

IBM PowerSC

Standard Edition

Version 1.2.0

PowerSC Standard Edition



Note

Before using this information and the product it supports, read the information in [“Notices” on page 317](#).

This edition applies to IBM® PowerSC Standard Edition Version 1.2.0 and to all subsequent releases and modifications until otherwise indicated in new editions.

© **Copyright International Business Machines Corporation 2018, 2019.**

US Government Users Restricted Rights – Use, duplication or disclosure restricted by GSA ADP Schedule Contract with IBM Corp.

© **Rocket Software, Inc. 2018, 2019.**

Contents

About this document.....	vii
What's new.....	1
PowerSC PDFs.....	5
Concepts.....	7
Installing PowerSC Standard Edition	9
PowerSC server and agent requirements.....	9
Installing PowerSC Standard Edition on AIX systems	9
Installing PowerSC Standard Edition on AIX systems using the SMIT interface	10
Installing the PowerSC GUI agent.....	11
Installing the PowerSC GUI server.....	11
Viewing the software license for AIX systems	11
Installing PowerSC Standard Edition on Linux systems	12
Understanding the log files.....	15
Security and Compliance Automation.....	17
Security and Compliance Automation concepts.....	17
Department of Defense STIG compliance.....	17
Payment Card Industry - Data Security Standard (DSS) compliance for AIX and Linux.....	99
Sarbanes-Oxley act and COBIT compliance.....	137
Health Insurance Portability and Accountability Act (HIPAA).....	138
North American Electric Reliability Corporation compliance.....	145
General Data Protection Regulation (GDPR) compliance for AIX and Linux	148
SAP compliance for AIX.....	167
Managing Security and Compliance Automation.....	183
Updating the failed rule.....	184
Creating custom security configuration profile.....	184
Configuring Security and Compliance Automation.....	185
Configuring compliance options settings.....	185
Configuring compliance from the CLI.....	185
Real Time Compliance.....	187
Installing PowerSC Real Time Compliance	187
Configuring PowerSC Real Time Compliance.....	187
Identifying monitored files.....	188
Setting alerts.....	188
PowerSC Real Time Compliance log file.....	188
Trusted Boot.....	189
Trusted Boot concepts.....	189
Planning.....	190
Trusted Boot prerequisites.....	190
Preparing for remediation.....	190
Migration considerations.....	191
Installing Trusted Boot.....	191

Installing the collector.....	191
Installing the verifier.....	191
Configuring Trusted Boot.....	192
Enrolling a system.....	192
Attesting a system.....	192
Managing Trusted Boot.....	193
Interpreting attestation results.....	193
Deleting systems.....	193
Troubleshooting Trusted Boot.....	193
Trusted Firewall.....	197
Trusted Firewall concepts.....	197
Installing Trusted Firewall.....	199
Configuring Trusted Firewall.....	200
Trusted Firewall Advisor.....	200
Trusted Firewall logging.....	200
Multiple Shared Ethernet Adapters.....	201
Removing Shared Ethernet Adapters.....	202
Creating rules.....	202
Deactivating rules.....	203
Trusted Logging.....	205
Virtual logs.....	205
Detecting virtual log devices.....	205
Installing Trusted Logging.....	206
Configuring Trusted Logging.....	206
Configuring the AIX Audit subsystem.....	206
Configuring the syslog file.....	207
Writing data to virtual log devices.....	207
Trusted Network Connect (TNC)	209
TNC concepts.....	209
TNC components.....	209
TNC secure communication.....	210
TNC protocol.....	211
IMC and IMV modules.....	211
TNC requirements.....	211
Setting up the TNC components.....	212
Configuring options for the TNC components.....	213
Configuring host names and ports.....	213
Configuring options for the TNC server.....	213
Configuring options for the TNC client.....	213
Configuring options for the Patch Management server.....	214
Configuring TNC server email notification.....	215
Managing TNC components.....	216
Viewing TNC server logs.....	216
Creating TNC client policies.....	216
Starting TNC client verification.....	217
Viewing TNC verification results.....	218
Updating TNC client.....	218
Managing Patch management policies.....	219
Importing TNC certificates.....	219
Replicating Patch Management (TNCMP) server.....	219
Configuring primary and secondary TNCMP hosts.....	220
Establishing trust between hosts.....	221
Adding secondary TNCMP hosts.....	222
Displaying replication settings.....	222

Removing secondary TNCMPM hosts.....	223
Stopping replication to a secondary TNCMPM host.....	223
Syncing replication hosts.....	224
TNC server reporting.....	225
Troubleshooting TNC Patch Management.....	226

PowerSC graphical user interface (GUI).....229

Concepts	229
PowerSC security	229
Populating the endpoint content in the compliance page.....	230
Backing up and restoring the PowerSC GUI server.....	230
Using the SOCKS proxy server with the PowerSC GUI.....	231
Accessing with the REST API.....	232
Distributing the truststore security certificate to endpoints	232
Copying the truststore file to endpoints manually.....	232
Copying the truststore file to endpoints using a virtualization manager.....	233
Creating additional security certificates.....	233
Setting up user accounts.....	234
Running the group setup command.....	235
Configuring encrypted email.....	236
Generating syslog entries for integration with external systems	236
Using the PowerSC GUI	236
Opening the PowerSC GUI	238
PowerSC GUI language.....	238
Navigating the PowerSC GUI	238
Using IBM PowerSC MFA authentication (optional).....	239
Installing IBM PowerSC MFA client.....	239
Creating the client truststore.....	240
Creating the server properties file.....	240
Editing the IBM PowerSC MFA PAM modules.....	240
Editing the pam.conf file on AIX.....	241
Editing the /etc/pam.d files on Red Hat Enterprise Linux Server.....	241
Editing the /etc/pam.d files on SUSE Linux Enterprise Server.....	242
Administering endpoint and server communication.....	242
Verifying endpoint and server communication.....	242
Removing endpoints from PowerSC GUI monitoring	243
Verifying and generating keystore requests.....	243
Viewing security certificate expiration dates.....	244
Organizing and grouping endpoints.....	244
Creating custom groups.....	244
Adding or removing systems assigned to an existing group.....	245
Deleting a group.....	245
Renaming a group.....	246
Cloning a group.....	246
Working with compliance profiles.....	246
Viewing compliance profiles.....	247
Viewing profile rules.....	247
Creating a custom profile.....	247
Editing a custom profile	248
Editing rule arguments for custom profiles.....	248
Copying a custom profile to a group of endpoints.....	249
Deleting a custom profile.....	249
Importing custom profiles not created with PowerSC.....	249
Administering compliance levels and profiles	250
Applying compliance levels and profiles.....	250
Undoing compliance levels.....	251
Checking the last applied compliance level and profile.....	251

Checking a compliance level or profile that has not been applied.....	252
Sending email notification when a compliance event occurs.....	252
Monitoring endpoint security	253
Customizing the security page display.....	254
Hiding events.....	257
Configuring Real Time Compliance (RTC)	257
Restoring Real Time Compliance (RTC) configuration options to a previous date and time.....	257
Copying Real Time Compliance (RTC) configuration options to other groups.....	257
Editing the Real Time Compliance (RTC) file list.....	258
Restoring Real Time Compliance (RTC) file monitoring options to a previous configuration	258
Copying Real Time Compliance (RTC) file monitoring options to other groups.....	258
Running a Real Time Compliance (RTC) check.....	258
Running a Trusted Signature Database (TSD) scan.....	259
Configuring Trusted Execution (TE).....	259
Copying Trusted Execution (TE) configuration options to other groups.....	259
Editing the Trusted Execution (TE) file list.....	259
Copying Trusted Execution (TE) file list monitoring options to other groups.....	260
Verifying and updating security patches.....	260
Toggling endpoint monitoring.....	260
Sending email notification when a security event occurs.....	261
Working with reports.....	261
Selecting the initial report group.....	262
Working with the Timeline report.....	262
Changing the report group.....	263
Distributing a report using email.....	263
PowerSC Standard Edition commands.....	265
chvfilt command.....	265
genvfilt command.....	266
lsvfilt command.....	268
mkrtc command.....	269
mkvfilt command.....	270
pmconf command.....	271
psconf command.....	277
pscuiagentctl command.....	286
pscuiserverbackup.sh command.....	288
pscuiserverctl command.....	289
pscxpert command.....	293
pscxpert for linux command.....	298
rmvfilt command.....	301
vlantfw command.....	302
Rest API commands.....	305
/ws/powerscui.....	305
/ ws / powerscui / session.....	305
/ ws / powerscui / groups.....	306
/ ws / powerscui / systems.....	307
/ ws / powerscui / profiles / <profileLibrary>.....	309
/ ws / powerscui / command.....	310
/ ws / powerscui / backup.....	315
Notices.....	317
Privacy policy considerations.....	318
Trademarks.....	319
Index.....	321

About this document

This document provides system administrators with complete information about file, system, and network security.

Highlighting

The following highlighting conventions are used in this document:

Bold	Identifies commands, subroutines, keywords, files, structures, directories, and other items whose names are predefined by the system. Also identifies graphical objects such as buttons, labels, and icons that the user selects.
<i>Italics</i>	Identifies parameters whose actual names or values are to be supplied by the user.
Monospace	Identifies examples of specific data values, examples of text similar to what you might see displayed, examples of portions of program code similar to what you might write as a programmer, messages from the system, or information you should actually type.

Case-sensitivity in AIX

Everything in the AIX® operating system is case-sensitive, which means that it distinguishes between uppercase and lowercase letters. For example, you can use the **ls** command to list files. If you type LS, the system responds that the command is not found. Likewise, FILEA, FiLea, and filea are three distinct file names, even if they reside in the same directory. To avoid causing undesirable actions to be performed, always ensure that you use the correct case.

ISO 9000

ISO 9000 registered quality systems were used in the development and manufacturing of this product.

What's new in PowerSC Standard Edition

Read about new or significantly changed information for the PowerSC Standard Edition Version topic collection.

In this PDF file, you might see revision bars (|) in the left margin that identifies new and changed information.

June 2019

The following updates have been made:

- “[PowerSC GUI server and agent requirements](#)” on page 9 is updated to also say that the PowerSC GUI server requires 4GB of memory on SUSE Linux Enterprise Server systems.
- “[Installing PowerSC Standard Edition on AIX systems](#)” on page 9 is updated to say that you can install version 7.64.1 of Curl from the AIX toolbox.
- “[Installing PowerSC Standard Edition on Linux systems](#)” on page 12 is updated to say that if you need to overwrite an existing installation of the same version, first uninstall the current installation and then reinstall.
- “[Using IBM PowerSC MFA authentication \(optional\)](#)” on page 239 is added. If you have purchased and implemented the IBM PowerSC Multi-Factor Authentication solution in your environment, you can optionally use the out-of-band authentication type to authenticate to the PowerSC GUI server.
- “[pscuiserverctl command](#)” on page 289 and “[pscuiagentctl command](#)” on page 286 are updated with a new debug logging flag.

April 2019

Trusted Network Connect (TNC)

- The **pmconf replicate** command allows you to replicate the Trusted Network Connect Patch Management (TNCMP) server to additional hosts, as described in “[Replicating the Patch Management \(TNCMP\) server](#)” on page 219.
- “[Setting up the TNC components](#)” on page 212 is updated to say that TNCMP caching of interim fixes feature requires a minimum of 4.5GB of disk space in the TNCMP server Fix Repository.
- Added the **-u** flag to the **psconf verify** command to uninstall conflicting ifixes after verification, as described in “[psconf command](#)” on page 277.

SAP rules for AIX

- “[SAP compliance for AIX](#)” on page 167 describes new hardening settings for SAP.

Updated commands

- Added the **-u** flag to the **psconf verify** command.
- The **-m** flag is added to **pscuiserverbackup.sh** to update the data in the `uiServer.data.tar` file from a version prior to V1.2.0.2 to V1.2.0.latest. .
- The existing **mkrtc** command **-e** flag is now optional.

PCI DSS compliance version 3.0 standards for Linux

- Additional rules have been added to [Table 7](#) on page 120.

GDPR Compliance Profile rules for Linux

- Additional rules have been added to [Table 12](#) on page 154.

Configuring PowerSC Real Time Compliance

- “[Configuring PowerSC Real Time Compliance](#)” on page 187 is updated to state that you must run the **mkrtc** command before you start the PowerSC GUI agent.

- The existing **mkrtc** command has been added to the documentation in [“mkrtc command” on page 269](#). Previously, this command was documented only in the man page. The **-e** flag is now optional.

October 2018

Logging

- [“Understanding the log files” on page 15](#) is added to describe the PowerSC GUI log files and their purpose.
- [“PowerSC Real Time Compliance log file” on page 188](#) is added to describe the PowerSC Real Time Compliance log file.

Compliance capabilities

- [“Payment Card Industry DSS compliance for Linux” on page 120](#) is updated with new and revised settings.
- [“General Data Protection Regulation \(GDPR\) compliance for AIX” on page 149](#) is improved and updated.
- In [“Configuring PowerSC compliance from the command line” on page 185](#), the table GDPR Compliance Profile rules for AIX is updated with additional commands.
- In [“Configuring PowerSC compliance from the command line” on page 185](#), the table GDPR Compliance Profile rules for Linux is added.

Trusted Network Connect (TNC):

- If the Interim Fix (ifix) requires a reboot of the client partition, a status message “Reboot Required” is displayed during verification after that ifix is installed. Similarly, the ifix metadata on the TNC Server will also have the text regarding reboot.

```
Reboot: YES
Workaround: None
```

If an ifix cannot be installed due to locked file sets, the information regarding the ifix that is locking the file set is displayed during verification.

Other changes

- [“Rest API commands” on page 305](#) is improved and updated.
- [“pscuerverbackup.sh command” on page 288](#) is added.
- Various editorial changes and improvements have been made.

June 2018

Extended Platform Support

- Centrally manage Security and Compliance on Linux on Power endpoints. Support for endpoints running SUSE Linux Enterprise Server 12 SP3 and Red Hat Enterprise Linux Server 7.4.

Compliance capabilities

- Support for the new European standard General Data Protection Regulation (GDPR) for AIX and Linux endpoints. With this a PowerSC Administrator can help support the GDPR compliance standard from an infrastructure standpoint, providing streamlined data governance and compliance related to processing of personal data.

PowerSC GUI

- PowerSC GUI supports communication between all PowerSC GUI agents and the PowerSC GUI server through a single channel by using a SOCKS proxy server. Communication by using a SOCKS proxy server makes it easier to control your security configuration.
- Support added to optionally encrypt emails generated by the PowerSC GUI server providing additional security.

- Support added for viewing the date that a security keystore certificate for an endpoint expires. With the ability to track this expiration date, administrators can ensure continuous monitoring of endpoints.
- Expanded support for custom profiles. You can now view the details of a rule and change one or more of the rule arguments, including rule names and description values.
- Enhancements to the Security page of the PowerSC GUI streamline and improve your ability to monitor endpoints in real time.

Reporting

- Added a new interactive timeline report of security, compliance, and patch status events for endpoints. A Power System administrator can better support compliance audits with the new interactive timeline report that gives detailed current and historical information.

Trusted Network Connect (TNC):

- Support for TNC verify and update processes has been added to the PowerSC GUI. This integration enables more visible monitoring and streamlined patch management.
- Added Interim Fix (ifix) support for VIOS systems. TNC can patch VIOS servers with ifixes as soon as they are published.
- Added the ability to patch systems with a group of interim fixes and APARs specified in an ifix or APAR group.
- In addition to applying Service Pack (SP) updates, you can now apply Technology Level (TL) updates on TNC clients.
- Extended support for policy based updates. TNC can now update clients based on what is defined in the policy on the TNC server.
- Improved the **psconf** command so that now you can pull information from the TNC Patch Management repository on the TNC server.

REST APIs

- Added support for REST APIs improving the ability to integrate PowerSC into existing automation processes.

Scalability

- Scalability for more endpoints per PowerSC GUI server including leveraging the REST APIs.
- Scalability for multiple TNC servers (support multiple NIM servers).

PowerSC Standard Edition PDF files

You can view the PowerSC Standard Edition documentation as PDF files.

- [PowerSC Standard Edition](#)
- [PowerSC Standard Edition Release Notes](#)

PowerSC Standard Edition concepts

This overview of PowerSC Standard Edition explains the features, components, and the hardware support related to the PowerSC Standard Edition feature.

PowerSC Standard Edition provides security and control of the systems operating within a cloud or in virtualized data centers, and provides an enterprise view and management capabilities. PowerSC Standard Edition is a suite of features that includes Security and Compliance Automation, Trusted Boot, Trusted Firewall, Trusted Logging, and Trusted Network Connect and Patch management. The security technology that is placed within the virtualization layer provides additional security to stand-alone systems.

The following table provides details about the editions, the features included in the editions, the components, and the processor-based hardware on which each component is available.

<i>Table 1. PowerSC Standard Edition components, description, operating system support, and hardware support</i>			
Components	Description	Operating system supported	Hardware supported
Security and Compliance Automation	Automates the setting, monitoring, and auditing of security and compliance configuration for the following standards: <ul style="list-style-type: none">• Payment Card Industry Data Security Standard (PCI DSS)• Sarbanes-Oxley Act and COBIT compliance (SOX/COBIT)• U.S. Department of Defense (DoD) STIG• Health Insurance Portability and Accountability Act (HIPAA)	<ul style="list-style-type: none">• AIX 5.3• AIX 6.1• AIX 7.1• AIX 7.2	<ul style="list-style-type: none">• POWER5• POWER6®• POWER7®• POWER8
Trusted Boot	Measures the boot image, operating system, and applications, and attests their trust by using the virtual trusted platform module (TPM) technology.	<ul style="list-style-type: none">• AIX 6 with 6100-07, or later• AIX 7 with 7100-01, or later	POWER7 firmware eFW7.4, or later
Trusted Firewall	Saves time and resources by enabling direct routing across specified virtual LANs (VLANs) that are controlled by the same Virtual I/O Server.	<ul style="list-style-type: none">• AIX 6.1• AIX 7.1• AIX 7.2• VIOS Version 2.2.1.4, or later	<ul style="list-style-type: none">• POWER6• POWER7• POWER8• Virtual I/O Server Version 6.1S, or later

Table 1. PowerSC Standard Edition components, description, operating system support, and hardware support (continued)

Components	Description	Operating system supported	Hardware supported
Trusted Logging	The logs of AIX are centrally located on the Virtual I/O Server (VIOS) in real time. This feature provides tamperproof logging and convenient log backup and management.	<ul style="list-style-type: none"> • AIX 5.3 • AIX 6.1 • AIX 7.1 • AIX 7.2 	<ul style="list-style-type: none"> • POWER5 • POWER6 • POWER7 • POWER8
Trusted Network Connect and patch management	Verifies that all AIX systems in the virtual environment are at the specified software and patch level and provides management tools to ensure that all AIX systems are at the specified software level. Provides alerts if a down-level virtual system is added to the network or if a security patch is issued that affects the systems.	<ul style="list-style-type: none"> • AIX 5.3 • AIX 6.1 • AIX 7.1 • AIX 7.2 	<ul style="list-style-type: none"> • POWER5 • POWER6 • POWER7 • POWER8
Trusted Network Connect client	The Trusted Network Connect client requires one of the components listed with the operating system.	<ul style="list-style-type: none"> • AIX 6.1 with 6100-06, or later • AIX version 7.1 Service Update Management Assistant (SUMA) console system within the SUMA environment for patch management • AIX version 7.2.1 Service Update Management Assistant (SUMA) console system within the SUMA environment for patch management 	

Installing PowerSC Standard Edition

You can install PowerSC Standard Edition components on AIX and Linux operating systems.

