi’s operating system for its file storage platforms such as Hitachi Virtual File
Platform and Hitachi Data Ingestor provide multiprotocol (NFS, CIFS, and FTP/sFTP)
file service and cloud storage gateway capability.
How are files scanned

The Hitachi NAS device is configured to scan a file in real time (that is, when a file is opened and when it is closed, if it has been modified). When a user tries to access a file from storage, the NAS device opens a connection with Symantec Protection Engine. The device then passes the file to the protection engine for scanning. After scanning is complete, the device closes the connection with the protection engine.

Symantec Protection Engine indicates the scanning result to the NAS device after a file is scanned. After the device receives the scanning results, the file is handled in the following way: Only clean files are passed to the requesting user. If the file is infected, the user is allowed access to the file, denied access to the file, or the file is deleted. User can configure these options on the Hitachi NAS device. The infected file is deleted by default.

How caching works

The NAS device caches the scanning results for each clean file. The cached information includes the date and revision number of the virus definitions that were used to perform the scan. So, if a second user requests access to a file that has already been scanned and if the virus definitions have not changed, a redundant scan is avoided.

The cache is purged when the virus definitions on Symantec Protection Engine are updated and when the Hitachi NAS device is restarted. Individual cache entries are updated whenever a stored file is changed.

About specifying which file types are scanned

To specify the file types to be scanned for viruses, configure settings on both, the Hitachi NAS device and Symantec Protection Engine.

About specifying file types on the NAS device

Based on file extensions, the NAS device determines, initially, whether it should pass a file to Symantec Protection Engine for scanning. You can configure which files are passed to Symantec Protection Engine for scanning when you set up the Hitachi NAS device.

You can control which files are scanned by using an exclusion or an inclusion list, or you can scan all files regardless of extension. Configure the Hitachi NAS device to pass all file types to the protection engine except those that are contained in the exclusion list. The exclusion list can include extensions for those file types that are not likely to contain viruses and can be excluded from scanning.

See “About configuring virus scanning on the Hitachi NAS device” on page 20.
About specifying file types on Symantec Protection Engine

You can configure Symantec Protection Engine so that selected file types and file extensions are excluded from scanning. The setting on Symantec Protection Engine is as important as the settings on the NAS device. The setting on the protection engine determines which files to scan upon receiving a file from the NAS device. The scanned files are those contained in archive or container file formats. You can control which embedded files are scanned by using the file type and extension exclusion list, or you can scan all files regardless of extension.

Note: Exclusion lists ensure that all file types are not scanned; therefore, new types of viruses might not be detected. Scanning all files regardless of extension and type is the most secure setting, but it imposes the heaviest demand on resources. During virus outbreaks, you might want to scan all files even if you normally control the file types that are scanned with the exclusion list.

For more information, see the Symantec™ Protection Engine for Network Attached Storage Implementation Guide.

See “About specifying which file types to scan on the protection engine” on page 14.

About specifying the scan policy

You configure the scan policy through the Symantec Protection Engine administrative interface. When an infected file is found, the protection engine can do any of the following:

- **Scan Only**: Scan files for viruses, but do nothing to infected files.
- **Scan and delete**: Scan files for viruses, and delete any infected files that are embedded in archive or container files without trying to repair.
- **Scan and repair files**: Scan files for viruses. Try to repair the infected file, and deny access to any irreparable file.
- **Scan and repair or delete**: Scan files for viruses. Try to repair the infected file, and delete any irreparable file.
About handling infected files on the NAS device

If the file is infected, you are allowed access to the file, denied access to the file, or the file is deleted. You can configure these options on the NAS device. The infected file is deleted by default.

You can configure the NAS device to receive notifications when an infection is detected.

For more information, see the appropriate Hitachi NAS device documentation.

About preparing for installation

The computer on which you plan to install Symantec Protection Engine must meet the system requirements that are listed in the Symantec™ Protection Engine for Network Attached Storage Implementation Guide.

After you have installed Symantec Protection Engine, configure the virus scanning functionality on the Hitachi Unified and NAS Platforms.

About configuring Symantec Protection Engine

You must configure several settings on each Symantec Protection Engine that is used to support scanning for the Hitachi NAS device.

Note: If you use multiple protection engines to support scanning, the configuration settings on each protection engine must be identical. LiveUpdate must scheduled to occur at the same time on all protection engines so that virus definitions are consistent at all times.

The protection engine must be configured to use ICAP as the communication protocol. ICAP is the default protocol at installation. After you have selected ICAP, you must configure the ICAP-specific options.