Related concepts

[PowerSC Standard Edition concepts](#)

This overview of PowerSC Standard Edition explains the features, components, and the hardware support related to the PowerSC Standard Edition feature.

[Installing Trusted Boot](#)

There are some required hardware and software configurations that are required to install Trusted Boot.

Related tasks

[Installing Trusted Firewall](#)

Installing the PowerSC Trusted Firewall is similar to installing other PowerSC features.

[Installing Trusted Logging](#)

You can install the PowerSC Trusted Logging feature by using the command line interface or the SMIT tool.

[Setting up the TNC components](#)

Each of the Trusted Network Connect (TNC) components require some setup in order to run in your specific environment.

PowerSC GUI server and agent requirements

Learn about the hardware and software requirements for the PowerSC GUI server and agent.

Software

- The PowerSC GUI server requires AIX 7.1, or later
- The PowerSC GUI agent requires AIX 7.1.2.15 or later.
- The PowerSC GUI server and agent require one of the following Linux operating systems:
 - Linux on Power servers running SUSE Linux Enterprise Server 12 SP3, or later on IBM Power systems
 - Linux on Power servers running Red Hat Enterprise Linux Server 7.4, or later on IBM Power systems

Note: The PowerSC GUI server requires 4GB of memory on Red Hat Enterprise Linux Server systems and SUSE Linux Enterprise Server systems.

- The PowerSC GUI server requires the sendmail daemon to be running.
- The fileset `bos.loc.utf.<LANG>` must be installed for the PowerSC GUI to correctly display profile rule descriptions in languages other than English.
- The PowerSC GUI server listens on TCP port 443 for all communication from the PowerSC GUI agent, or from any web browser.
- The PowerSC GUI agent that is running on each endpoint listens on TCP port 11125 for all communication from the PowerSC GUI server.

Note: References to the AIX and Linux operating systems throughout this document refer to one of the versions listed in this section.

Installing PowerSC Standard Edition on AIX systems

You must install a fileset for each specific function of PowerSC Standard Edition.

The following filesets are available to install each PowerSC Standard Edition component:

- `powerscStd.ice`: Installed on AIX systems that require the Security and Compliance Automation feature of PowerSC Standard Edition. Compliance program requires at least 5MB of available disk space in the "/" filesystem.
- `powerscStd.vtpm`: Installed on AIX systems that require the Trusted Boot feature of PowerSC Standard Edition. You can obtain the `powerscStd.vtpm` fileset from the AIX base media or from https://www-01.ibm.com/marketing/iwm/iwm/web/preLogin.do?source=aixbp&S_PKG=vtpm.
- `powerscStd.vlog`: Installed on AIX systems that require the Trusted Logging feature of PowerSC Standard Edition.
- `powerscStd.tnc_pm`: Installed on AIX Version 7.2 or later, with Service Update Management Assistant (SUMA) console system within the SUMA environment for patch management at 7.2.1.0. Curl 7.56.1-1, ca-certificates-2016.10.7-2, and libgcc-7.1.0-7 should be installed on the TNC Patch Management server for secure transmission of ifixes from the IBM Security Site.

Note: The version of Curl that is shipped with PowerSC Standard Edition is 7.56.1-1. However, you can install version 7.64.1 of Curl from the AIX toolbox on TNC Patch management systems for secure download of ifix content. This version allows you to run with addressed Common Vulnerabilities and Exposures (CVE's).

- `powerscStd.svm`: Installed on AIX systems that might benefit from the routing feature of PowerSC Standard Edition.
- `powerscStd.rtc`: Installed on AIX systems that require the Real Time Compliance feature of PowerSC Standard Edition.
- `powerscStd.uiAgent.rte`: Installed on AIX systems that will be managed using the PowerSC graphical user interface (GUI). The fileset `powerscStd.ice 115` or above is required to install `powerscStd.uiAgent.rte 120`.
- `powerscStd.uiServer.rte`: Installed on the AIX system configured specifically for running the PowerSC graphical user interface (GUI) Server.

You can install each of the filesets by using one of the following interfaces:

- The **installp** command from the command-line interface (CLI).
- The SMIT interface

Installing PowerSC Standard Edition using the SMIT interface

You can install each of the PowerSC Standard Edition components on AIX systems by using the SMIT interface.

Note: You can also install each of the PowerSC Standard Edition components on AIX systems by using the **installp** command from the command-line interface (CLI).

1. Run the following command:

```
% smitty installp
```

2. Select the **Install Software** option.
3. Select the input device or directory for the software to specify the location and the installation file of the x verIBM Compliance Expert installation image. For example, if the installation image has the directory path `/usr/sys/inst.images/`, you must specify the path in the **INPUT** field.
4. Select one or more of the following filesets corresponding to the product feature that want to install.
 - Select `powerscStd.ice` to install the Security and Compliance Automation feature.
 - Select `powerscStd.vtpm` to install the Trusted Boot feature.
 - Select `powerscStd.vlog` to install the Trusted Logging feature
 - Select `powerscStd.tnc_pm` to install Trusted Network Connect and patch management.
 - Select `powerscStd.svm` to install routing feature.
 - Select `powerscStd.rtc` to install Real Time Compliance feature.
 - Select `powerscStd.uiAgent.rte` to install PowerSC GUI agent.

- Select `powerscStd.uiServer.rte` to install PowerSC GUI server.
5. Press **Enter**.
 6. View and accept the license agreement. Accept the license agreement by using the down arrow to select **ACCEPT new license agreements**, and press the tab key to change the value to **Yes**.
 7. Press **Enter** to start the installation.
 8. Verify that the command status is **OK** after the installation is complete.

Installing the PowerSC GUI agent

The PowerSC GUI agent must be installed on every AIX or Linux endpoint that is to be monitored. The PowerSC GUI agent tracks activity on the endpoint and provides that information to the PowerSC GUI server.

The PowerSC GUI agent also runs the commands that are triggered from the PowerSC GUI. All communication between PowerSC GUI agents and the PowerSC GUI server is encrypted.

You use the `installp` command to install `powerscStd.uiAgent.rte` fileset for the PowerSC GUI agent. The following example displays the `installp` command that is run on each endpoint to install the compliance, license, and agent components of the product:

Note: In the following example, the installation images are expanded in the `/tmp/inst.images/` directory. The example displays here in two lines but should be a single line.

```
#installp -agXYd /tmp/inst.images
    powerscStd.ice powerscStd.license powerscStd.uiAgent.rte
```

PowerSC GUI server

The PowerSC GUI server can run on any AIX or Linux system. It is recommended that you create a dedicated AIX LPAR or Linux LPAR on which you can install and run the PowerSC GUI server.

IBM recommends a minimum of 4GB of RAM on the system on which you plan to run the PowerSC GUI server.

You use the `installp` command to install `powerscStd.uiServer.rte` fileset for the PowerSC GUI server. The following example displays the `installp` command that is run on each endpoint to install the compliance, license, and agent components of the product:

Note: In the following example, the installation images are expanded in the `/tmp/inst.images/` directory. The example displays here in two lines but should be a single line.

```
#installp -agXYd /tmp/inst.images
    powerscStd.ice powerscStd.license powerscStd.uiServer.rte
```

Viewing the software license

You can view the PowerSC Standard Edition software license for an AIX system using the `installp` command.

The software license can be viewed in the CLI by using the following command:

```
% installp -lE -d path/filename
```

Where *path/filename* specifies the PowerSC Standard Edition installation image.

For example, you can enter the following command using the CLI to specify the license information related to the PowerSC Standard Edition:

```
% installp -lE -d /usr/sys/inst.images/powerscStd.vtpm
```

Installing PowerSC Standard Edition on Linux systems

You must install a package for each specific function of PowerSC Standard Edition on the Linux system that is to be monitored.

The following packages are provided:

powersc-pscxpert-1.2.0.latest

The PowerSC Compliance package must be installed on Linux systems that require the Security and Compliance Automation feature of PowerSC Standard Edition.

powersc-uiAgent-1.2.0.latest

PowerSC GUI Agent package must be installed on Linux systems that will be managed using the PowerSC GUI. The package `powersc-pscxpert-1.2.0.latest` is required to install `powersc-uiAgent-1.2.0.latest`.

powersc-uiServer-1.2.0.latest

The PowerSC GUI Server package must be installed on the Linux system configured specifically for running the PowerSC GUI Server. You would only install this package if your PowerSC GUI server will reside on a server running a Linux operating system.

The PowerSC Compliance, PowerSC GUI Server and PowerSC GUI Agent packages are encapsulated in shell archives. The following describes the naming convention of the shell archives:

```
product-version-serverldistro.ppc64le.sh
```

The following shell archives are available to install on Red Hat Enterprise Linux 7.4 (RHEL) or SUSE Linux Enterprise Server 12 (SLES) platforms:

powersc-pscxpert-1.2.0.latest-rhel7.ppc64le.sh

Installs the PowerSC Compliance package on Red Hat Enterprise Linux 7.4 (RHEL) platforms.

powersc-pscxpert-1.2.0.latest-sles12.ppc64le.sh

Installs the PowerSC Compliance package on SUSE Linux Enterprise Server 12 (SLES) platforms.

powersc-uiAgent-1.2.0.latest-rhel7.ppc64le.sh

Installs the PowerSC GUI Agent package on Red Hat Enterprise Linux 7.4 (RHEL) platforms.

powersc-uiAgent-1.2.0.latest-sles12.ppc64le.sh

Installs the PowerSC GUI Agent package on SUSE Linux Enterprise Server 12 (SLES) platforms.

powersc-uiServer-1.2.0.latest-rhel7.ppc64le.sh

Installs the PowerSC GUI Server package on Red Hat Enterprise Linux 7.4 (RHEL) platforms.

powersc-uiServer-1.2.0.latest-sles12.ppc64le.sh

Installs the PowerSC GUI Server package on SUSE Linux Enterprise Server 12 (SLES) platforms.

Note: You can use the .sh files to install the PowerSC components in a new installation or when updating from a previous version. However, you cannot use the .sh files to overwrite an existing installation of the same version. If you need to overwrite an existing installation of the same version, first uninstall the current installation and then reinstall.

1. Ensure that you are logged in as root user.
2. Enter one or more of the following commands depending on the feature you are installing and the platform on which you are installing:

- `% bash path/powersc-pscxpert-1.2.0.latest-rhel7.ppc64le.sh`
- `% bash path/powersc-pscxpert-1.2.0.latest-sles12.ppc64le.sh`
- `% bash path/powersc-uiAgent-1.2.0.latest-rhel7.ppc64le.sh`
- `% bash path/powersc-uiAgent-1.2.0.latest-sles12.ppc64le.sh`

- `% bash path/powersc-uiServer-1.2.0.latest-rhel7.ppc64le.sh`

- `% bash path/powersc-uiServer-1.2.0.latest-sles12.ppc64le.sh`

3. The license text is displayed. Accept the license agreement to install the RPM.

4. The installed RPM can be managed just like other RPMs. This means that it can be uninstalled with the following command that is run with root privileges:

```
rpm -e product
```

Understanding the log files

The PowerSC GUI server and PowerSC GUI agent both log installation, startup and status information.

Important: The file system space is checked before writing to a log file. Note that PowerSC GUI server and PowerSC GUI agent do not automatically roll over and manage log files.

The PowerSC GUI server logs installation, startup, and status information to the following locations, respectively:

- `/var/log/powersc/uiServer/pscUIServer_install.log`
- `/var/log/powersc/uiServer/pscuiserver_init_timestamp.log`
- `/var/log/powersc/uiServer/pscuiserver_timestamp.log`

The PowerSC GUI agent logs installation, startup, and status information to the following locations, respectively:

- `/var/log/powersc/uiAgent/pscUIAgent_install.log`
- `/var/log/powersc/uiAgent/pscuiagent_init_timestamp.log`
- `/var/log/powersc/uiAgent/pscuiagent_timestamp.log`

Commands such as **pscexpert** can also write to command-specific log files. These log files are described in the relevant command sections.

The PowerSC GUI server also writes database information in sub-directories of `/opt/powersc/uiServer`.

Syslog output

In addition to the log files described in this section, PowerSC Standard Edition components such as Trusted Network Connect (TNC) and PowerSC Real Time Compliance write to syslog output.

Security and Compliance Automation

The PowerSC Real Time Compliance continuously monitors enabled AIX systems to ensure that they are configured consistently and securely.

The XML profiles automate the recommended AIX system configuration of IBM to be consistent with the Payment Card Data Security Standard, the Sarbanes-Oxley Act, or the U.S. Department of Defense UNIX Security Technical Implementation Guide and Health Insurance Portability and Accountability Act (HIPAA). The organizations that comply with the security standards must use the predefined system security settings.

To use the security compliance feature, the PowerSC application must be installed on the AIX managed systems that conform to the compliance standards. The Security and Compliance Automation feature is included in the PowerSC Standard Edition.

The PowerSC Standard Edition installation package must be installed on AIX managed systems. The installation package installs the `powerscStd.ice` fileset that can be implemented on the system by using the **psscexpert** command. PowerSC with IBM Compliance Expert Express (ICEE) compliance is enabled to manage and improve the XML profiles.

Note: Install all applications on the system before you apply a security profile.

Security and Compliance Automation concepts

The PowerSC Security and Compliance Automation feature is an automated method to configure and audit AIX systems in accordance with the U.S. Department of Defense (DoD) Security Technical Implementation Guide (STIG), the Payment Card Industry (PCI) data security standard (DSS), the Sarbanes-Oxley act, COBIT compliance (SOX/COBIT), and the Health Insurance Portability and Accountability Act (HIPAA).

PowerSC helps to automate the configuration and monitoring of systems that must be compliant with the Payment Card Industry (PCI) data security standard (DSS) version 3.2. Therefore, the PowerSC Security and Compliance Automation feature is an accurate and complete method of security configuration automation that is used to meet the IT compliance requirements of the DoD UNIX STIG, the PCI DSS, the Sarbanes-Oxley act, COBIT compliance (SOX/COBIT), and the Health Insurance Portability and Accountability Act (HIPAA).

Note: The PowerSC Security and Compliance Automation feature updates the existing XML profiles that are used by IBM Compliance Expert express (ICEE) edition. You can use the PowerSC Standard Edition XML profiles with the **psscexpert** command, similar to ICEE.

The preconfigured compliance profiles delivered with PowerSC Standard Edition reduce the administrative workload of interpreting compliance documentation and implementing the standards as specific system configuration parameters. This technology reduces the cost of compliance configuration and auditing by automating the processes. IBM PowerSC Standard Edition is designed to help effectively manage the system requirement associated with external standard compliance that can potentially reduce costs and improve compliance.

Department of Defense STIG compliance

The U.S. Department of Defense (DoD) requires highly secure computer systems. This level of security and quality defined by DoD meets with the quality and customer base of AIX on Power Systems server.

A secure operating system, such as AIX, must be configured accurately to attain the specified security goals. The DoD recognized the need for security configurations of all operating systems in Directive 8500.1. This directive established the policy and assigned the responsibility to the US defense information security agency (DISA) to provide security configuration guidance.

DISA developed the principles and guidelines in the UNIX Security Technical Implementation Guide (STIG) that provides an environment that meets or exceeds the security requirements of DoD systems that are operating at the mission assurance category (MAC) II sensitive level, which contains sensitive information. The US DoD has stringent IT security requirements and enumerated the details of the required configuration settings to ensure that the system operates in a secure manner. You can leverage the required expert guidance. PowerSC Standard Edition helps to automate the process of configuring the settings as defined by DoD.

Note: All of the custom script files that are provided to maintain DoD compliance are in the `/etc/security/psecexpert/dodv2` directory.

PowerSC Standard Edition supports the requirements of the version 1 release 2 of the AIX DoD STIG. A summary of the requirements and how to ensure that compliance are provided in the tables that follow.

<i>Table 2. DoD general requirements</i>			
Department of Defense STIG checkpoint ID	Category of the STIG rule	Description	Location of the script where the action is defined and the results of the action that enables compliance
AIX00020	2	AIX Trusted Computing Base software must be implemented.	Location <code>/etc/security/psecexpert/dodv2/trust</code> Compliance action Ensures that the system meets the specified requirements.
AIX00040	2	The securetcip command must be used.	Location <code>/etc/security/psecexpert/dodv2/dodsecuretcip</code> Compliance action Ensures that the system meets the specified requirements.
AIX00060	2	The system must be checked weekly for unauthorized <code>setuid</code> files, and unauthorized modification to authorized <code>setuid</code> files.	Location <code>/etc/security/psecexpert/dodv2/trust</code> Compliance action Checks weekly to identify changes to the specified files.
AIX00080	1	The <code>SYSTEM</code> attribute must not be set to <i>none</i> for any account.	Location <code>/etc/security/psecexpert/dodv2/SYSattr</code> Compliance action Ensures that the specified attribute is set to a value other than <i>none</i> . Note: This setting is not automatically changed when the policy is reset to the AIX default policy by using the <code>DoDv2_to_AIXDefault.xml</code> file. You must manually change this setting.

Table 2. DoD general requirements (continued)

Department of Defense STIG checkpoint ID	Category of the STIG rule	Description	Location of the script where the action is defined and the results of the action that enables compliance
AIX00200	2	The system must not allow directed broadcasts to move through the gateway.	Location /etc/security/psecexpert/dodv2/ntwkoptsdod Compliance action Sets the value of the direct_broadcast network option to 0.
AIX00210	2	The system must provide protection from Internet Control Message Protocol (ICMP) attacks on TCP connections.	Location /etc/security/psecexpert/dodv2/ntwkoptsdod Compliance action Sets the value of the tcp_icmpsecure network option to 1.
AIX00220	2	The system must provide protection for the TCP stack against connection resets, synchronize (SYN), and data injection attacks.	Location /etc/security/psecexpert/dodv2/ntwkoptsdod Compliance action Ensures that the value for the tcp_tcpsecure network option is set to 7.
AIX00230	2	The system must provide protection against IP fragmentation attacks.	Location /etc/security/psecexpert/dodv2/ntwkoptsdod Compliance action Sets the value of the ip_nfrag network option to 200.
AIX00300	1,2,3	The system must not have the bootp service active.	Location /etc/security/psecexpert/dodv2/inetdservices Compliance action Disables the specified service.
AIX00310	2	The /etc/ftpaccess.ctl files must exist.	Location /etc/security/psecexpert/dodv2/dodv2loginherald Compliance action Ensures that the file exists.

Table 2. DoD general requirements (continued)

Department of Defense STIG checkpoint ID	Category of the STIG rule	Description	Location of the script where the action is defined and the results of the action that enables compliance
GEN000020	2	The system must require authentication when starting in single-user mode.	<p>Location /etc/security/psecexpert/dodv2/rootpasswd_home</p> <p>Compliance action Ensures that the root account for any bootable partitions has a password in the /etc/security/passwd file.</p> <p>Note: This setting is not automatically changed when the policy is reset to the AIX default policy by using the DoDv2_to_AIXDefault.xml file. You must manually change this setting.</p>
GEN000100	1	The operating system must be a supported release.	<p>Location /etc/security/psecexpert/dodv2/dodv2cat1</p> <p>Compliance action Displays the results of the specified rule tests.</p>
GEN000120	2	The most current system security patches and updates must be installed.	<p>Location /usr/sbin/instfix -i /etc/security/psecexpert/dodv2/dodv2cat1</p> <p>Compliance action Configure this using the Trusted Network Connect feature.</p>
GEN000140	2	The system must be checked weekly for unauthorized setuid files, and unauthorized modification to authorized setuid files.	<p>Location /etc/security/psecexpert/dodv2/trust</p> <p>Compliance action Checks weekly to identify changes to the specified files.</p>
GEN000220	2	The system must be checked weekly for unauthorized setuid files, and unauthorized modification to authorized setuid files.	<p>Location /etc/security/psecexpert/dodv2/trust</p> <p>Compliance action Checks weekly to identify changes to the specified files.</p>

Table 2. DoD general requirements (continued)

Department of Defense STIG checkpoint ID	Category of the STIG rule	Description	Location of the script where the action is defined and the results of the action that enables compliance
GEN000240	2	The system clock must be synchronized to an authoritative Department of Defense (DoD) time source.	Location /etc/security/psecexpert/dodv2/dodv2cmntrows Compliance action Ensures that the system clock is compliant.
GEN000241	2	The system clock must be synchronized continuously, or at least daily.	Location /etc/security/psecexpert/dodv2/dodv2cmntrows Compliance action Ensures that the system clock is compliant.
GEN000242	2	The system must use at least two time sources for clock synchronization.	Location /etc/security/psecexpert/dodv2/dodv2netrules Compliance action Ensures that more than one time source is used for synchronizing the clock.
GEN000280	2	Direct logins to the following types of accounts must not be allowed: <ul style="list-style-type: none"> • application • default • shared • utility 	Location /etc/security/psecexpert/dodv2/lockacc_rlogin Compliance action Prevents direct logins to the specified accounts.
GEN000290	2	The system must not have unnecessary accounts.	Location /etc/security/psecexpert/dodv2/lockacc_rlogin Compliance action Ensures that there are no unused accounts.
GEN000300 (related to GEN000320, GEN000380, GEN000880)	2	All accounts on the system must have unique user or account names, and unique user or account passwords.	Location /etc/security/psecexpert/dodv2/grpusrpass_chk Compliance action Ensures that all accounts meet the specified requirements. Note: This setting is not automatically changed when the policy is reset to the AIX default policy by using the DoDv2_to_AIXDefault.xml file. You must manually change this setting.

Table 2. DoD general requirements (continued)

Department of Defense STIG checkpoint ID	Category of the STIG rule	Description	Location of the script where the action is defined and the results of the action that enables compliance
GEN000320 (related to GEN000300, GEN000380, GEN000880)	2	All accounts on the system must have unique user or account names, and unique user or account passwords.	<p>Location /etc/security/pwckexpert/dodv2/grpusrpass_chk</p> <p>Compliance action Ensures that all accounts meet the specified requirements.</p> <p>Note: This setting is not automatically changed when the policy is reset to the AIX default policy by using the DoDv2_to_AIXDefault.xml file. You must manually change this setting.</p>
GEN000340	2	User IDs (UIDs) and Group IDs (GIDs) that are reserved for system accounts must not be assigned to non-system accounts or non-system groups.	<p>Location /etc/security/pwckexpert/dodv2/account</p> <p>Compliance action This setting is automatically enabled to enforce this rule.</p>
GEN000360	2	UIDs and GIDs that are reserved for system accounts must not be assigned to non-system accounts or non-system groups.	<p>Location /etc/security/pwckexpert/dodv2/account</p> <p>Compliance action This setting is automatically enabled to enforce this rule.</p>
GEN000380 (related to GEN000300, GEN000320, GEN000880)	2	All accounts on the system must have unique user or account names, and unique user or account passwords.	<p>Location /etc/security/pwckexpert/dodv2/grpusrpass_chk</p> <p>Compliance action Ensures that all accounts meet the specified requirements.</p>
GEN000400	2	The Department of Defense (DoD) login banner must be displayed immediately before, or as part of, console login prompts.	<p>Location /etc/security/pwckexpert/dodv2/dodv2loginherald</p> <p>Compliance action Displays the required banner.</p>

Table 2. DoD general requirements (continued)

Department of Defense STIG checkpoint ID	Category of the STIG rule	Description	Location of the script where the action is defined and the results of the action that enables compliance
GEN000402	2	The DoD login banner must be displayed immediately before, or as part of, graphical desktop environment login prompts.	Location /etc/security/psccexpert/dodv2/dodv2loginherald Compliance action The login banner is set to the Department of Defense banner.
GEN000410	2	The File Transfer Protocol over SSL (FTPS) or File Transfer Protocol (FTP) service on the system must be configured with the DoD login banner.	Location /etc/security/psccexpert/dodv2/dodv2loginherald Compliance action Displays the banner when you use FTP.
GEN000440	2	Successful and unsuccessful attempts to log in and log out must be recorded.	Location /etc/security/psccexpert/dodv2/loginout Compliance action Enables the required logging.
GEN000452	2	The system must display the date and time of the last successful account login at the time of each log in.	Location /etc/security/psccexpert/dodv2/sshDoDconfig Compliance action Displays the required information.
GEN000460	2	This rule disables an account after 3 consecutive failed logon attempts.	Location /etc/security/psccexpert/dodv2/chusrattrdod Compliance action Sets the login attempt limit to the specified value.
GEN000480	2	This rule sets the login delay time to 4 seconds.	Location /etc/security/psccexpert/dodv2/chdefstanzadod Compliance action Sets the login delay time to the required value.

Table 2. DoD general requirements (continued)

Department of Defense STIG checkpoint ID	Category of the STIG rule	Description	Location of the script where the action is defined and the results of the action that enables compliance
GEN000540	2	This rule ensures the system global password configuration files are configured according to password requirements.	Location /etc/security/pwckexpert/dodv2/chusratttdod Compliance action Sets the required password settings.
GEN000560	1	All accounts on the system must have valid passwords.	Location /etc/security/pwckexpert/dodv2/grpusrpass_chk Compliance action Ensures that accounts have passwords.
GEN000580	2	This rule ensures that all passwords contain a minimum of 14 characters.	Location /etc/security/pwckexpert/dodv2/chusratttdod Compliance action Sets the minimum password length to 14 characters.
GEN000585	2	The system must use a Federal Information Processing Standards (FIPS) 140-2 approved cryptographic hashing algorithm for generating account password hashes.	Location /etc/security/pwckexpert/dodv2/fipspasswd Compliance action Ensures that the password hashes use an approved hashing algorithm.
GEN000590	2	The system must use a FIPS 140-2 approved cryptographic hashing algorithm for generating account password hashes.	Location /etc/security/pwckexpert/dodv2/fipspasswd Compliance action Ensures that the password hashes use an approved hashing algorithm.

Table 2. DoD general requirements (continued)

Department of Defense STIG checkpoint ID	Category of the STIG rule	Description	Location of the script where the action is defined and the results of the action that enables compliance
GEN000595	2	Use a FIPS 140-2 approved cryptographic hashing algorithm when generating the password hashes that are stored on the system.	Location /etc/security/pwconv/pwconv2/fipspasswd Compliance action Ensures that the password hashes use an approved hashing algorithm.
GEN000640	2	This rule requires a minimum of one non-alphabetic character in a password	Location /etc/security/pwconv/pwconv2/chusrattrdod Compliance action Sets the minimum number of non-alphabetic characters in a password to 1.
GEN000680	2	This rule ensures that passwords contain no more than three consecutive repeating characters	Location /etc/security/pwconv/pwconv2/chusrattrdod Compliance action Sets the maximum number of repeating characters in a password to 3.
GEN000700	2	This rule ensures the system global password configuration files are configured according to password requirements.	Location /etc/security/pwconv/pwconv2/chusrattrdod Compliance action Ensures that the password configuration files meet the requirements.

Table 2. DoD general requirements (continued)

Department of Defense STIG checkpoint ID	Category of the STIG rule	Description	Location of the script where the action is defined and the results of the action that enables compliance
GEN000740	2	All non-interactive and automated processing account passwords must be locked (GEN000280). Direct logins must not be allowed to shared or default or application or utility accounts. (GEN002640) Default system accounts must be disabled or removed.	Location /etc/security/psccexpert/dodv2/loginout /etc/security/psccexpert/dodv2/lockacc_rlogin Compliance action This setting is automatically enabled.
GEN000740	2	All non-interactive and automated processing account passwords must be changed at least once per year or be locked.	Location /etc/security/psccexpert/dodv2/lockacc_rlogin Compliance action Ensures that the specified passwords are changed annually or locked.
GEN000750	2	This rule requires new passwords to contain a minimum of 4 characters that were not in the old password.	Location /etc/security/psccexpert/dodv2/chusratttdod Compliance action Sets the minimum number of new characters that are required in a new password to 4.
GEN000760	2	Accounts must be locked after 35 days of inactivity.	Location /etc/security/psccexpert/dodv2/disableacctdod Compliance action Locks accounts after 35 days of inactivity.
GEN000790	2	The system must prevent the use of dictionary words for passwords.	Location /etc/security/psccexpert/dodv2/chuserstanzadod Compliance action Ensures that the default password that is being set is not weak.

Table 2. DoD general requirements (continued)

Department of Defense STIG checkpoint ID	Category of the STIG rule	Description	Location of the script where the action is defined and the results of the action that enables compliance
GEN000800	2	This rule ensures that the last five passwords are not reused.	Location /etc/security/psccexpert/dodv2/chusrattidod Compliance action Ensures that the new password is not the same as any of the last 5 passwords.
GEN000880 (related to GEN000300, GEN000320, GEN000380)	2	All accounts on the system must have unique user or account names, and unique user or account passwords.	Location /etc/security/psccexpert/dodv2/grpusrpass_chk Compliance action Ensures that all accounts meet the specified requirements.
GEN000900	3	The root user's home directory must not be the root directory (/).	Location /etc/security/psccexpert/dodv2/rootpasswd_home Compliance action Ensures that the system meets the specified requirement. Note: This setting is not automatically changed when the policy is reset to the AIX default policy by using the DoDv2_to_AIXDefault.xml file. You must manually change this setting.
GEN000940	2	The root account's executable search path must be the vendor default, and must contain only absolute paths.	Location /etc/security/psccexpert/dodv2/fixpathvars Compliance action Ensures that the system meets the specified requirements. Note: This setting is not automatically changed when the policy is reset to the AIX default policy by using the DoDv2_to_AIXDefault.xml file. You must manually change this setting.

Table 2. DoD general requirements (continued)

Department of Defense STIG checkpoint ID	Category of the STIG rule	Description	Location of the script where the action is defined and the results of the action that enables compliance
GEN000945	2	The root account's library search path must be the system default, and must contain only absolute paths.	<p>Location /etc/security/psccexpert/dodv2/fixpathvars</p> <p>Compliance action Ensures that the system meets the specified requirements.</p> <p>Note: This setting is not automatically changed when the policy is reset to the AIX default policy by using the DoDv2_to_AIXDefault.xml file. You must manually change this setting.</p>
GEN000950	2	The root account's list of preloaded libraries must be empty.	<p>Location /etc/security/psccexpert/dodv2/fixpathvars</p> <p>Compliance action Ensures that the system meets the specified requirements.</p> <p>Note: This setting is not automatically changed when the policy is reset to the AIX default policy by using the DoDv2_to_AIXDefault.xml file. You must manually change this setting.</p>
GEN000960 (related to GEN003000, GEN003020, GEN003160, GEN003360, GEN003380)	2	The root account must not have world-writable directories in its executable search path.	<p>Location /etc/security/psccexpert/dodv2/rmwwpaths</p> <p>Compliance action Ensures that the system meets the specified requirements.</p> <p>Note: This setting is not automatically changed when the policy is reset to the AIX default policy by using the DoDv2_to_AIXDefault.xml file. You must manually change this setting.</p>
GEN000980	2	The system must prevent the root account from directly logging in, except from the system console.	<p>Location /etc/security/psccexpert/dodv2/chuserstanzadod</p> <p>Compliance action Ensures that the system meets the specified requirements.</p>
GEN001000	2	Remote consoles must be disabled or protected from unauthorized access.	<p>Location /etc/security/psccexpert/dodv2/remotconsole</p> <p>Compliance action Ensures that the specified consoles are disabled.</p>

Table 2. DoD general requirements (continued)

Department of Defense STIG checkpoint ID	Category of the STIG rule	Description	Location of the script where the action is defined and the results of the action that enables compliance
GEN001020	2	The root account must not be used for direct login.	Location /etc/security/psccexpert/dodv2/sshDoDconfig Compliance action Disables the root account from logging in directly.
GEN001060	2	The system must log successful and unsuccessful attempts to access the root account.	Location /etc/security/psccexpert/dodv2/loginout Compliance action Ensures that the system meets the specified requirements.
GEN001100	1	Root passwords must never be passed over a network in text form.	Location /etc/security/psccexpert/dodv2/chuserstanzadod Compliance action Ensures that the system meets the specified requirements.
GEN001120	2	The system must not allow root login by using the SSH protocol.	Location /etc/security/psccexpert/dodv2/sshDoDconfig Compliance action Disables root login for SSH.
GEN001440	3	All interactive users must be assigned a home directory in the /etc/passwd file.	Location /etc/security/psccexpert/dodv2/grpusrpass_chk Compliance action Ensures that all interactive users have the specified directory.
GEN001475	2	The /etc/group file must not contain any group password hashes.	Location /etc/security/psccexpert/dodv2/passwdhash Compliance action Ensures that there are no group password hashes in the specified file. Note: This setting is not automatically changed when the policy is reset to the AIX default policy by using the DoDv2_to_AIXDefault.xml file. You must manually change this setting.

Table 2. DoD general requirements (continued)

Department of Defense STIG checkpoint ID	Category of the STIG rule	Description	Location of the script where the action is defined and the results of the action that enables compliance
GEN001600	2	Run control scripts' executable search paths must contain only absolute paths.	<p>Location /etc/security/psccexpert/dodv2/fixpathvars</p> <p>Compliance action Ensures that the system meets the specified requirements.</p> <p>Note: This setting is not automatically changed when the policy is reset to the AIX default policy by using the DoDv2_to_AIXDefault.xml file. You must manually change this setting.</p>
GEN001605	2	Run control scripts' library search paths must contain only absolute paths.	<p>Location /etc/security/psccexpert/dodv2/fixpathvars</p> <p>Compliance action Ensures that the system meets the specified requirements.</p> <p>Note: This setting is not automatically changed when the policy is reset to the AIX default policy by using the DoDv2_to_AIXDefault.xml file. You must manually change this setting.</p>
GEN001610	2	Run control scripts' lists of preloaded libraries must contain only absolute paths.	<p>Location /etc/security/psccexpert/dodv2/fixpathvars</p> <p>Compliance action Ensures that the system meets the specified requirements.</p> <p>Note: This setting is not automatically changed when the policy is reset to the AIX default policy by using the DoDv2_to_AIXDefault.xml file. You must manually change this setting.</p>
GEN001840	2	All global initialization files' executable search paths must contain only absolute paths.	<p>Location /etc/security/psccexpert/dodv2/fixpathvars</p> <p>Compliance action Ensures that the system meets the specified requirements.</p> <p>Note: This setting is not automatically changed when the policy is reset to the AIX default policy by using the DoDv2_to_AIXDefault.xml file. You must manually change this setting.</p>

Table 2. DoD general requirements (continued)

Department of Defense STIG checkpoint ID	Category of the STIG rule	Description	Location of the script where the action is defined and the results of the action that enables compliance
GEN001845	2	All global initialization files' library search paths must contain only absolute paths.	<p>Location /etc/security/psecexpert/dodv2/fixpathvars</p> <p>Compliance action Ensures that the system meets the specified requirements.</p> <p>Note: This setting is not automatically changed when the policy is reset to the AIX default policy by using the DoDv2_to_AIXDefault.xml file. You must manually change this setting.</p>
GEN001850	2	All global initialization files' lists of preloaded libraries must contain only absolute paths.	<p>Location /etc/security/psecexpert/dodv2/fixpathvars</p> <p>Compliance action Ensures that the system meets the specified requirements.</p> <p>Note: This setting is not automatically changed when the policy is reset to the AIX default policy by using the DoDv2_to_AIXDefault.xml file. You must manually change this setting.</p>
GEN001900	2	All local initialization files' executable search paths must contain only absolute paths.	<p>Location /etc/security/psecexpert/dodv2/fixpathvars</p> <p>Compliance action Ensures that the system meets the specified requirements.</p> <p>Note: This setting is not automatically changed when the policy is reset to the AIX default policy by using the DoDv2_to_AIXDefault.xml file. You must manually change this setting.</p>
GEN001901	2	All local initialization files' library search paths must contain only absolute paths.	<p>Location /etc/security/psecexpert/dodv2/fixpathvars</p> <p>Compliance action Ensures that the system meets the specified requirements.</p> <p>Note: This setting is not automatically changed when the policy is reset to the AIX default policy by using the DoDv2_to_AIXDefault.xml file. You must manually change this setting.</p>

Table 2. DoD general requirements (continued)

Department of Defense STIG checkpoint ID	Category of the STIG rule	Description	Location of the script where the action is defined and the results of the action that enables compliance
GEN001902	2	All local initialization files' lists of preloaded libraries must contain only absolute paths.	<p>Location <code>/etc/security/psecexpert/dodv2/fixpathvars</code></p> <p>Compliance action Ensures that the system meets the specified requirements.</p> <p>Note: This setting is not automatically changed when the policy is reset to the AIX default policy by using the <code>DoDv2_to_AIXDefault.xml</code> file. You must manually change this setting.</p>
GEN001940	2	User initialization files must not run world-writable programs.	<p>Location <code>/etc/security/psecexpert/dodv2/rmwwpaths</code></p> <p>Compliance action Ensures that the system meets the specified requirements.</p>
GEN001980	2	The <code>.rhosts</code> , <code>.s</code> hosts, <code>hosts.equiv</code> , <code>shosts.equiv</code> , <code>/etc/passwd</code> , <code>/etc/shadow</code> , or the <code>/etc/group</code> files must not contain a plus sign (+) without defining the entries for NIS+ netgroups.	<p>Location <code>/etc/security/psecexpert/dodv2/dodv2netrules</code></p> <p>Compliance action Ensures that the specified files meet the specified requirements.</p>
GEN002000	2	There must be no <code>.netrc</code> files on the system.	<p>Location <code>/etc/security/psecexpert/dodv2/dodv2netrules</code></p> <p>Compliance action Ensures that there are none of specified files on the system.</p> <p>Note: This setting is not automatically changed when the policy is reset to the AIX default policy by using the <code>DoDv2_to_AIXDefault.xml</code> file. You must manually change this setting.</p>

Table 2. DoD general requirements (continued)

Department of Defense STIG checkpoint ID	Category of the STIG rule	Description	Location of the script where the action is defined and the results of the action that enables compliance
GEN002020	2	All .rhosts, .shosts, or hosts.equiv files must contain only trusted host-user pairs.	Location /etc/security/psecexpert/dodv2/dodv2netrules Compliance action Ensures that the specified files conform to this requirement.
GEN002040	1	This rule disables .rhosts, .shosts, and hosts.equiv files or shosts.equiv files.	Location /etc/security/psecexpert/dodv2/mvhostsfilesdod Compliance action Disables the specified files.
GEN002120	1,2	This rule checks and configures user shells.	Location /etc/security/psecexpert/dodv2/usershells Compliance action Creates the required shells. Note: This setting is not automatically changed when the policy is reset to the AIX default policy by using the DoDv2_to_AIXDefault.xml file. You must manually change this setting.
GEN002140	1,2	All shells that are referenced in the /etc/passwd list must be listed in the /etc/shells file, except any shells that are specified to prevent logins.	Location /etc/security/psecexpert/dodv2/usershells Compliance action Ensures that the shells are listed in the correct files. Note: This setting is not automatically changed when the policy is reset to the AIX default policy by using the DoDv2_to_AIXDefault.xml file. You must manually change this setting.
GEN002280	2	Device files and directories must be writable only by users with a system account, or as the system is configured by the vendor.	Location /etc/security/psecexpert/dodv2/wwdevfiles Compliance action Displays world-writable device files, directories, and any other files on the system that are in non-public directories.