See “About configuring the Hitachi NAS device” on page 19.

Configuring the ICAP-specific options

You can configure several settings that are specific to the ICAP protocol through the Symantec Protection Engine administrative interface. You can also change the protocol through the administrative interface if Symantec Protection Engine has already been configured to use another protocol. However, you must manually restart Symantec Protection Engine.
For more information about accessing the administrative interface, see the *Symantec™ Protection Engine for Network Attached Storage Implementation Guide*.

Table 1-1 describes the protocol-specific options for ICAP.

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bind address</td>
<td>Symantec Protection Engine detects all the available IP addresses that are installed on the host. By default, Symantec Protection Engine accepts scanning requests on (binds to) all of the scanning IP addresses that it detects. You can configure up to 64 IP addresses as scanning IP addresses. You can specify whether you want Symantec Protection Engine to bind to all of the IP addresses that it detects, or you can restrict access to one or more interfaces. If you do not specify at least one IP address, Symantec Protection Engine binds to all of the scanning IP addresses that it detects. If Symantec Protection Engine fails to bind to any of the selected IP addresses, an event is written to the log as a critical error. Even if Symantec Protection Engine is unable to bind to any IP address, you can access the console. However, scanning functionality is unavailable. <strong>Note:</strong> You can use 127.0.0.1 (the loopback interface) to let only the clients that are running on the same computer connect to Symantec Protection Engine.</td>
</tr>
<tr>
<td>Port number</td>
<td>The port number must be exclusive to Symantec Protection Engine. For ICAP, the default port number is 1344. If you change the port number, use a number greater than 1024 that is not in use by any other program or service.</td>
</tr>
</tbody>
</table>
Table 1-1  Protocol-specific options for ICAP (continued)

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scan policy</td>
<td>When an infected file is found, Symantec Protection Engine can do any of the following:</td>
</tr>
<tr>
<td></td>
<td>■ Scan only: Scan files for viruses, but do nothing to infected files.</td>
</tr>
<tr>
<td></td>
<td>■ Scan and delete: Scan files for viruses, and delete any infected files that are embedded in archive or container files without trying to repair.</td>
</tr>
<tr>
<td></td>
<td>■ Scan and repair files: Scan files for viruses. Try to repair infected files, but do nothing to irreparable files (that is, do not delete the files from archive or container files).</td>
</tr>
<tr>
<td></td>
<td>■ Scan and repair or delete: Scan files for viruses. Try to repair infected files, and delete irreparable files from archive or container files.</td>
</tr>
</tbody>
</table>

To configure the ICAP-specific options

1. On the Symantec Protection Engine administrative interface, in the left pane, click **Configuration**.

2. Under **Views**, click **Protocol**.

3. In the right pane, under **Select Communication Protocol**, click **ICAP**.

   The configuration settings are displayed for the selected protocol. If you change the protocol setting from RPC to ICAP through the Symantec Protection Engine administrative interface, you must manually stop and start the service.

4. Under **ICAP Configuration**, in the Bind address box, select the scanning IP addresses that you want to bind to Symantec Protection Engine. Check **Select All** to select every IP address in the Bind address table.

   By default, Symantec Protection Engine binds to all interfaces.

5. In the Port number box, type the TCP/IP port number that the NAS service uses to pass files to Symantec Protection Engine for scanning.

   The default setting for ICAP is port 1344.
6 In the **Scan policy** list, select how you want Symantec Protection Engine to handle infected files.

   The default setting is Scan and repair or delete.

7 On the toolbar, select one of the following:

   **Save**
   
   Saves your changes.

   You can continue to make changes in the administrative interface until you are ready to apply them.

   **Apply**
   
   Applies your changes.

   Your changes are not implemented until you apply them.

---

**About specifying which file types to scan on the protection engine**

The settings on Symantec Protection Engine must be configured to specify the types of files to be scanned for viruses. The scan policy on the protection engine determines which files it should scan from the NAS device. The scanned files are those contained in archive or container file formats.

You can control which embedded files are scanned by using an extension or type exclusion list, or you can scan all files regardless of extension and type. A prepopulated extension and type exclusion list exists that you can modify. Symantec Protection Engine is configured by default to scan all files.

For more information, see the *Symantec™ Protection Engine for Network Attached Storage Implementation Guide*.

**Specifying which file types to scan**

You can control which file types are scanned by specifying those extensions that you want to exclude from scanning, or you can scan all files regardless of extension.