Table 2. DoD general requirements (continued)

Department of Defense STIG checkpoint ID	Category of the STIG rule	Description	Location of the script where the action is defined and the results of the action that enables compliance
GEN002300	2	Device files that are used for backup must be readable, writable, or both, only by the root user or the backup user.	<p>Location <code>/etc/security/psccexpert/dodv2/wwdevfiles</code></p> <p>Compliance action Displays world-writable device files, directories, and any other files on the system that are in non-public directories.</p>
GEN002400	2	The system must be checked weekly for unauthorized <code>setuid</code> files, and unauthorized modification to authorized <code>setuid</code> files.	<p>Location <code>/etc/security/psccexpert/dodv2/trust</code></p> <p>Compliance action Checks weekly to identify changes to the specified files.</p> <p>Note: Compare the two newest weekly logs that are created in the <code>/var/security/psccexpert</code> directory to verify that there was no unauthorized activity.</p>
GEN002420	2	Removable media, remote file systems, and any file system that does not contain approved <code>setuid</code> files must be mounted by using the <code>nosuid</code> option.	<p>Location <code>/etc/security/psccexpert/dodv2/fsmntoptions</code></p> <p>Compliance action Ensures that the remotely mounted file systems have the specified options.</p> <p>Note: This setting is not automatically changed when the policy is reset to the AIX default policy by using the <code>DoDv2_to_AIXDefault.xml</code> file. You must manually change this setting.</p>
GEN002430	2	Removable media, remote file systems, and any file system that does not contain approved device files must be mounted by using the <code>nodev</code> option.	<p>Location <code>/etc/security/psccexpert/dodv2/fsmntoptions</code></p> <p>Compliance action Ensures that the remotely mounted file systems have the specified options.</p> <p>Note: This setting is not automatically changed when the policy is reset to the AIX default policy by using the <code>DoDv2_to_AIXDefault.xml</code> file. You must manually change this setting.</p>

Table 2. DoD general requirements (continued)

Department of Defense STIG checkpoint ID	Category of the STIG rule	Description	Location of the script where the action is defined and the results of the action that enables compliance
GEN002480	2	Public directories must be the only world-writable directories, and world-writable files must be located only in public directories.	Location /etc/security/psecexpert/dodv2/ wwdevfiles /etc/security/psecexpert/dodv2/ fpmddodfiles Compliance action Reports when world-writable files are not in public directories.
GEN002640	2	Default system accounts must be disabled or removed.	Location /etc/security/psecexpert/dodv2/ lockacc_rlogin /etc/security/psecexpert/dodv2/ loginout Compliance action Disables default system accounts.
GEN002660	2	Auditing must be enabled.	Location /etc/security/psecexpert/dodv2/ dodaudit Compliance action Enables the dodaudit command, which enables auditing.
GEN002720	2	The audit system must be configured to audit failed attempts to access files and programs.	Location /etc/security/psecexpert/dodv2/ dodaudit Compliance action Automatically enables the specified auditing.
GEN002740	2	The audit system must be configured to audit file deletions.	Location /etc/security/psecexpert/dodv2/ dodaudit Compliance action Automatically enables the specified auditing.
GEN002750	3	The audit system must be configured to audit account creation.	Location /etc/security/psecexpert/dodv2/ dodaudit Compliance action Automatically enables the specified auditing.

Table 2. DoD general requirements (continued)

Department of Defense STIG checkpoint ID	Category of the STIG rule	Description	Location of the script where the action is defined and the results of the action that enables compliance
GEN002751	3	The audit system must be configured to audit account modification.	Location /etc/security/psecexpert/dodv2/dodaudit Compliance action Automatically enables the specified auditing.
GEN002752	3	The audit system must be configured to audit accounts that are disabled.	Location /etc/security/psecexpert/dodv2/dodaudit Compliance action Automatically enables the specified auditing.
GEN002753	3	The audit system must be configured to audit account termination.	Location /etc/security/psecexpert/dodv2/dodaudit Compliance action Automatically enables the specified auditing.
GEN002760	2	The audit system must be configured to audit all administrative, privileged, and security actions.	Location /etc/security/psecexpert/dodv2/dodaudit Compliance action Automatically enables the specified auditing.
GEN002800	2	The audit system must be configured to audit login, logout, and session initiation.	Location /etc/security/psecexpert/dodv2/dodaudit Compliance action Automatically enables the specified auditing.
GEN002820	2	The audit system must be configured to audit all discretionary access control permission modifications.	Location /etc/security/psecexpert/dodv2/dodaudit Compliance action Automatically enables the specified auditing.
GEN002825	2	The audit system must be configured to audit the loading and unloading of dynamic kernel modules.	Location /etc/security/psecexpert/dodv2/dodaudit Compliance action Automatically enables the specified auditing.

Table 2. DoD general requirements (continued)

Department of Defense STIG checkpoint ID	Category of the STIG rule	Description	Location of the script where the action is defined and the results of the action that enables compliance
GEN002860	2	Audit logs must be rotated daily.	Location /etc/security/psccexpert/dodv2/rotateauditdod Compliance action Ensures that audit logs are rotated.
GEN002960	2	Access to the cron utility must be controlled by using the cron.allow file or cron.deny file, or both.	Location /etc/security/psccexpert/dodv2/limitsysacc Compliance action Ensures that the compliant limits are enabled.
GEN003000 (related to GEN000960, GEN003020, GEN003160, GEN003360, GEN003380)	2	Cron must not run group-writable or world-writable programs.	Location /etc/security/psccexpert/dodv2/rmwwpaths Compliance action Ensures that the compliant limits are enabled. Note: This setting is not automatically changed when the policy is reset to the AIX default policy by using the DoDv2_to_AIXDefault.xml file. You must manually change this setting.
GEN003020 (related to GEN000960, GEN003000, GEN003160, GEN003360, GEN003380)	2	Cron must not run programs in, or subordinate to, world-writable directories.	Location /etc/security/psccexpert/dodv2/rmwwpaths Compliance action Removes the world-writable permission from the cron program directories. Note: This setting is not automatically changed when the policy is reset to the AIX default policy by using the DoDv2_to_AIXDefault.xml file. You must manually change this setting.
GEN003060	2	Default system accounts (except for root) must not be listed in the cron.allow file, or must be included in the cron.deny file if the cron.allow file does not exist.	Location cron.allow or cron.deny Compliance action Ensures that the system meets the specified requirements.

Table 2. DoD general requirements (continued)

Department of Defense STIG checkpoint ID	Category of the STIG rule	Description	Location of the script where the action is defined and the results of the action that enables compliance
GEN003160 (related to GEN000960, GEN003000, GEN003020, GEN003360, GEN003380)	2	Cron logging must be running.	Location /etc/security/psccexpert/dodv2/ rmmwwpaths Compliance action Ensures that the system meets the specified requirements.
GEN003280	2	Access to the at utility must be controlled by using the at.allow and the at.deny files.	Location /etc/security/psccexpert/dodv2/ chcronfilesdod Compliance action Ensures that the system meets the specified requirements.
GEN003300	2	The at.deny file must not be empty, if it exists.	Location /etc/security/psccexpert/dodv2/ chcronfilesdod Compliance action Ensures that the system meets the specified requirements.
GEN003320	2	Default system accounts that are not root must not be listed in the at.allow file, or must be included in the at.deny file if the at.allow file does not exist.	Location /etc/security/psccexpert/dodv2/ chcronfilesdod Compliance action Ensures that the system meets the specified requirements.
GEN003360 (related to GEN000960, GEN003000, GEN003020, GEN003160, GEN003380)	2	The at daemon must not run group-writable or world-writable programs.	Location /etc/security/psccexpert/dodv2/ rmmwwpaths Compliance action Ensures that the system meets the specified requirements. Note: This setting is not automatically changed when the policy is reset to the AIX default policy by using the DoDv2_to_AIXDefault.xml file. You must manually change this setting.

Table 2. DoD general requirements (continued)

Department of Defense STIG checkpoint ID	Category of the STIG rule	Description	Location of the script where the action is defined and the results of the action that enables compliance
GEN003380 (related to GEN000960, GEN003000, GEN003020, GEN003160, GEN003360)	2	The at daemon must not run programs in, or subordinate to, world-writable directories.	<p>Location /etc/security/psecexpert/dodv2/rmwwpaths</p> <p>Compliance action Ensures that the system meets the specified requirements.</p> <p>Note: This setting is not automatically changed when the policy is reset to the AIX default policy by using the DoDv2_to_AIXDefault.xml file. You must manually change this setting.</p>
GEN003510	2	Kernel core dumps must be disabled unless they are needed.	<p>Location /etc/security/psecexpert/dodv2/coredumpdev</p> <p>Compliance action Disables kernel core dumps.</p>
GEN003540	2	The system must use non-executable program stacks.	<p>Location /etc/security/psecexpert/dodv2/sedconfigdod</p> <p>Compliance action Enforces the use of non-executable program stacks.</p>
GEN003600	2	The system must not forward IPv4 source-routed packets.	<p>Location /etc/security/psecexpert/dodv2/ntwkoptsdod</p> <p>Compliance action Sets the value of the ipsrcforward network option to 0.</p>
GEN003601	2	TCP backlog queue sizes must be set appropriately.	<p>Location /etc/security/psecexpert/dodv2/ntwkoptsdod</p> <p>Compliance action Sets the value of the clean_partial_conns network option to 1.</p>
GEN003603	2	The system must not respond to Internet Control Message Protocol version 4 (ICMPv4) echoes that are sent to a broadcast address.	<p>Location /etc/security/psecexpert/dodv2/ntwkoptsdod</p> <p>Compliance action Sets the value of the bcastping network option to 0.</p>

Table 2. DoD general requirements (continued)

Department of Defense STIG checkpoint ID	Category of the STIG rule	Description	Location of the script where the action is defined and the results of the action that enables compliance
GEN003604	2	The system must not respond to ICMP time stamp requests that are sent to a broadcast address.	Location /etc/security/psccexpert/dodv2/ntwkoptsdod Compliance action Sets the value of the bcastping network option to 0.
GEN003605	2	The system must not apply reversed source routing to TCP responses.	Location /etc/security/psccexpert/dodv2/ntwkoptsdod Compliance action Sets the value of the nonlocsrcroute network option to 0.
GEN003606	2	The system must prevent local applications from generating source-routed packets.	Location /etc/security/psccexpert/dodv2/ntwkoptsdod Compliance action Sets the value of the ipsrcludesend network option to 0.
GEN003607	2	The system must not accept source-routed IPv4 packets.	Location /etc/security/psccexpert/dodv2/ntwkoptsdod Compliance action Disables the ability to accept source-routes IPv4 packets.
GEN003609	2	The system must ignore IPv4 ICMP redirect messages.	Location /etc/security/psccexpert/dodv2/ntwkoptsdod Compliance action Sets the value of the ipignoreredirects network option to 1.
GEN003610	2	The system must not send IPv4 ICMP redirect messages.	Location /etc/security/psccexpert/dodv2/ntwkoptsdod Compliance action Sets the value of the ipsendredirects network option to 0.

Table 2. DoD general requirements (continued)

Department of Defense STIG checkpoint ID	Category of the STIG rule	Description	Location of the script where the action is defined and the results of the action that enables compliance
GEN003612	2	The system must be configured to use TCP syncookies when a TCP SYN flood occurs.	Location /etc/security/psecexpert/dodv2/ntwkoptsdod Compliance action Sets the value of the clean_partial_conns network option to 1.
GEN003640	2	The root file system must use journaling, or another method of ensuring file system consistency.	Location /etc/security/psecexpert/dodv2/chkjournal Compliance action Enables journaling on the root file system.
GEN003660	2	The system must log authentication informational data.	Location /etc/security/psecexpert/dodv2/chsyslogdod Compliance action Enables the logging of auth and info data.
GEN003700	2	The inetd and xinetd must be disabled or removed if no network services are using them.	Location /etc/security/psecexpert/dodv2/dodv2services Compliance action Ensures that the system meets the specified requirements.
GEN003810	2	This portmap or rpcbindservices must not be running unless they are needed.	Location /etc/security/psecexpert/dodv2/dodv2services Compliance action Ensures that the system meets the specified requirements.
GEN003815	2	The portmap or rpcbindservices must not be installed unless they are being used.	Location /etc/security/psecexpert/dodv2/dodv2services Compliance action Ensures that the system meets the specified requirements.

Table 2. DoD general requirements (continued)

Department of Defense STIG checkpoint ID	Category of the STIG rule	Description	Location of the script where the action is defined and the results of the action that enables compliance
GEN003820-3860	1,2,3	The rsh, rexexec, and telnet daemons, and the rlogind service must not be running.	Location /etc/security/psecexpert/dodv2/inetdservices Compliance action Disables the required daemons and services by commenting out entries in the /etc/inetd.conf file.
GEN003865	2	Network analysis tools must not be installed.	Location /etc/security/psecexpert/dodv2/dodv2services Compliance action Ensures that the system meets the specified requirements.
GEN003900	2	The hosts.lpd file (or equivalent) must not contain an addition sign (+).	Location /etc/security/psecexpert/dodv2/printers Compliance action Ensures that the system meets the specified requirements.
GEN004220	1	Administrative accounts must not run a web browser, except as needed for local service administration.	Location /etc/security/psecexpert/dodv2/dodv2cat1 Compliance action Displays the results of the specified rule tests.
GEN004460	2	This rule logs auth and info data.	Location /etc/security/psecexpert/dodv2/chsyslogdod Compliance action Enables the logging of auth and info data.
GEN004540	2	This rule disables the sendmail help command.	Location /etc/security/psecexpert/dodv2/sendmailhelp /etc/security/psecexpert/dodv2/dodv2cmntrows Compliance action Disables the specified command.

Table 2. DoD general requirements (continued)

Department of Defense STIG checkpoint ID	Category of the STIG rule	Description	Location of the script where the action is defined and the results of the action that enables compliance
GEN004580	2	The system must not use .forward files.	<p>Location /etc/security/psccexpert/dodv2/forward</p> <p>Compliance action Disables the specified files.</p> <p>Note: This setting is not automatically changed when the policy is reset to the AIX default policy by using the DoDv2_to_AIXDefault.xml file. You must manually change this setting.</p>
GEN004600	1	The SMTP service must be the most current version.	<p>Location /etc/security/psccexpert/dodv2/SMTP_ver</p> <p>Compliance action Ensures that the latest version of the specified service is running.</p> <p>Note: This setting is not automatically changed when the policy is reset to the AIX default policy by using the DoDv2_to_AIXDefault.xml file. You must manually change this setting.</p>
GEN004620	2	The sendmail server must have the debugging feature disabled.	<p>Location /etc/security/psccexpert/dodv2/SMTP_ver</p> <p>Compliance action Disables the sendmail debugging feature.</p>
GEN004640	1	The SMTP service must not have an active uuencode alias.	<p>Location /etc/security/psccexpert/dodv2/SMTPuuencode</p> <p>Compliance action Disables the uuencode alias.</p>
GEN004710	2	Mail relaying must be restricted.	<p>Location /etc/security/psccexpert/dodv2/sendmaildod</p> <p>Compliance action Restricts mail relay.</p>
GEN004800	1,2,3	Unencrypted FTP must not be used on the system.	<p>Location /etc/security/psccexpert/dodv2/inetdservices</p> <p>Compliance action Disables the required daemons and services by commenting out entries in the /etc/inetd.conf file.</p>

Table 2. DoD general requirements (continued)

Department of Defense STIG checkpoint ID	Category of the STIG rule	Description	Location of the script where the action is defined and the results of the action that enables compliance
GEN004820	2	Anonymous FTP must not be active on the system unless it is authorized.	<p>Location /etc/security/psecexpert/dodv2/anonuser</p> <p>Compliance action Disables anonymous FTP on the system.</p> <p>Note: This setting is not automatically changed when the policy is reset to the AIX default policy by using the DoDv2_to_AIXDefault.xml file. You must manually change this setting.</p>
GEN004840	2	If the system is an anonymous FTP server, it must be isolated to the Demilitarized Zone (DMZ) network.	<p>Location /etc/security/psecexpert/dodv2/anonuser</p> <p>Compliance action Ensures that an anonymous FTP on the system is on the DMZ network.</p>
GEN004880	2	The ftpusers file must exist.	<p>Location /etc/security/psecexpert/dodv2/chdodftpusers</p> <p>Compliance action Ensures that the specified file is on the system.</p>
GEN004900	2	The ftpusers file must contain the account names that are not allowed to use the FTP protocol.	<p>Location /etc/security/psecexpert/dodv2/chdodftpusers</p> <p>Compliance action Ensures that the file contains the required account names.</p>
GEN005000	1	Anonymous FTP accounts must not have a functional shell.	<p>Location /etc/security/psecexpert/dodv2/usershells</p> <p>Compliance action Removes shells from anonymous FTP accounts.</p> <p>Note: This setting is not automatically changed when the policy is reset to the AIX default policy by using the DoDv2_to_AIXDefault.xml file. You must manually change this setting.</p>

Table 2. DoD general requirements (continued)

Department of Defense STIG checkpoint ID	Category of the STIG rule	Description	Location of the script where the action is defined and the results of the action that enables compliance
GEN005080	1	The TFTP daemon must operate in secure-mode, which provides access only to a single directory on the host file system.	Location /etc/security/psecexpert/dodv2/tftpdod Compliance action Ensures that the daemon meets the specified requirements.
GEN005120	2	The TFTP daemon must be configured to vendor specifications, including a dedicated TFTP user account, a non-login shell, such as /bin/false, and a home directory that is owned by the TFTP user.	Location /etc/security/psecexpert/dodv2/tftpdod Compliance action Ensures that the system meets the specified requirements.
GEN005140	1,2,3	Any active TFTP daemon must be authorized and approved in the system accreditation package.	Location /etc/security/psecexpert/dodv2/inetdservices Compliance action Ensures that the daemon is authorized.
GEN005160	1,2	Any X Window System host must write .Xauthority files.	Location /etc/security/psecexpert/dodv2/dodv2disableX Compliance action Ensures that the host wrote the specified files.
GEN005200	1,2	Any X Window System displays cannot be exported publicly.	Location /etc/security/psecexpert/dodv2/dodv2disableX Compliance action Disables the dissemination of the specified programs.

Table 2. DoD general requirements (continued)

Department of Defense STIG checkpoint ID	Category of the STIG rule	Description	Location of the script where the action is defined and the results of the action that enables compliance
GEN005220	1,2	The .Xauthority or X*.hosts (or equivalent) files must be used to restrict access to the X Window System server.	Location /etc/security/psccexpert/dodv2/dodv2disableX Compliance action Ensures that the specified files are available to restrict access to the server.
GEN005240	1,2	The .Xauthority utility must allow access only to authorized hosts.	Location /etc/security/psccexpert/dodv2/dodv2disableX Compliance action Ensures that the access is limited to authorized hosts.
GEN005260	2	This rule disables X Window System connections and XServer login manager.	Location /etc/security/psccexpert/dodv2/dodv2cmntrows Compliance action Disables the required connections and login manager.
GEN005280	1,2,3	The system must not have the UUCP service active.	Location /etc/security/psccexpert/dodv2/inetdservices Compliance action Disables the required daemons and services by commenting out entries in the /etc/inetd.conf file.
GEN005300	2	SNMP communities must be changed from the default settings.	Location /etc/security/psccexpert/dodv2/chsnmp Compliance action Ensures that the system meets the specified requirements.
GEN005305	2	SNMP service must use only SNMPv3 or a later version.	Location /etc/security/psccexpert/dodv2/chsnmp Compliance action Ensures that the system meets the specified requirements.
GEN005306	2	SNMP service must require the use of a FIPS 140-2.	Location /etc/security/psccexpert/dodv2/chsnmp Compliance action Ensures that the system meets the specified requirements.

Table 2. DoD general requirements (continued)

Department of Defense STIG checkpoint ID	Category of the STIG rule	Description	Location of the script where the action is defined and the results of the action that enables compliance
GEN005440	2	The system must use a remote syslog server (log host).	Location /etc/security/psccexpert/dodv2/EnableTrustedLogging Compliance action Ensures that the system is using a remote syslog server.
GEN005450	2	The system must use a remote syslog server (log host).	Location /etc/security/psccexpert/dodv2/EnableTrustedLogging Compliance action Ensures that the system is using a remote syslog server.
GEN005460	2	The system must use a remote syslog server (log host).	Location /etc/security/psccexpert/dodv2/EnableTrustedLogging Compliance action Ensures that the system is using a remote syslog server.
GEN005480	2	The system must use a remote syslog server (log host).	Location /etc/security/psccexpert/dodv2/EnableTrustedLogging Compliance action Ensures that the system is using a remote syslog server.
GEN005500	2	The SSH daemon must be configured to use only the Secure Shell version 2 (SSHv2) protocol.	Location /etc/security/psccexpert/dodv2/sshDoDconfig Compliance action Ensures that the system meets the specified requirements.
GEN005501	2	The SSH client must be configured to use only the SSHv2 protocol.	Location /etc/security/psccexpert/dodv2/sshDoDconfig Compliance action Ensures that the system meets the specified requirements.

Table 2. DoD general requirements (continued)

Department of Defense STIG checkpoint ID	Category of the STIG rule	Description	Location of the script where the action is defined and the results of the action that enables compliance
GEN005504	2	The SSH daemon must only listen on management network addresses, unless it is authorized for uses other than management.	Location /etc/security/psccexpert/dodv2/sshDoDconfig Compliance action Ensures that the system meets the specified requirements.
GEN005505	2	The SSH daemon must be configured to use only ciphers that conform to Federal Information Processing Standards (FIPS) 140-2 standards.	Location /etc/security/psccexpert/dodv2/sshDoDconfig Compliance action Ensures that the system meets the specified requirements.
GEN005506	2	The SSH daemon must be configured to use only ciphers that conform to FIPS 140-2 standards.	Location /etc/security/psccexpert/dodv2/sshDoDconfig Compliance action Ensures that the system meets the specified requirements.
GEN005507	2	The SSH daemon must be configured to use only Message Authentication Codes (MACs) with cryptographic hash algorithms that conform to FIPS 140-2 standards.	Location /etc/security/psccexpert/dodv2/sshDoDconfig Compliance action Ensures that the system meets the specified requirements.
GEN005510	2	The SSH client must be configured to use only MACs with ciphers that conform to FIPS 140-2 standards.	Location /etc/security/psccexpert/dodv2/sshDoDconfig Compliance action Ensures that the system meets the specified requirements.

Table 2. DoD general requirements (continued)

Department of Defense STIG checkpoint ID	Category of the STIG rule	Description	Location of the script where the action is defined and the results of the action that enables compliance
GEN005511	2	The SSH client must be configured to use only MACs with ciphers that conform to FIPS 140-2 standards.	Location /etc/security/psccexpert/dodv2/sshDoDconfig Compliance action Ensures that the system meets the specified requirements.
GEN005512	2	The SSH daemon must be configured to use only MACs with cryptographic hash algorithms that conform to FIPS 140-2 standards.	Location /etc/security/psccexpert/dodv2/sshDoDconfig Compliance action Ensures that the system meets the specified requirements.
GEN005521	2	The SSH daemon must restrict login to specific users, groups, or both.	Location /etc/security/psccexpert/dodv2/sshDoDconfig Compliance action Ensures that the system meets the specified requirements.
GEN005536	2	The SSH daemon must perform strict mode checking of the home directory configuration files.	Location /etc/security/psccexpert/dodv2/sshDoDconfig Compliance action Ensures that the system meets the specified requirements.
GEN005537	2	The SSH daemon must use privilege separation.	Location /etc/security/psccexpert/dodv2/sshDoDconfig Compliance action Ensures that the system meets the specified requirements.
GEN005538	2	The SSH daemon must not allow rhosts to authenticate by using the Rivest-Shamir-Adleman (RSA) cryptosystem.	Location /etc/security/psccexpert/dodv2/sshDoDconfig Compliance action Ensures that the system meets the specified requirements.

Table 2. DoD general requirements (continued)

Department of Defense STIG checkpoint ID	Category of the STIG rule	Description	Location of the script where the action is defined and the results of the action that enables compliance
GEN005539	2	The SSH daemon must not allow compression or must allow compression only after a successful authentication.	<p>Location /etc/security/psecexpert/dodv2/sshDoDconfig</p> <p>Compliance action Ensures that the system meets the specified requirements.</p>
GEN005550	2	The SSH daemon must be configured with the DoD logon banner.	<p>Location /etc/security/psecexpert/dodv2/sshDoDconfig</p> <p>Compliance action Ensures that the system meets the specified requirements.</p>
GEN005560	2	Determine whether there is a default gateway that is configured for IPv4.	<p>Location /etc/security/psecexpert/dodv2/chkgtway</p> <p>Compliance action Ensures that the system meets the specified requirements.</p> <p>Note: This setting is not automatically changed when the policy is reset to the AIX default policy by using the DoDv2_to_AIXDefault.xml file. You must manually change this setting.</p> <p>Note: If your system is running the IPv6 protocol, ensure that the <i>ipv6_enabled</i> setting in the /etc/security/psecexpert/ipv6.conf file is set to the value of yes. If system is not using IPv6, then ensure that the <i>ipv6_enabled</i> value is set to no.</p>

Table 2. DoD general requirements (continued)

Department of Defense STIG checkpoint ID	Category of the STIG rule	Description	Location of the script where the action is defined and the results of the action that enables compliance
GEN005570	2	Determine whether there is a default gateway that is configured for IPv6.	<p>Location /etc/security/psecexpert/dodv2/chkgtway</p> <p>Compliance action Ensures that the system meets the specified requirements.</p> <p>Note: This setting is not automatically changed when the policy is reset to the AIX default policy by using the DoDv2_to_AIXDefault.xml file. You must manually change this setting.</p> <p>Note: If your system is running the IPv6 protocol, ensure that the <i>ipv6_enabled</i> setting in the /etc/security/psecexpert/ipv6.conf file is set to the value of yes. If system is not using IPv6, then ensure that the <i>ipv6_enabled</i> value is set to no.</p>
GEN005590	2	The system must not be running any routing protocol daemons, unless the system is a router.	<p>Location /etc/security/psecexpert/dodv2/dodv2cmntrows</p> <p>Compliance action Ensures that the system meets the specified requirements.</p>
GEN005590	2	The system must not be running any routing protocol daemons, unless the system is a router.	<p>Location /etc/security/psecexpert/dodv2/dodv2cmntrows</p> <p>Compliance action Ensures that the system meets the specified requirements.</p>
GEN005600	2	IP forwarding for IPv4 must not be enabled unless the system is a router.	<p>Location /etc/security/psecexpert/dodv2/ntwkoptsdod</p> <p>Compliance action Sets the value of the ipforwarding network option to 0.</p>
GEN005610	2	The system must not have IP forwarding for IPv6 enabled unless the system is an IPv6 router.	<p>Location /etc/security/psecexpert/dodv2/ntwkoptsdod</p> <p>Compliance action Sets the value of the ip6forwarding network option to 1.</p>

Table 2. DoD general requirements (continued)

Department of Defense STIG checkpoint ID	Category of the STIG rule	Description	Location of the script where the action is defined and the results of the action that enables compliance
GEN005820	2	The NFS anonymous UID and GID must be configured to values without permissions.	Location /etc/security/pwscexpert/dodv2/nfsoptions Compliance action Ensures that the specified IDs do not have permissions.
GEN005840	2	The NFS server must be configured to restrict file system access to local hosts.	Location /etc/security/pwscexpert/dodv2/nfsoptions Compliance action Configures NFS server to restrict access to local hosts.
GEN005880	2	The NFS server must not allow remote root access.	Location /etc/security/pwscexpert/dodv2/nfsoptions Compliance action Disables remote root access on the NFS server.
GEN005900	2	The <i>nosuid</i> option must be enabled on all NFS client mounts.	Location /etc/security/pwscexpert/dodv2/nosuid Compliance action Enables the <i>nosuid</i> option on all NFS client mounts.
GEN006060	2	The system must not run Samba unless it is needed.	Location /etc/security/pwscexpert/dodv2/dodv2services Compliance action Ensures that the system meets the specified requirements.
GEN006380	1	The system must not use UDP for NIS or NIS+.	Location /etc/security/pwscexpert/dodv2/dodv2cat1 Compliance action Displays the results of the specified rule tests.

Table 2. DoD general requirements (continued)

Department of Defense STIG checkpoint ID	Category of the STIG rule	Description	Location of the script where the action is defined and the results of the action that enables compliance
GEN006400	2	The Network Information System (NIS) protocol must not be used.	<p>Location /etc/security/psecexpert/dodv2/nisplus</p> <p>Compliance action Disables the specified protocol.</p> <p>Note: This setting is not automatically changed when the policy is reset to the AIX default policy by using the DoDv2_to_AIXDefault.xml file. You must manually change this setting.</p>
GEN006420	2	NIS maps must be protected by using hard-to-guess domain names.	<p>Location /etc/security/psecexpert/dodv2/nisplus</p> <p>Compliance action Ensures that domain names are not easy to determine.</p>
GEN006460	2	Any NIS+ server must be operating at security level 2.	<p>Location /etc/security/psecexpert/dodv2/nisplus</p> <p>Compliance action Ensures that the server is at the specified minimum security level.</p> <p>Note: This setting is not automatically changed when the policy is reset to the AIX default policy by using the DoDv2_to_AIXDefault.xml file. You must manually change this setting.</p>
GEN006480	2	The system must be checked weekly for unauthorized setuid files, and unauthorized modification to authorized setuid files.	<p>Location /etc/security/psecexpert/dodv2/trust</p> <p>Compliance action Checks weekly to identify changes to the specified files.</p>
GEN006560	2	The system must be checked weekly for unauthorized setuid files, and unauthorized modification to authorized setuid files.	<p>Location /etc/security/psecexpert/dodv2/trust</p> <p>Compliance action Checks weekly to identify changes to the specified files.</p>

Table 2. DoD general requirements (continued)

Department of Defense STIG checkpoint ID	Category of the STIG rule	Description	Location of the script where the action is defined and the results of the action that enables compliance
GEN006580	2	The system must use an access control program.	Location /etc/security/psecexpert/dodv2/checktcpd Compliance action Ensures that the system meets the specified requirements.
GEN006600	2	The system's access control program must log each system access attempt.	Location /etc/security/psecexpert/dodv2/chsyslogdod Compliance action Ensures that access attempts are logged.
GEN006620	2	The system's access control program must be configured to grant or deny system access to specific hosts.	Location /etc/security/psecexpert/dodv2/chetchostsdod Compliance action Configures the hosts.deny and hosts.allow files to the required settings.
GEN007020	2	The Stream Control Transmission Protocol (SCTP) must be disabled.	Location /etc/security/psecexpert/dodv2/dodv2netrules Compliance action Disables the specified protocol.
GEN007700	2	The IPv6 protocol handler must not be bound to the network stack unless it is needed.	Location /etc/security/psecexpert/dodv2/rminet6 Compliance action Disables the IPv6 protocol handler from the network stack, unless the handler is specified in the /etc/ipv6.conf file. Note: If your system is running the IPv6 protocol, ensure that the <i>ipv6_enabled</i> setting in the /etc/security/psecexpert/ipv6.conf file is set to the value of yes. If system is not using IPv6, then ensure that the <i>ipv6_enabled</i> value is set to no.

Table 2. DoD general requirements (continued)

Department of Defense STIG checkpoint ID	Category of the STIG rule	Description	Location of the script where the action is defined and the results of the action that enables compliance
GEN007780	2	The system must not have 6to4 tunnels enabled.	<p>Location /etc/security/psecexpert/dodv2/rmiface</p> <p>Compliance action Disables the specified tunnels.</p> <p>Note: This setting is not automatically changed when the policy is reset to the AIX default policy by using the DoDv2_to_AIXDefault.xml file. You must manually change this setting.</p>
GEN007820	2	The system must not have IP tunnels configured.	<p>Location /etc/security/psecexpert/dodv2/rmtunnel</p> <p>Compliance action Disables IP tunnels.</p> <p>Note: This setting is not automatically changed when the policy is reset to the AIX default policy by using the DoDv2_to_AIXDefault.xml file. You must manually change this setting.</p>
GEN007840	2	The DHCP client must be disabled if it is not used.	<p>Location /etc/security/psecexpert/dodv2/dodv2services</p> <p>Compliance action Ensures that the system meets the specified requirements.</p>
GEN007850	2	The DHCP client must not send dynamic DNS updates.	<p>Location /etc/security/psecexpert/dodv2/dodv2services</p> <p>Compliance action Ensures that the system meets the specified requirements.</p>
GEN007860	2	The system must ignore IPv6 ICMP redirect messages.	<p>Location /etc/security/psecexpert/dodv2/ntwkoptsdod</p> <p>Compliance action Sets the value of the ipignoreredirects network option to 1.</p>
GEN007880	2	The system must not send IPv6 ICMP redirects.	<p>Location /etc/security/psecexpert/dodv2/ntwkoptsdod</p> <p>Compliance action Sets the value of the ipsendredirects network option to 0.</p>

Table 2. DoD general requirements (continued)

Department of Defense STIG checkpoint ID	Category of the STIG rule	Description	Location of the script where the action is defined and the results of the action that enables compliance
GEN007900	2	The system must use an appropriate reverse-path filter for IPv6 network traffic, if the system uses IPv6.	Location /etc/security/psccexpert/dodv2/chuserstanzadod Compliance action Ensures that the system meets the specified requirements.
GEN007920	2	The system must not forward IPv6 source-routed packets.	Location /etc/security/psccexpert/dodv2/ntwkoptsdod Compliance action Sets the value of the ip6srcrouteforward network option to 0.
GEN007940: GEN003607	2	The system must not accept source-routed IPv4 or IPv6 packets.	Location /etc/security/psccexpert/dodv2/ntwkoptsdod Compliance action Sets the value of the ipsrcrouterrecv network option to 0.
GEN007950	2	The system must not respond to ICMPv6 echo requests that are sent to a broadcast address.	Location /etc/security/psccexpert/dodv2/ntwkoptsdod Compliance action Sets the value of the bcastping network option to 0.
GEN008000	2	If the system is using Lightweight Directory Access Protocol (LDAP) for authentication or account information, certificates that are used to authenticate to the LDAP server must be provided from DoD PKI or a DoD-approved method.	Location /etc/security/psccexpert/dodv2/ldap_config Compliance action Ensures that the system meets the specified requirements.

Table 2. DoD general requirements (continued)

Department of Defense STIG checkpoint ID	Category of the STIG rule	Description	Location of the script where the action is defined and the results of the action that enables compliance
GEN008020	2	If the system is using LDAP for authentication or account information, the LDAP Transport Layer Security (TLS) connection must require the server to provide a certificate with a valid trust path.	Location /etc/security/psecexpert/dodv2/ldap_config Compliance action Ensures that the system meets the specified requirements.
GEN008050	2	If the system is using LDAP for authentication or account information, the /etc/ldap.conf file (or equivalent) must not contain passwords.	Location /etc/security/psecexpert/dodv2/ldap_config Compliance action Ensures that the system meets the specified requirements.
GEN008380	2	The system must be checked weekly for unauthorized setuid files, and unauthorized modification to authorized setuid files.	Location /etc/security/psecexpert/dodv2/trust Compliance action Checks weekly to identify changes to the specified files.
GEN008520	2	The system must employ a local firewall that guards the host against port scans. The firewall must shun vulnerable ports for 5 minutes to guard the host against port scans.	Location /etc/security/psecexpert/dodv2/ipsecshunports Compliance action Ensures that the system meets the specified requirements.