**To scan all files except for those that are in the file extension exclusion list**

1 On the Symantec Protection Engine administrative interface, in the left pane, click **Policies**.

2 Under **Views**, click **Scanning**.
3 In the right pane, under Files to Scan, click **Scan all files except those in the extension or type exclude lists**.

When you enable this option, both the file extension exclude list and the file type exclude list are activated automatically.

4 Type each file extension that you want to add to the list on a separate line. Use a period with each extension in the list.

5 To remove a file extension from the list, select it and delete it from the File extension exclude list.

6 To restore the default file extension exclude list, in the left pane, under Tasks, click **Reset Default List**.

This option restores the default file-type exclude list and the file-extension exclude list.

7 On the toolbar, select one of the following:

   - **Save**: Saves your changes.
     
     You can continue to make changes in the administrative interface until you are ready to apply them.

   - **Apply**: Applies your changes.
     
     Your changes are not implemented until you apply them.

---

**To scan all file types except those in the file type exclusion list**

1 On the Symantec Protection Engine administrative interface, in the left pane, click **Policies**.

2 Under **Views**, click **Scanning**.

3 In the right pane, under Files to Scan, click **Scan all files except those in the extension or type exclude lists**.

When you enable this option, both the file type exclude list and the file extension exclude list are activated automatically.

4 Type each file type you want to add to the list on a separate line. To include all subtypes for a file type, use the wildcard character /*.

For more information on how to write the file types, see the *Symantec™ Protection Engine for Network Attached Storage Implementation Guide*.

5 To remove a file type from the list, select it and delete it from the File type exclude list.
6  To restore the default file type exclude list, in the left pane, under Tasks, click Reset Default List.
   This option restores the default file-type exclude list and the file-extension exclude list.

7  On the toolbar, select one of the following:

   Save
   Saves your changes.
   You can continue to make changes in the administrative interface until you are ready to apply them.

   Apply
   Applies your changes.
   Your changes are not implemented until you apply them.

To scan all files regardless of extension or type

1  On the Symantec Protection Engine administrative interface, in the left pane, click Policies.

2  Under Views, click Scanning.

3  In the right pane, under Files to Scan, click Scan all files.

4  On the toolbar, select one of the following:

   Save
   Saves your changes.
   You can continue to make changes in the administrative interface until you are ready to apply them.

   Apply
   Applies your changes.
   Your changes are not implemented until you apply them.

About specifying container handling limits

File attachments that consist of container files can overload the system and cause denial-of-service attacks. They can be overly large, contain large numbers of embedded, compressed files, or be designed to maliciously use resources and degrade performance. Symantec Protection Engine can be configured to impose limits on how container files are handled. This reduces the exposure of the network to denial-of-service attacks.
You can specify the following limits for handling container files:

- The maximum amount of time, in seconds, that is spent decomposing a container file and its contents. This setting does not apply to .hqx or .amg files.
- The maximum file size, in megabytes, for the individual files that are in a container file.
- The maximum number of nested levels to decompose for scanning.
- The maximum number of bytes that are read when determining whether a file is MIME-encoded.

You can specify whether to allow or deny access to the file if any of these specified limits is met or exceeded.

Symantec Protection Engine blocks container files based on their type, because only certain file types contain virus or malicious code. You can configure Symantec Protection Engine to block partial container files, malformed container files, and encrypted container files as well.

For more information on container handling limits, see the Symantec™ Protection Engine for Network Attached Storage Implementation Guide.

Scheduling LiveUpdate to update virus definitions automatically

Scheduling LiveUpdate to occur automatically at a specified time interval ensures that Symantec Protection Engine always has the most current virus definitions. Schedule LiveUpdate to occur at the same time for each protection engine if you use multiple scanprotectionengines to support virus scanning. This scheduling ensures that all protection engines have the same version of virus definitions. Having the same version of virus definitions is necessary for proper functioning of virus scanning on the Hitachi NAS device.

You must schedule LiveUpdate on each Symantec Protection Engine. When LiveUpdate is scheduled, LiveUpdate runs at the specified time interval relative to the LiveUpdate base time. The default LiveUpdate base time is the time that the protection engine was installed.

You can change the LiveUpdate base time. If you change the scheduled LiveUpdate interval, the interval adjusts based on the LiveUpdate base time.

To schedule LiveUpdate to update virus definitions automatically

1. On the Symantec Protection Engine administrative interface, in the left pane, click System.
2. Under Views, click LiveUpdate Content.
3 In the right pane, under **LiveUpdate Content**, check **Enable scheduled LiveUpdate**.