Table 2. DoD general requirements (continued)

Department of Defense STIG checkpoint ID	Category of the STIG rule	Description	Location of the script where the action is defined and the results of the action that enables compliance
GEN008540	2	The system's local firewall must implement a <i>deny-all, allow-by-exception</i> policy.	<p>Location <code>/etc/security/psecexpert/dodv2/ipsecshunhosthls</code></p> <p>Compliance action Ensures that the system meets the specified requirements.</p> <p>Note: You can enter additional filter rules in the <code>/etc/security/aixpert/bin/filter.txt</code> file. These rules are integrated by the <code>ipsecshunhosthls.sh</code> script when you apply the profile. The entries should be in the following format:</p> <pre>port_number:ip_address: action</pre> <p>where the possible values for <i>action</i> are Allow or Deny.</p>
GEN008600	1	The system must be configured to start only from the system boot configuration.	<p>Location <code>/etc/security/psecexpert/dodv2/dodv2cat1</code></p> <p>Compliance action Ensures that the starting the system only uses the system boot configuration.</p>
GEN008640	1	The system must not use removable media as the boot loader.	<p>Location <code>/etc/security/psecexpert/dodv2/dodv2cat1</code></p> <p>Compliance action Ensures that the system does not boot from a removable drive.</p>
GEN009140	1,2,3	The system must not have the chargen service active.	<p>Location <code>/etc/security/psecexpert/dodv2/inetdservices</code></p> <p>Compliance action Disables the required daemons and services by commenting out entries in the <code>/etc/inetd.conf</code> file.</p>
GEN009160	1,2,3	The system must not have the Calendar Management Service Daemon (CMSD) service active.	<p>Location <code>/etc/security/psecexpert/dodv2/inetdservices</code></p> <p>Compliance action Disables the required daemons and services by commenting out entries in the <code>/etc/inetd.conf</code> file.</p>

Table 2. DoD general requirements (continued)

Department of Defense STIG checkpoint ID	Category of the STIG rule	Description	Location of the script where the action is defined and the results of the action that enables compliance
GEN009180	1,2,3	The system must not have the tool-talk database server (ttldbserver) service active.	Location /etc/security/psecexpert/dodv2/inetdservices Compliance action Disables the required daemons and services by commenting out entries in the /etc/inetd.conf file.
GEN009190	1,2,3	The system must not have the comsat service active.	Location /etc/security/psecexpert/dodv2/inetdservices Compliance action Disables the required daemons and services by commenting out entries in the /etc/inetd.conf file.
GEN009200-9330	1,2,3	The system cannot have other services and daemons active.	Location /etc/security/psecexpert/dodv2/inetdservices Compliance action Disables the required daemons and services by commenting out entries in the /etc/inetd.conf file.
GEN009210	2	The system must not have the discard service active.	Location /etc/security/psecexpert/dodv2/inetdservices Compliance action Disables the required daemons and services by commenting out entries in the /etc/inetd.conf file.
GEN009220	2	The system must not have the dtspc service active.	Location /etc/security/psecexpert/dodv2/inetdservices Compliance action Disables the required daemons and services by commenting out entries in the /etc/inetd.conf file.
GEN009230	2	The system must not have the echo service active.	Location /etc/security/psecexpert/dodv2/inetdservices Compliance action Disables the required daemons and services by commenting out entries in the /etc/inetd.conf file.

Table 2. DoD general requirements (continued)

Department of Defense STIG checkpoint ID	Category of the STIG rule	Description	Location of the script where the action is defined and the results of the action that enables compliance
GEN009240	2	The system must not have Internet Message Access Protocol (IMAP) service active.	Location /etc/security/psccexpert/dodv2/inetdservices Compliance action Disables the required daemons and services by commenting out entries in the /etc/inetd.conf file.
GEN009250	2	The system must not have the PostOffice Protocol (POP3) service active.	Location /etc/security/psccexpert/dodv2/inetdservices Compliance action Disables the required daemons and services by commenting out entries in the /etc/inetd.conf file.
GEN009260	2	The system must not have the talk or ntalk services active.	Location /etc/security/psccexpert/dodv2/inetdservices Compliance action Disables the required daemons and services by commenting out entries in the /etc/inetd.conf file.
GEN009270	2	The system must not have the netstat service active on the InetD process.	Location /etc/security/psccexpert/dodv2/inetdservices Compliance action Disables the required daemons and services by commenting out entries in the /etc/inetd.conf file.
GEN009280	2	The system must not have the PCNFS service active.	Location /etc/security/psccexpert/dodv2/inetdservices Compliance action Disables the required daemons and services by commenting out entries in the /etc/inetd.conf file.
GEN009290	2	The system must not have the sysstat service active.	Location /etc/security/psccexpert/dodv2/inetdservices Compliance action Disables the required daemons and services by commenting out entries in the /etc/inetd.conf file.

Table 2. DoD general requirements (continued)

Department of Defense STIG checkpoint ID	Category of the STIG rule	Description	Location of the script where the action is defined and the results of the action that enables compliance
GEN009300	2	The inetd time service must not be active on the system on the inetd daemon.	Location /etc/security/psecexpert/dodv2/inetdservices Compliance action Disables the required daemons and services by commenting out entries in the /etc/inetd.conf file.
GEN009310	2	The system must not have the rusersd service active.	Location /etc/security/psecexpert/dodv2/inetdservices Compliance action Disables the required daemons and services by commenting out entries in the /etc/inetd.conf file.
GEN009320	2	The system must not have the sprayd service active.	Location /etc/security/psecexpert/dodv2/inetdservices Compliance action Disables the required daemons and services by commenting out entries in the /etc/inetd.conf file.
GEN009330	2	The system must not have the rstatd service active.	Location /etc/security/psecexpert/dodv2/inetdservices Compliance action Disables the required daemons and services by commenting out entries in the /etc/inetd.conf file.
GEN009340	2	X server login managers must not be running unless they are needed for X11 session management.	Location /etc/security/psecexpert/dodv2/dodv2cmntrows Compliance action This rule disables X Window System connections and XServer login manager.

Table 3. DoD ownership requirements

Department of Defense STIG checkpoint ID	Description	Location of the script where the action is defined and the results of the action that enables compliance
AIX00085	The /etc/netsvc.conf file must be owned by root.	Location /etc/security/psccexpert/dodv2/chowndodfiles Compliance action Ensures that the specified file is owned by root.
AIX00090	The /etc/netsvc.conf file must be group-owned by bin, sys, or system.	Location /etc/security/psccexpert/dodv2/chowndodfiles Compliance action Ensures that the specified file is group-owned by bin, sys, or system.
AIX00320	The /etc/ftpaccess.ct1 file must be owned by root.	Location /etc/security/psccexpert/dodv2/chowndodfiles Compliance action Ensures that the specified file is owned by root.
AIX00330	The /etc/ftpaccess.ct1 file must be group-owned by bin, sys, or system.	Location /etc/security/psccexpert/dodv2/chowndodfiles Compliance action Ensures that the specified file is group-owned by bin, sys, or system.
GEN000250	The time synchronization configuration file (such as /etc/ntp.conf) must be owned by root.	Location /etc/security/psccexpert/dodv2/chowndodfiles Compliance action Ensures that the specified file is owned by root.
GEN000251	The time synchronization configuration file (such as /etc/ntp.conf) must be group-owned by bin, sys, or system.	Location /etc/security/psccexpert/dodv2/chowndodfiles Compliance action Ensures that the specified file is group-owned by bin, sys, or system.
GEN001160	All files and directories must have a valid owner.	Location /etc/security/psccexpert/dodv2/chowndodfiles Compliance action Ensures that all files and directories have a valid owner.

Table 3. DoD ownership requirements (continued)

Department of Defense STIG checkpoint ID	Description	Location of the script where the action is defined and the results of the action that enables compliance
GEN001170	All files and directories must have a valid group owner.	Location /etc/security/psccexpert/dodv2/chowndodfiles Compliance action Ensures that all files and directories have a valid owner.
GEN001220	All system files, programs, and directories must be owned by a system account.	Location /etc/security/psccexpert/dodv2/chowndodfiles Compliance action Ensures that the system files, programs, and directories are owned by a system account.
GEN001240	System files, programs, and directories must be group-owned by a system group.	Location /etc/security/psccexpert/dodv2/chowndodfiles Compliance action All system files, programs, and directories are group-owned by a system group.
GEN001320	Network Information Systems (NIS)/NIS+/yp files must be owned by root, sys, or bin.	Location /etc/security/psccexpert/dodv2/chowndodfiles Compliance action Ensures that the specified files are owned by root, sys, or bin.
GEN001340	NIS/NIS+/yp files must be group-owned by sys, bin, other, or system.	Location /etc/security/psccexpert/dodv2/chowndodfiles Compliance action Ensures that the specified files are owned by sys, bin, other, or system.
GEN001362	The /etc/resolv.conf file must be owned by root.	Location /etc/security/psccexpert/dodv2/chowndodfiles Compliance action Ensures that the specified file is owned by root.
GEN001363	The /etc/resolv.conf file must be group-owned by bin, sys, or system.	Location /etc/security/psccexpert/dodv2/chowndodfiles Compliance action Ensures that the specified file is group-owned by bin, sys, or system.

Table 3. DoD ownership requirements (continued)

Department of Defense STIG checkpoint ID	Description	Location of the script where the action is defined and the results of the action that enables compliance
GEN001366	The /etc/hosts file must be owned by root.	Location /etc/security/psccexpert/dodv2/chowndodfiles Compliance action Ensures that the specified file is owned by root.
GEN001367	The /etc/hosts file must be group-owned by bin, sys, or system.	Location /etc/security/psccexpert/dodv2/chowndodfiles Compliance action Ensures that the specified file is group-owned by bin, sys, or system.
GEN001371	The /etc/nsswitch.conf file must be owned by root.	Location /etc/security/psccexpert/dodv2/chowndodfiles Compliance action Ensures that the specified file is owned by root.
GEN001372	The /etc/nsswitch.conf file must be group-owned by root, bin, sys, or system.	Location /etc/security/psccexpert/dodv2/chowndodfiles Compliance action Ensures that the specified file is group-owned by root, bin, sys, or system.
GEN001378	The /etc/passwd file must be owned by root.	Location /etc/security/psccexpert/dodv2/chowndodfiles Compliance action Ensures that the specified file is owned by root.
GEN001379	The /etc/passwd file must be group-owned by bin, security, sys, or system.	Location /etc/security/psccexpert/dodv2/chowndodfiles Compliance action Ensures that the specified file is group-owned by bin, security, sys, or system.
GEN001391	The /etc/group file must be owned by root	Location /etc/security/psccexpert/dodv2/chowndodfiles Compliance action Ensures that the specified file is owned by root.

Table 3. DoD ownership requirements (continued)

Department of Defense STIG checkpoint ID	Description	Location of the script where the action is defined and the results of the action that enables compliance
GEN001392	The /etc/group file must be group-owned by bin, security, sys, or system.	<p>Location /etc/security/psccexpert/dodv2/chowndodfiles</p> <p>Compliance action Ensures that the specified file is group-owned by bin, security, sys, or system.</p>
GEN001400	The /etc/security/passwd file must be owned by root.	<p>Location /etc/security/psccexpert/dodv2/chowndodfiles</p> <p>Compliance action Ensures that the specified file is owned by root.</p>
GEN001410	The /etc/security/passwd file must be group-owned by bin, security, sys, or system.	<p>Location /etc/security/psccexpert/dodv2/chowndodfiles</p> <p>Compliance action Ensures that the specified file is group-owned by bin, security, sys, or system.</p>
GEN001500	All interactive users' home directories must be owned by their respective users.	<p>Location /etc/security/psccexpert/dodv2/chowndodfiles</p> <p>Compliance action Ensures that all of the interactive users' home directories must be owned by their respective users.</p>
GEN001520	All interactive users' home directories must be group-owned by the home directory owner's primary group.	<p>Location /etc/security/psccexpert/dodv2/chowndodfiles</p> <p>Compliance action Ensures that all interactive users' home directories are group-owned by the home directory owner's primary group.</p>
GEN001540	All files and directories that are contained in the interactive user's home directories must be owned by the home directory's owner.	<p>Location /etc/security/psccexpert/dodv2/chowndodfiles</p> <p>Compliance action Ensures that all files and directories that are contained in the interactive user's home directories are owned by the home directory's owner.</p>

Table 3. DoD ownership requirements (continued)

Department of Defense STIG checkpoint ID	Description	Location of the script where the action is defined and the results of the action that enables compliance
GEN001550	All files and directories that are contained in the user's home directories must be group-owned by a group in which the home directory's owner is a member.	<p>Location /etc/security/pscxpert/dodv2/chowndodfiles</p> <p>Compliance action Ensures that all files and directories that are contained in the user's home directories must be group-owned by a group in which the home directory's owner is a member.</p>
GEN001660	All system start files must be owned by root.	<p>Location /etc/security/pscxpert/dodv2/chowndodfiles</p> <p>Compliance action Ensures that the specified files are owned by root.</p>
GEN001680	All system start files must be group-owned by sys, bin, other, or system.	<p>Location /etc/security/pscxpert/dodv2/chowndodfiles</p> <p>Compliance action Ensures that the specified files are group-owned by sys, bin, other, or system.</p>
GEN001740	All global initialization files must be owned by root.	<p>Location /etc/security/pscxpert/dodv2/chowndodfiles</p> <p>Compliance action Ensures that the specified files are owned by root.</p>
GEN001760	All global initialization files must be group-owned by sys, bin, system, or security.	<p>Location /etc/security/pscxpert/dodv2/chowndodfiles</p> <p>Compliance action Ensures that the specified files are group-owned by sys, bin, system, or security.</p>
GEN001820	All skeleton files and directories (typically in /etc/skel) must be owned by root or bin.	<p>Location /etc/security/pscxpert/dodv2/chowndodfiles</p> <p>Compliance action Ensures that the specified files and directories are owned by root or bin.</p>

Table 3. DoD ownership requirements (continued)

Department of Defense STIG checkpoint ID	Description	Location of the script where the action is defined and the results of the action that enables compliance
GEN001830	All skeleton files (typically in /etc/skel) must be group-owned by security.	Location /etc/security/psccexpert/dodv2/chowndodfiles Compliance action Ensures that the specified files are group-owned by security.
GEN001860	All local initialization files must be owned by the user or root.	Location /etc/security/psccexpert/dodv2/chowndodfiles Compliance action Ensures that the specified files are owned by the user or root.
GEN001870	Local initialization files must be group-owned by the user's primary group or root.	Location /etc/security/psccexpert/dodv2/chowndodfiles Compliance action Ensures that the local initialization files must be group-owned by the user's primary group or root.
GEN002060	All .rhosts, .shosts, .netrc, or hosts.equiv files must be accessible by only root or the owner.	Location /etc/security/psccexpert/dodv2/chowndodfiles /etc/security/psccexpert/dodv2/fpmdodfiles Compliance action Ensures that only the root or the owner can access the specified files.
GEN002100	The .rhosts file must not be supported by the Pluggable Authentication Module (PAM).	Location /etc/security/psccexpert/dodv2/chowndodfiles Compliance action Ensures that the specified file is not available by using PAM.
GEN002200	All shell files must be owned by root or bin.	Location /etc/security/psccexpert/dodv2/chowndodfiles Compliance action Ensures that the specified files are owned by root or bin.

Table 3. DoD ownership requirements (continued)

Department of Defense STIG checkpoint ID	Description	Location of the script where the action is defined and the results of the action that enables compliance
GEN002210	All shell files must be group-owned by root, bin, sys, or system.	Location /etc/security/psccexpert/dodv2/chowndodfiles Compliance action Ensures that the specified files are group-owned by root, bin, sys, or system.
GEN002340	Audio devices must be owned by root.	Location /etc/security/psccexpert/dodv2/chowndodfiles Compliance action Ensures that all audio devices are owned by root.
GEN002360	Audio devices must be group-owned by root, sys, bin, or system.	Location /etc/security/psccexpert/dodv2/chowndodfiles Compliance action Ensures that all audio devices are group-owned by root, sys, bin, or system.
GEN002520	All public directories must be owned by root or an application account.	Location /etc/security/psccexpert/dodv2/chowndodfiles Compliance action Ensures that all public directories are owned by root or an application account.
GEN002540	All public directories must be group-owned by system or an application group.	Location /etc/security/psccexpert/dodv2/chowndodfiles Compliance action Ensures that all public directories are group-owned by system or an application group.
GEN002680	System audit logs must be owned by root.	Location /etc/security/psccexpert/dodv2/chowndodfiles Compliance action Ensures that the specified files are owned by root.
GEN002690	System audit logs must be group-owned by bin, sys, or system.	Location /etc/security/psccexpert/dodv2/chowndodfiles Compliance action Ensures that the specified files are group-owned by bin, sys, or system.

Table 3. DoD ownership requirements (continued)

Department of Defense STIG checkpoint ID	Description	Location of the script where the action is defined and the results of the action that enables compliance
GEN003020	Cron must not run programs in, or subordinate to, world-writable directories.	Location /etc/security/psccexpert/dodv2/chowndodfiles Compliance action Prevents cron from running programs in, or subordinate to, world-writable directories.
GEN003040	Crontabs must be owned by root or the crontab creator.	Location /etc/security/psccexpert/dodv2/chowndodfiles Compliance action Ensures that crontabs are owned by root or by the crontab creator.
GEN003050	Crontab files must be group-owned by system, cron, or the crontab creator's primary group.	Location /etc/security/psccexpert/dodv2/chowndodfiles Compliance action Ensures that the crontab files are group-owned by system, cron, or the crontab creator's primary group.
GEN003110	Cron and crontab directories must not have extended access control lists.	Location /etc/security/psccexpert/dodv2/chowndodfiles Compliance action Ensures that the specified directories do not have extended access control lists.
GEN003120	Cron and crontab directories must be owned by root or bin.	Location /etc/security/psccexpert/dodv2/chowndodfiles Compliance action Ensures that cron and crontab directories are owned by root or bin.
GEN003140	Cron and crontab directories must be group-owned by system, sys, bin, or cron.	Location /etc/security/psccexpert/dodv2/chowndodfiles Compliance action Ensures that the specified directories are group-owned by system, sys, bin, or cron.
GEN003160	Cron logging must be implemented.	Location /etc/security/psccexpert/dodv2/chowndodfiles Compliance action Ensures that cron logging is implemented.

Table 3. DoD ownership requirements (continued)

Department of Defense STIG checkpoint ID	Description	Location of the script where the action is defined and the results of the action that enables compliance
GEN003240	The <code>cron.allow</code> file must be owned by root, bin, or sys.	Location <code>/etc/security/psccexpert/dodv2/</code> <code>chowndodfiles</code> Compliance action Ensures that the specified file is owned by root, bin, or sys.
GEN003250	The <code>cron.allow</code> file must be group-owned by system, bin, sys, or cron.	Location <code>/etc/security/psccexpert/dodv2/</code> <code>chowndodfiles</code> Compliance action Ensures that the specified file is group-owned by system, bin, sys, or cron.
GEN003260	The <code>cron.deny</code> file must be owned by root, bin, or sys.	Location <code>/etc/security/psccexpert/dodv2/</code> <code>chowndodfiles</code> Compliance action Ensures that the specified file is owned by root, bin, or sys.
GEN003270	The <code>cron.deny</code> file must be group-owned by system, bin, sys, or cron.	Location <code>/etc/security/psccexpert/dodv2/</code> <code>chowndodfiles</code> Compliance action Ensures that the specified file is group-owned by system, bin, sys, or cron.
GEN003420	The <code>at</code> directory must be owned by root, bin, sys, daemon, or cron.	Location <code>/etc/security/psccexpert/dodv2/</code> <code>chowndodfiles</code> Compliance action Ensures that the specified directory is owned by root, sys, daemon, or cron.
GEN003430	The <code>at</code> directory must be group-owned by system, bin, sys, or cron.	Location <code>/etc/security/psccexpert/dodv2/</code> <code>chowndodfiles</code> Compliance action Ensures that the specified directory is group-owned by system, bin, sys, or cron.
GEN003460	The <code>at.allow</code> file must be owned by root, bin, or sys.	Location <code>/etc/security/psccexpert/dodv2/</code> <code>chowndodfiles</code> Compliance action Ensures that the specified file is owned by root, bin, or sys.

Table 3. DoD ownership requirements (continued)

Department of Defense STIG checkpoint ID	Description	Location of the script where the action is defined and the results of the action that enables compliance
GEN003470	The at.allow file must be group-owned by system, bin, sys, or cron.	Location /etc/security/psccexpert/dodv2/chowndodfiles Compliance action Ensures that the specified file is group-owned by system, bin, sys, or cron.
GEN003480	The at.deny file must be owned by root, bin, or sys.	Location /etc/security/psccexpert/dodv2/chowndodfiles Compliance action Ensures that the specified file is owned by root, bin, or sys.
GEN003490	The at.deny file must be group-owned by system, bin, sys, or cron.	Location /etc/security/psccexpert/dodv2/chowndodfiles Compliance action Ensures that the specified file is group-owned by system, bin, sys, or cron.
GEN003720	The inetd.conf file, xinetd.conf file, and the xinetd.d directory must be owned by root or bin.	Location /etc/security/psccexpert/dodv2/chowndodfiles Compliance action Ensures that the specified files and directory are owned by root or bin.
GEN003730	The inetd.conf file, xinetd.conf file, and the xinetd.d directory must be group-owned by bin, sys, or system.	Location /etc/security/psccexpert/dodv2/chowndodfiles Compliance action Ensures that the specified files and directory are group-owned by bin, sys, or system.
GEN003760	The services file must be owned by root or bin.	Location /etc/security/psccexpert/dodv2/chowndodfiles Compliance action Ensures that the specified file is owned by root or bin.
GEN003770	The services file must be group-owned by bin, sys, or system.	Location /etc/security/psccexpert/dodv2/chowndodfiles Compliance action Ensures that the specified file is group-owned by bin, sys, or system.

Table 3. DoD ownership requirements (continued)

Department of Defense STIG checkpoint ID	Description	Location of the script where the action is defined and the results of the action that enables compliance
GEN003920	The <code>hosts.lpd</code> (or equivalent) file must be owned by root, bin, sys, or lp.	Location <code>/etc/security/psccexpert/dodv2/chowndodfiles</code> Compliance action Ensures that the specified file is owned by root, bin, sys, or lp.
GEN003930	The <code>hosts.lpd</code> (or equivalent) file must be group-owned by bin, sys, or system.	Location <code>/etc/security/psccexpert/dodv2/chowndodfiles</code> Compliance action Ensures that the specified file is group-owned by bin, sys, or system.
GEN003960	The traceroute command owner must be root.	Location <code>/etc/security/psccexpert/dodv2/chowndodfiles</code> Compliance action Ensures that the owner of the command is root.
GEN003980	The traceroute command must be group-owned by sys, bin, or system.	Location <code>/etc/security/psccexpert/dodv2/chowndodfiles</code> Compliance action Ensures that the command is group-owned by sys, bin, or system.
GEN004360	The <code>alias</code> file must be owned by root.	Location <code>/etc/security/psccexpert/dodv2/chowndodfiles</code> Compliance action Ensures that the specified file is owned by root.
GEN004370	The <code>aliases</code> file must be group-owned by sys, bin, or system.	Location <code>/etc/security/psccexpert/dodv2/chowndodfiles</code> Compliance action Ensures that the specified file is group-owned by sys, bin, or system.
GEN004400	Files that are run through a mail <code>aliases</code> file must be owned by root and must be located within a directory that is owned and writable only by root.	Location <code>/etc/security/psccexpert/dodv2/chowndodfiles</code> Compliance action Ensures that files that are run through a mail <code>aliases</code> file are owned by root and are located within a directory that is owned and writable only by root.

Table 3. DoD ownership requirements (continued)

Department of Defense STIG checkpoint ID	Description	Location of the script where the action is defined and the results of the action that enables compliance
GEN004410	Files that are run through a mail aliases file must be group-owned by root, bin, sys, or other. They must also be located within a directory that is group-owned by root, bin, sys, or other.	<p>Location /etc/security/psccexpert/dodv2/chowndodfiles</p> <p>Compliance action Ensures that files that are run through a mail aliases file are group-owned by root, bin, sys, or other. and are located within a directory that is group-owned by root, bin, sys, or other.</p>
GEN004480	The SMTP service log file must be owned by root.	<p>Location /etc/security/psccexpert/dodv2/chowndodfiles</p> <p>Compliance action Ensures that the specified file is owned by root.</p>
GEN004920	The ftpusers file must be owned by root.	<p>Location /etc/security/psccexpert/dodv2/chowndodfiles</p> <p>Compliance action Ensures that the specified file is owned by root.</p>
GEN004930	The ftpusers file must be group-owned by bin, sys, or system.	<p>Location /etc/security/psccexpert/dodv2/chowndodfiles</p> <p>Compliance action Ensures that the specified file is group-owned by bin, sys, or system.</p>
GEN005360	The snmpd.conf file must be owned by root.	<p>Location /etc/security/psccexpert/dodv2/chowndodfiles</p> <p>Compliance action Ensures that the specified file is owned by root.</p>
GEN005365	The snmpd.conf file must be group-owned by bin, sys, or system.	<p>Location /etc/security/psccexpert/dodv2/chowndodfiles</p> <p>Compliance action Ensures that the specified file is group-owned by bin, sys, or system.</p>

Table 3. DoD ownership requirements (continued)

Department of Defense STIG checkpoint ID	Description	Location of the script where the action is defined and the results of the action that enables compliance
GEN005400	The /etc/syslog.conf file must be owned by root.	<p>Location /etc/security/psccexpert/dodv2/chowndodfiles</p> <p>Compliance action Ensures that the specified file is owned by root.</p>
GEN005420	The /etc/syslog.conf file must be group-owned by bin, sys, or system.	<p>Location /etc/security/psccexpert/dodv2/chowndodfiles</p> <p>Compliance action Ensures that the specified file is group-owned by bin, sys, or system.</p>
GEN005610	The system must not have IP forwarding for IPv6 enabled, unless the system is an IPv6 router.	<p>Location /etc/security/psccexpert/dodv2/chowndodfiles</p> <p>Compliance action Ensures that IP forwarding for IPv6 is not enabled unless the system is being used as an IPv6 router.</p>
GEN005740	The NFS export configuration file must be owned by root.	<p>Location /etc/security/psccexpert/dodv2/chowndodfiles</p> <p>Compliance action Ensures that the specified file is owned by root.</p>
GEN005750	The NFS export configuration file must be group-owned by root, bin, sys, or system.	<p>Location /etc/security/psccexpert/dodv2/chowndodfiles</p> <p>Compliance action Ensures that the specified file is group-owned by root, bin, sys, or system.</p>
GEN005800	All NFS-exported system files and system directories must be owned by root.	<p>Location /etc/security/psccexpert/dodv2/chowndodfiles</p> <p>Compliance action Ensures that the specified file is owned by root.</p>
GEN005810	All NFS-exported system files and system directories must be group-owned by root, bin, sys, or system.	<p>Location /etc/security/psccexpert/dodv2/chowndodfiles</p> <p>Compliance action Ensures that the specified files and directories are group-owned by root, bin, sys, or system.</p>

Table 3. DoD ownership requirements (continued)

Department of Defense STIG checkpoint ID	Description	Location of the script where the action is defined and the results of the action that enables compliance
GEN006100	The /usr/lib/smb.conf file must be owned by root.	Location /etc/security/psccexpert/dodv2/chowndodfiles Compliance action Ensures that the specified file is owned by root.
GEN006120	The /usr/lib/smb.conf file must be group-owned by bin, sys, or system.	Location /etc/security/psccexpert/dodv2/chowndodfiles Compliance action Ensures that the specified file is group-owned by bin, sys, or system.
GEN006160	The /var/private/smbpasswd file must be owned by root.	Location /etc/security/psccexpert/dodv2/chowndodfiles Compliance action Ensures that the specified file is owned by root.
GEN006180	The /var/private/smbpasswd file must be group-owned by sys or system.	Location /etc/security/psccexpert/dodv2/chowndodfiles Compliance action Ensures that the specified file is group-owned by sys or system.
GEN006340	Files in the /etc/news directory must be owned by root or news.	Location /etc/security/psccexpert/dodv2/chowndodfiles Compliance action Ensures that the specified directory is owned by root or news.
GEN006360	The files in /etc/news must be group-owned by system or news.	Location /etc/security/psccexpert/dodv2/chowndodfiles Compliance action Ensures that the specified files are group-owned by system or news.
GEN008080	If the system is using LDAP for authentication or account information, the /etc/ldap.conf (or equivalent) file must be owned by root.	Location /etc/security/psccexpert/dodv2/chowndodfiles Compliance action Ensures that the specified file is owned by root.

Table 3. DoD ownership requirements (continued)

Department of Defense STIG checkpoint ID	Description	Location of the script where the action is defined and the results of the action that enables compliance
GEN008100	If the system is using LDAP for authentication or account information, the <code>/etc/ldap.conf</code> (or equivalent) file must be group-owned by security, bin, sys, or system.	Location <code>/etc/security/psecexpert/dodv2/chowndodfiles</code> Compliance action Ensures that the specified file is group-owned by bin, sys, or system.
GEN008140	If the system is using LDAP for authentication or account information, the TLS certificate authority file or directory must be owned by root.	Location <code>/etc/security/psecexpert/dodv2/chowndodfiles</code> Compliance action Ensures that the specified file is owned by root.
GEN008160	If the system is using LDAP for authentication or account information, the TLS certificate authority file or directory must be group-owned by root, bin, sys, or system.	Location <code>/etc/security/psecexpert/dodv2/chowndodfiles</code> Compliance action Ensures that the specified file is group-owned by bin, sys, or system.

Table 4. DoD standards for file permissions

Department of Defense STIG checkpoint ID	Description	Location of the script where the action is defined and the results of the action that enables compliance
AIX00100	The <code>/etc/netsvc.conf</code> file must have mode 0644 or a mode that is less permissive.	Location <code>/etc/security/psecexpert/dodv2/fpmdodfiles</code> Compliance action Ensures that the file is set to the specified permission mode, or to one that is less permissive.
AIX00340	The <code>/etc/ftpaccess.ct1</code> file must have mode 0640 or a mode that is less permissive.	Location <code>/etc/security/psecexpert/dodv2/fpmdodfiles</code> Compliance action Ensures that the file is set to the specified permission mode, or to one that is less permissive.
GEN000252	The time synchronization configuration file (such as <code>/etc/ntp.conf</code>) must have mode 0640 or a mode that is less permissive.	Location <code>/etc/security/psecexpert/dodv2/fpmdodfiles</code> Compliance action Ensures that the file is set to the specified permission mode, or to one that is less permissive.

Table 4. DoD standards for file permissions (continued)

Department of Defense STIG checkpoint ID	Description	Location of the script where the action is defined and the results of the action that enables compliance
GEN000920	The root account's home directory (other than /) must have mode 0700.	Location /etc/security/psecexpert/dodv2/fpmdodfiles Compliance action Ensures that the directory is set to the specified permission mode, or to one that is less permissive.
GEN001140	System files and directories must not have uneven access permissions.	Location /etc/security/psecexpert/dodv2/fpmdodfiles Compliance action Ensures that the access permissions are consistent.
GEN001180	All network services daemon files must have mode 0755 or a mode that is less permissive.	Location /etc/security/psecexpert/dodv2/fpmdodfiles Compliance action Ensures that the files are set to the specified permission mode, or to one that is less permissive.
GEN001200	All system command files must have mode 0755 or a mode that is less permissive.	Location /etc/security/psecexpert/dodv2/fpmdodfiles Compliance action Ensures that the files are set to the specified permission mode, or to one that is less permissive.
GEN001260	System log files must have mode 0640 or a mode that is less permissive.	Location /etc/security/psecexpert/dodv2/fpmdodfiles Compliance action Ensures that the files are set to the specified permission mode, or to one that is less permissive.
GEN001280	Manual page files must have mode 0644 or a mode that is less permissive.	Location /etc/security/psecexpert/dodv2/fpmdodfiles Compliance action Ensures that the files are set to the specified permission mode, or to one that is less permissive.

Table 4. DoD standards for file permissions (continued)

Department of Defense STIG checkpoint ID	Description	Location of the script where the action is defined and the results of the action that enables compliance
GEN001300	Library files must have mode 0755 or a mode that is less permissive.	<p>Location /etc/security/psecexpert/dodv2/fpmdodfiles</p> <p>Compliance action Ensures that the files are set to the specified permission mode, or to one that is less permissive.</p>
GEN001360	The NIS/NIS+/yp files must have mode 0755 or a mode that is less permissive.	<p>Location /etc/security/psecexpert/dodv2/fpmdodfiles</p> <p>Compliance action Ensures that the files are set to the specified permission mode, or to one that is less permissive.</p>
GEN001364	The /etc/resolv.conf file must have mode 0644 or a mode that is less permissive.	<p>Location /etc/security/psecexpert/dodv2/fpmdodfiles</p> <p>Compliance action Ensures that the file is set to the specified permission mode, or to one that is less permissive.</p>
GEN001368	The /etc/hosts file must have mode 0644 or a mode that is less permissive.	<p>Location /etc/security/psecexpert/dodv2/fpmdodfiles</p> <p>Compliance action Ensures that the file is set to the specified permission mode, or to one that is less permissive.</p>
GEN001373	The /etc/nsswitch.conf file must have mode 0644 or a mode that is less permissive.	<p>Location /etc/security/psecexpert/dodv2/fpmdodfiles</p> <p>Compliance action Ensures that the file is set to the specified permission mode, or to one that is less permissive.</p>
GEN001380	The /etc/passwd file must have mode 0644 or a mode that is less permissive.	<p>Location /etc/security/psecexpert/dodv2/fpmdodfiles</p> <p>Compliance action Ensures that the file is set to the specified permission mode, or to one that is less permissive.</p>

Table 4. DoD standards for file permissions (continued)

Department of Defense STIG checkpoint ID	Description	Location of the script where the action is defined and the results of the action that enables compliance
GEN001393	The /etc/group file must have mode 0644 or a mode that is less permissive.	<p>Location /etc/security/psecexpert/dodv2/fpmdodfiles</p> <p>Compliance action Ensures that the file is set to the specified permission mode, or to one that is less permissive.</p>
GEN001420	The /etc/security/passwd file must have mode 0400.	<p>Location /etc/security/psecexpert/dodv2/fpmdodfiles</p> <p>Compliance action Ensures that the file is set to the specified permission mode, or to one that is less permissive.</p>
GEN001480	All of a user's home directories must have a mode of 0750 or less permissive.	<p>Location /etc/security/psecexpert/dodv2/fpmdodfiles</p> <p>Compliance action Ensures that the file is set to the specified permission mode, or to one that is less permissive.</p>
GEN001560	All files and directories that are contained in a user's home directories must have mode 0750 or a mode that is less permissive.	<p>Location /etc/security/psecexpert/dodv2/fpmdodfiles</p> <p>Compliance action Ensures that the files are set to the specified permission mode, or to one that is less permissive.</p>
GEN001580	All run control scripts must have mode 0755 or a mode that is less permissive.	<p>Location /etc/security/psecexpert/dodv2/fpmdodfiles</p> <p>Compliance action Ensures that the files are set to the specified permission mode, or to one that is less permissive.</p>
GEN001640	Run control scripts must not run world-writable programs or scripts.	<p>Location /etc/security/psecexpert/dodv2/fpmdodfiles</p> <p>Compliance action Checks programs, such as cron, for world-writable programs or scripts.</p>

Table 4. DoD standards for file permissions (continued)

Department of Defense STIG checkpoint ID	Description	Location of the script where the action is defined and the results of the action that enables compliance
GEN001720	All global initialization files must have mode 0644 or a mode that is less permissive.	<p>Location /etc/security/psecexpert/dodv2/fpmdodfiles</p> <p>Compliance action Ensures that the files are set to the specified permission mode, or to one that is less permissive.</p>
GEN001800	All skeleton files (for example, files in /etc/skel) must have mode 0644 or a mode that is less permissive.	<p>Location /etc/security/psecexpert/dodv2/fpmdodfiles</p> <p>Compliance action Ensures that the files are set to the specified permission mode, or to one that is less permissive.</p>
GEN001880	All local initialization files must have mode 0740 or a mode that is less permissive.	<p>Location /etc/security/psecexpert/dodv2/fpmdodfiles</p> <p>Compliance action Ensures that the files are set to the specified permission mode, or to one that is less permissive.</p>
GEN002220	All shell files must have mode 0755 or a mode that is less permissive.	<p>Location /etc/security/psecexpert/dodv2/fpmdodfiles</p> <p>Compliance action Ensures that the files are set to the specified permission mode, or to one that is less permissive.</p>
GEN002320	Audio devices must have mode 0660 or a mode that is less permissive.	<p>Location /etc/security/psecexpert/dodv2/fpmdodfiles</p> <p>Compliance action Ensures that the audio devices are set to the specified permission mode, or one that is less permissive,</p>
GEN002560	The system and user default umask must be 077.	<p>Location /etc/security/psecexpert/dodv2/fpmdodfiles</p> <p>Compliance action Ensures that the specified settings are 077.</p>

Table 4. DoD standards for file permissions (continued)

Department of Defense STIG checkpoint ID	Description	Location of the script where the action is defined and the results of the action that enables compliance
GEN002700	System audit logs must have mode 0640 or a mode that is less permissive.	Location /etc/security/psecexpert/dodv2/fpmdodfiles Compliance action Ensures that the files are set to the specified permission mode, or to one that is less permissive.
GEN002717	System audit tool executable files must have mode 0750 or a mode that is less permissive.	Location /etc/security/psecexpert/dodv2/fpmdodfiles Compliance action Ensures that the files are set to the specified permission mode, or to one that is less permissive.
GEN002980	The cron.allow file must have mode 0600 or a mode that is less permissive.	Location /etc/security/psecexpert/dodv2/fpmdodfiles Compliance action Ensures that the file is set to the specified permission mode, or to one that is less permissive.
GEN003080	Crontab files must have mode 0600 or a mode that is less permissive.	Location /etc/security/psecexpert/dodv2/fpmdodfiles Compliance action Ensures that the files are set to the specified permission mode, or to one that is less permissive.
GEN003090	Crontab files must not have extended access control lists (ACLs).	Location /etc/security/psecexpert/dodv2/fpmdodfiles Compliance action Ensures that the specified files do not have extended ACLs.
GEN003100	Cron and crontab directories must have mode 0755 or a mode that is less permissive.	Location /etc/security/psecexpert/dodv2/fpmdodfiles Compliance action Ensures that the specified directories are set to the specified permissions mode, or to one that is less permissive.