   This option is enabled by default.

4 In the LiveUpdate interval list, choose an interval. You can select from 2, 4, 8, 10, 12, or 24-hour intervals.

   The default LiveUpdate interval is 2 hours.

5 On the toolbar, select one of the following:

   - **Save**
     - Saves your changes.
     - You can continue to make changes in the administrative interface until you are ready to apply them.

   - **Apply**
     - Applies your changes.
     - Your changes are not implemented until you apply them.

### Configuring Rapid Release updates to occur automatically

You can configure Symantec Protection Engine to obtain uncertified definition updates with Rapid Release. You can configure Symantec Protection Engine to retrieve Rapid Release definitions every 5 minutes to every 120 minutes. Rapid Release definitions are created when a new threat is discovered. Rapid Release definitions undergo basic quality assurance tests by Symantec Security Response. However, they do not undergo the intense testing that is required for a LiveUpdate release. Symantec updates Rapid Release definitions as needed to respond to high-level outbreaks.

**Warning:** Rapid Release definitions do not undergo the same rigorous quality assurance tests as LiveUpdate and Intelligent Updater definitions. Symantec encourages users to rely on the full quality-assurance-tested definitions whenever possible. Ensure that you deploy Rapid Release definitions to a test environment before you install them on your network.

If you use a proxy or firewall that blocks FTP communications, the Rapid Release feature does not function. Your environment must allow FTP traffic for the FTP session to succeed.
You can schedule Rapid Release updates to occur automatically at a specified time interval to ensure that Symantec Protection Engine always has the most current definitions. Scheduled Rapid Release updates are disabled by default.

**Configuring Rapid Release updates to occur automatically**

1. On the Symantec Protection Engine administrative interface, in the left pane, click **System**.
2. Under **Views**, click **Rapid Release Content**.
3. In the content area under **Rapid Release Content**, select the **Enable scheduled Rapid Release** check box to enable automatic downloads of Rapid Release definitions. This option is disabled by default.
4. In the Rapid Release interval box, to specify the interval between which you want Symantec Protection Engine to download Rapid Release definitions, do any of the following steps:
   - Type the interval.
   - Click the up arrow or down arrow to select the interval.

   You can select any number between 5 minutes and 120 minutes. The default value is 30 minutes.

5. On the toolbar, select one of the following:

   - **Save** Saves your changes.
     - You can continue to make changes in the administrative interface until you are ready to apply them.
     
   - **Apply** Applies your changes.
     - Your changes are not implemented until you apply them.

**About configuring the Hitachi NAS device**

You must register at least one Symantec Protection Engine for each Hitachi NAS device for which you provide virus scanning. You also must configure the virus scan functionality in accordance with the Hitachi documentation.

For more information, see the appropriate Hitachi NAS device documentation.

See “About configuring Symantec Protection Engine” on page 11.
About registering Symantec Protection Engine

You must register at least one Symantec Protection Engine to provide the virus scanning for each Hitachi NAS device. In a typical environment, a minimum of two protection engines are required to handle the scan volume per system. Having one protection engine can cause denial-of-file access, in which case the engine does not respond.

**Note:** You do not need to register the same protection engine with each Hitachi NAS device. You can register different protection engines to different Hitachi NAS devices. However, all the protection engines that are registered with the Hitachi NAS device must have identical configurations.

About configuring virus scanning on the Hitachi NAS device

You must configure virus scanning for each Hitachi NAS device. You configure the virus scan functionality through NAS Management GUI for each Hitachi NAS device.

**Note:** The virus scan functionality for each Hitachi NAS device accessing a protection engine must be configured identically to avoid inconsistency. The scan results and repair results for infected files will be inconsistent if the settings differ for each device.

Table 1-2 describes the settings that you should configure for virus scan functionality.

<table>
<thead>
<tr>
<th>Setting</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enable Anti Virus</td>
<td>Click <strong>Start</strong> or <strong>Stop</strong> to enable or disable real-time virus scanning on the List of Scanner Servers page.</td>
</tr>
<tr>
<td>Add Scanner Server</td>
<td>Type the IP address and the port number of each protection engine to be used for scanning. Ensure that the entered port number matches the one used while installing the protection engine. Each Hitachi NAS device can support up to 32 protection engines.</td>
</tr>
<tr>
<td>Setting</td>
<td>Description</td>
</tr>
<tr>
<td>--------------------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Scan timing</td>
<td>Specify one of the following timings of scan:</td>
</tr>
<tr>
<td></td>
<td>- Read and write</td>
</tr>
<tr>
<td></td>
<td>- Read only</td>
</tr>
<tr>
<td></td>
<td>- Write only</td>
</tr>
</tbody>
</table>
| Extensions for scanning (file types to be scanned) | Select the file types to be passed to Symantec Protection Engine for scanning. You can use either an exclusion or an inclusion list, or you can scan all files regardless of extension. This setting is similar to the Files to scan setting on Symantec Protection Engine. You must configure this setting on both the NAS device and Symantec Protection Engine.  
The recommended setting is to pass all file types to the protection engine except those that are contained in the exclusion list. |
| Maximum size for scanning                        | Select whether to specify an upper limit for the size of files to be scanned. Although you can choose a file size between 1 MB and 9999 MB, Symantec Protection Engine can scan a maximum file size of 2047 MB (or 2 GB). The default setting is 2 GB. You can choose to allow or deny access to files that are larger than the limit that is specified in Maximum scan size.  
**Note:** Allowing access to files that have not been scanned can make your network vulnerable to virus attacks. |
| Method of dealing with infected file             | Select one of the following methods of dealing with infected files:  
- Delete the file  
- Deny access  
- Allow access |
<p>| Notification when infection is detected          | Specify whether or not you want to receive notifications regarding detection results of infected files. |</p>
<table>
<thead>
<tr>
<th>Setting</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Connection time-out period</td>
<td>Specify the interval from the time the connection request is sent from the NAS device to the protection engine until timeout, within the range from 0 to 600 seconds. Protection engines that do not respond during the timeout will be blocked, and the scan will be requested from another protection engine. The default value is 30 seconds.</td>
</tr>
<tr>
<td>Scanning time-out period</td>
<td>Specify the interval from the time a scan request is sent from the NAS device to the protection engine until timeout, within the range from 1 second to 1,800 seconds. If there is no response within the specified amount of time, the response method that is selected in the <strong>Procedure if scanning fails</strong> field is followed. The default value is 60 seconds.</td>
</tr>
<tr>
<td>Stub file scanning time-out period</td>
<td>Specify the interval from the time a stub file scan request is sent from the NAS device to the protection engine until the scanning times out. Specify a value in the range from 1 second to 1,800 seconds. If there is no response within the specified amount of time, the response method that is selected in the <strong>Procedure if scanning fails</strong> field is followed. The default value is 900 seconds.</td>
</tr>
<tr>
<td>Retry other server count</td>
<td>Specify the number of times to switch the protection engine in the event of a timeout or error during processing for connecting to the protection engine. Specify a value from 0 to 32 that is no larger than the number of protection engines registered in the NAS device. The default value is 1. Specifying 0 will cause scans to fail when a timeout or error occurs during processing for connecting to the protection engine.</td>
</tr>
</tbody>
</table>
Table 1-2  
Virus scan settings (continued)

<table>
<thead>
<tr>
<th>Setting</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Procedure if scanning fails</td>
<td>Select one of the following response methods when scanning fails:</td>
</tr>
<tr>
<td></td>
<td>■ Deny access</td>
</tr>
<tr>
<td></td>
<td>■ Allow access</td>
</tr>
<tr>
<td>Server monitoring interval</td>
<td>Specify the polling interval from 1 to 86,400 seconds to confirm the status of the protection engine. The default value is 300 seconds.</td>
</tr>
<tr>
<td>Cache size of scanning results</td>
<td>Specify the size of the cache that stores the information on files that were determined to be free of infection as the result of the scan. You can specify this value from 1 MB to 64 MB. The default value is 8 MB. 1 MB stores an amount of information equivalent to approximately 430 files. Files whose contents have not been changed from the information that is stored in the cache can be directly accessed without a scan.</td>
</tr>
</tbody>
</table>

If one protection engine does not respond, the NAS device requests virus scanning for a given file from other registered protection engines. If none respond, then file access is allowed or denied. You can configure these options on the NAS device.

**Recommendations while integrating multiple protection engines**

Do the following when multiple protection engines are used to support the Hitachi NAS device:

- Configure the settings on each Symantec Protection Engine to be identical.
- Schedule LiveUpdate and Rapid Release to occur at the same time on all of the protection engines. This ensures that virus definitions are consistent.
- Configure the virus scan functionality to be identical for each Hitachi NAS device in a group to avoid inconsistency. The scan results and repair results for infected files will be inconsistent if the settings differ for each device in the group.