Table 4. DoD standards for file permissions (continued)

Department of Defense STIG checkpoint ID	Description	Location of the script where the action is defined and the results of the action that enables compliance
GEN003180	The <code>cronlog</code> file must have mode 0600 or a mode that is less permissive.	<p>Location <code>/etc/security/psecexpert/dodv2/fpmdodfiles</code></p> <p>Compliance action Ensures that the file is set to the specified permission mode, or to one that is less permissive.</p>
GEN003200	The <code>cron.deny</code> file must have mode 0600 or a mode that is less permissive.	<p>Location <code>/etc/security/psecexpert/dodv2/fpmdodfiles</code></p> <p>Compliance action Ensures that the file is set to the specified permission mode, or to one that is less permissive.</p>
GEN003252	The <code>at.deny</code> file must have mode 0640 or a mode that is less permissive.	<p>Location <code>/etc/security/psecexpert/dodv2/fpmdodfiles</code></p> <p>Compliance action Ensures that the file is set to the specified permission mode, or to one that is less permissive.</p>
GEN003340	The <code>at.allow</code> file must have mode 0600 or a mode that is less permissive.	<p>Location <code>/etc/security/psecexpert/dodv2/fpmdodfiles</code></p> <p>Compliance action Ensures that the file is set to the specified permission mode, or to one that is less permissive.</p>
GEN003400	The <code>at</code> directory must have mode 0755 or a mode that is less permissive.	<p>Location <code>/etc/security/psecexpert/dodv2/fpmdodfiles</code></p> <p>Compliance action Ensures that the directory is set to the specified permission mode, or to one that is less permissive.</p>
GEN003440	At jobs must not set the umask parameter to a value less restrictive than 077.	<p>Location <code>/etc/security/psecexpert/dodv2/fpmdodfiles</code></p> <p>Compliance action Ensures that the parameter is set to the specified permission mode, or to one that is less permissive.</p>

Table 4. DoD standards for file permissions (continued)

Department of Defense STIG checkpoint ID	Description	Location of the script where the action is defined and the results of the action that enables compliance
GEN003740	The <code>inetd.conf</code> and <code>xinetd.conf</code> files must have mode 0440 or a mode that is less permissive.	<p>Location <code>/etc/security/psecexpert/dodv2/fpmdodfiles</code></p> <p>Compliance action Ensures that the files are set to the specified permission mode, or to one that is less permissive.</p>
GEN003780	The <code>services</code> file must have mode 0444 or a mode that is less permissive.	<p>Location <code>/etc/security/psecexpert/dodv2/fpmdodfiles</code></p> <p>Compliance action Ensures that the file is set to the specified permission mode, or to one that is less permissive.</p>
GEN003940	The <code>hosts.lpd</code> file (or equivalent) must have mode 0644 or a mode that is less permissive.	<p>Location <code>/etc/security/psecexpert/dodv2/fpmdodfiles</code></p> <p>Compliance action Ensures that the file is set to the specified permission mode, or to one that is less permissive.</p>
GEN004000	The <code>traceroute</code> file must have mode 0700 or a mode that is less permissive.	<p>Location <code>/etc/security/psecexpert/dodv2/fpmdodfiles</code></p> <p>Compliance action Ensures that the file is set to the specified permission mode, or to one that is less permissive.</p>
GEN004380	The <code>alias</code> file must have mode 0644 or a mode that is less permissive.	<p>Location <code>/etc/security/psecexpert/dodv2/fpmdodfiles</code></p> <p>Compliance action Ensures that the file is set to the specified permission mode, or to one that is less permissive.</p>
GEN004420	Files that are run through a mail aliases file must have mode 0755 or a mode that is less permissive.	<p>Location <code>/etc/security/psecexpert/dodv2/fpmdodfiles</code></p> <p>Compliance action Ensures that the files are set to the specified permission mode, or to one that is less permissive.</p>

Table 4. DoD standards for file permissions (continued)

Department of Defense STIG checkpoint ID	Description	Location of the script where the action is defined and the results of the action that enables compliance
GEN004500	The SMTP service log file must have mode 0644 or a mode that is less permissive.	<p>Location /etc/security/psecexpert/dodv2/fpmdodfiles</p> <p>Compliance action Ensures that the file is set to the specified permission mode, or to one that is less permissive.</p>
GEN004940	The ftpusers file must have mode 0640 or a mode that is less permissive.	<p>Location /etc/security/psecexpert/dodv2/fpmdodfiles</p> <p>Compliance action Ensures that the file is set to the specified permission mode, or to one that is less permissive.</p>
GEN005040	All FTP users must have a default umask setting of 077.	<p>Location /etc/security/psecexpert/dodv2/fpmdodfiles</p> <p>Compliance action Ensures that the setting is correct.</p>
GEN005100	The TFTP daemon must have mode 0755 or a mode that is less permissive.	<p>Location /etc/security/psecexpert/dodv2/fpmdodfiles</p> <p>Compliance action Ensures that the daemon is set to the specified mode, or to one that is less permissive.</p>
GEN005180	All .Xauthority files must have mode 0600 or a mode that is less permissive.	<p>Location /etc/security/psecexpert/dodv2/fpmdodfiles</p> <p>Compliance action Ensures that the files are set to the specified permission mode, or to one that is less permissive.</p>
GEN005320	The snmpd.conf file must have mode 0600 or a mode that is less permissive.	<p>Location /etc/security/psecexpert/dodv2/fpmdodfiles</p> <p>Compliance action Ensures that the file is set to the specified permission mode, or to one that is less permissive.</p>

Table 4. DoD standards for file permissions (continued)

Department of Defense STIG checkpoint ID	Description	Location of the script where the action is defined and the results of the action that enables compliance
GEN005340	Management Information Base (MIB) files must have mode 0640 or a mode that is less permissive.	<p>Location /etc/security/psecexpert/dodv2/fpmdodfiles</p> <p>Compliance action Ensures that the files are set to the specified permission mode, or to one that is less permissive.</p>
GEN005390	The /etc/syslog.conf file must have mode 0640 or a mode that is less permissive.	<p>Location /etc/security/psecexpert/dodv2/fpmdodfiles</p> <p>Compliance action Ensures that the file is set to the specified permission mode, or to one that is less permissive.</p>
GEN005522	The SSH public host key files must have mode 0644 or a mode that is less permissive.	<p>Location /etc/security/psecexpert/dodv2/fpmdodfiles</p> <p>Compliance action Ensures that the files are set to the specified permission mode, or to one that is less permissive.</p>
GEN005523	The SSH private host key files must have mode 0600 or a mode that is less permissive.	<p>Location /etc/security/psecexpert/dodv2/fpmdodfiles</p> <p>Compliance action Ensures that the files are set to the specified permission mode, or to one that is less permissive.</p>
GEN006140	The /usr/lib/smb.conf file must have mode 0644 or a mode that is less permissive.	<p>Location /etc/security/psecexpert/dodv2/fpmdodfiles</p> <p>Compliance action Ensures that the file is set to the specified permission mode, or to one that is less permissive.</p>
GEN006200	The /var/private/smbpasswd file must have mode 0600 or a mode that is less permissive.	<p>Location /etc/security/psecexpert/dodv2/fpmdodfiles</p> <p>Compliance action Ensures that the file is set to the specified permission mode, or to one that is less permissive.</p>

Table 4. DoD standards for file permissions (continued)

Department of Defense STIG checkpoint ID	Description	Location of the script where the action is defined and the results of the action that enables compliance
GEN006260	The /etc/news/hosts.nntp file (or equivalent) must have mode 0600 or a mode that is less permissive.	<p>Location /etc/security/psecexpert/dodv2/fpmdodfiles</p> <p>Compliance action Ensures that the file is set to the specified permission mode, or to one that is less permissive.</p>
GEN006280	The /etc/news/hosts.nntp.nolimit file (or equivalent) must have mode 0600 or a mode that is less permissive.	<p>Location /etc/security/psecexpert/dodv2/fpmdodfiles</p> <p>Compliance action Ensures that the file is set to the specified permission mode, or to one that is less permissive.</p>
GEN006300	The /etc/news/nntp.access file (or equivalent) must have mode 0600 or a mode that is less permissive.	<p>Location /etc/security/psecexpert/dodv2/fpmdodfiles</p> <p>Compliance action Ensures that the file is set to the specified permission mode, or to one that is less permissive.</p>
GEN006320	The /etc/news/passwd.nntp file (or equivalent) must have mode 0600 or a mode that is less permissive.	<p>Location /etc/security/psecexpert/dodv2/fpmdodfiles</p> <p>Compliance action Ensures that the file is set to the specified permission mode, or to one that is less permissive.</p>
GEN008060	If the system is using LDAP for authentication or account information, the /etc/ldap.conf (or equivalent) file must have mode 0644 or less permissive.	<p>Location /etc/security/psecexpert/dodv2/fpmdodfiles</p> <p>Compliance action Ensures that the file is set to the specified permission mode, or to one that is less permissive.</p>
GEN008180	If the system is using LDAP for authentication or account information, the TLS certificate authority file, directory, or both must have mode 0644 (0755 for directories) or less permissive.	<p>Location /etc/security/psecexpert/dodv2/fpmdodfiles</p> <p>Compliance action Ensures that the specified file, directories, or both, are set to the specified permission mode, or to one that is less permissive.</p>

Table 5. DoD access control list (ACL) requirements

Department of Defense STIG checkpoint ID	Description	Location of the script where the action is defined and the results of the action that enables compliance
AIX00110	The /etc/netsvc.conf file must not have an extended access control list (ACL).	<p>Location /etc/security/psecexpert/dodv2/acldodfiles</p> <p>Compliance action Disables the specified extended ACL.</p> <p>Note: This setting is not automatically changed when the policy is reset to the AIX default policy by using the DoDv2_to_AIXDefault.xml file. You must manually change this setting.</p>
AIX00350	The /etc/ftpaccess.ctl file must not have an extended ACL.	<p>Location /etc/security/psecexpert/dodv2/acldodfiles</p> <p>Compliance action Disables the specified extended ACL.</p> <p>Note: This setting is not automatically changed when the policy is reset to the AIX default policy by using the DoDv2_to_AIXDefault.xml file. You must manually change this setting.</p>
GEN000253	The time synchronization configuration file (such as /etc/ntp.conf) must not have an extended ACL.	<p>Location /etc/security/psecexpert/dodv2/acldodfiles</p> <p>Compliance action Disables the specified extended ACL.</p> <p>Note: This setting is not automatically changed when the policy is reset to the AIX default policy by using the DoDv2_to_AIXDefault.xml file. You must manually change this setting.</p>
GEN000930	The root account's home directory must not have an extended ACL.	<p>Location /etc/security/psecexpert/dodv2/acldodfiles</p> <p>Compliance action Disables the specified extended ACL.</p> <p>Note: This setting is not automatically changed when the policy is reset to the AIX default policy by using the DoDv2_to_AIXDefault.xml file. You must manually change this setting.</p>

Table 5. DoD access control list (ACL) requirements (continued)

Department of Defense STIG checkpoint ID	Description	Location of the script where the action is defined and the results of the action that enables compliance
GEN001190	All network services daemon files must not have extended ACLs.	<p>Location /etc/security/psecexpert/dodv2/acldodfiles</p> <p>Compliance action Disables the specified extended ACL.</p> <p>Note: This setting is not automatically changed when the policy is reset to the AIX default policy by using the DoDv2_to_AIXDefault.xml file. You must manually change this setting.</p>
GEN001210	All system command files must not have extended ACLs.	<p>Location /etc/security/psecexpert/dodv2/acldodfiles</p> <p>Compliance action Disables the specified extended ACL.</p> <p>Note: This setting is not automatically changed when the policy is reset to the AIX default policy by using the DoDv2_to_AIXDefault.xml file. You must manually change this setting.</p>
GEN001270	System log files must not have extended ACLs, except as needed to support authorized software.	<p>Location /etc/security/psecexpert/dodv2/acldodfiles</p> <p>Compliance action Disables the specified extended ACL.</p> <p>Note: This setting is not automatically changed when the policy is reset to the AIX default policy by using the DoDv2_to_AIXDefault.xml file. You must manually change this setting.</p>
GEN001310	All library files must not have extended ACLs.	<p>Location /etc/security/psecexpert/dodv2/acldodfiles</p> <p>Compliance action Disables the specified extended ACL.</p> <p>Note: This setting is not automatically changed when the policy is reset to the AIX default policy by using the DoDv2_to_AIXDefault.xml file. You must manually change this setting.</p>

Table 5. DoD access control list (ACL) requirements (continued)

Department of Defense STIG checkpoint ID	Description	Location of the script where the action is defined and the results of the action that enables compliance
GEN001361	NIS/NIS+/yp command files must not have extended ACLs.	<p>Location /etc/security/psecexpert/dodv2/acldodfiles</p> <p>Compliance action Disables the specified extended ACL.</p> <p>Note: This setting is not automatically changed when the policy is reset to the AIX default policy by using the DoDv2_to_AIXDefault.xml file. You must manually change this setting.</p>
GEN001365	The /etc/resolv.conf file must not have an extended ACL.	<p>Location /etc/security/psecexpert/dodv2/acldodfiles</p> <p>Compliance action Disables the specified extended ACL.</p> <p>Note: This setting is not automatically changed when the policy is reset to the AIX default policy by using the DoDv2_to_AIXDefault.xml file. You must manually change this setting.</p>
GEN001369	The /etc/hosts file must not have an extended ACL.	<p>Location /etc/security/psecexpert/dodv2/acldodfiles</p> <p>Compliance action Disables the specified extended ACL.</p> <p>Note: This setting is not automatically changed when the policy is reset to the AIX default policy by using the DoDv2_to_AIXDefault.xml file. You must manually change this setting.</p>
GEN001374	The /etc/nsswitch.conf file must not have an extended ACL.	<p>Location /etc/security/psecexpert/dodv2/acldodfiles</p> <p>Compliance action Disables the specified extended ACL.</p> <p>Note: This setting is not automatically changed when the policy is reset to the AIX default policy by using the DoDv2_to_AIXDefault.xml file. You must manually change this setting.</p>

Table 5. DoD access control list (ACL) requirements (continued)

Department of Defense STIG checkpoint ID	Description	Location of the script where the action is defined and the results of the action that enables compliance
GEN001390	The /etc/passwd file must not have an extended ACL.	<p>Location /etc/security/psecexpert/dodv2/acldodfiles</p> <p>Compliance action Disables the specified extended ACL.</p> <p>Note: This setting is not automatically changed when the policy is reset to the AIX default policy by using the DoDv2_to_AIXDefault.xml file. You must manually change this setting.</p>
GEN001394	The /etc/group file must not have an extended ACL.	<p>Location /etc/security/psecexpert/dodv2/acldodfiles</p> <p>Compliance action Disables the specified extended ACL.</p> <p>Note: This setting is not automatically changed when the policy is reset to the AIX default policy by using the DoDv2_to_AIXDefault.xml file. You must manually change this setting.</p>
GEN001430	The /etc/security/passwd file must not have an extended ACL.	<p>Location /etc/security/psecexpert/dodv2/acldodfiles</p> <p>Compliance action Disables the specified extended ACL.</p> <p>Note: This setting is not automatically changed when the policy is reset to the AIX default policy by using the DoDv2_to_AIXDefault.xml file. You must manually change this setting.</p>
GEN001570	All files and directories that are contained in user home directories must not have extended ACLs.	<p>Location /etc/security/psecexpert/dodv2/acldodfiles</p> <p>Compliance action Disables the specified extended ACL.</p> <p>Note: This setting is not automatically changed when the policy is reset to the AIX default policy by using the DoDv2_to_AIXDefault.xml file. You must manually change this setting.</p>

Table 5. DoD access control list (ACL) requirements (continued)

Department of Defense STIG checkpoint ID	Description	Location of the script where the action is defined and the results of the action that enables compliance
GEN001590	All run control scripts must have no extended ACLs.	<p>Location /etc/security/psecexpert/dodv2/acldodfiles</p> <p>Compliance action Disables the specified extended ACL.</p> <p>Note: This setting is not automatically changed when the policy is reset to the AIX default policy by using the DoDv2_to_AIXDefault.xml file. You must manually change this setting.</p>
GEN001730	All global initialization files must not have extended ACLs.	<p>Location /etc/security/psecexpert/dodv2/acldodfiles</p> <p>Compliance action Disables the specified extended ACL.</p> <p>Note: This setting is not automatically changed when the policy is reset to the AIX default policy by using the DoDv2_to_AIXDefault.xml file. You must manually change this setting.</p>
GEN001810	Skeleton files must not have extended ACLs.	<p>Location /etc/security/psecexpert/dodv2/acldodfiles</p> <p>Compliance action Disables the specified extended ACL.</p> <p>Note: This setting is not automatically changed when the policy is reset to the AIX default policy by using the DoDv2_to_AIXDefault.xml file. You must manually change this setting.</p>
GEN001890	Local initialization files must not have extended ACLs.	<p>Location /etc/security/psecexpert/dodv2/acldodfiles</p> <p>Compliance action Disables the specified extended ACL.</p> <p>Note: This setting is not automatically changed when the policy is reset to the AIX default policy by using the DoDv2_to_AIXDefault.xml file. You must manually change this setting.</p>

Table 5. DoD access control list (ACL) requirements (continued)

Department of Defense STIG checkpoint ID	Description	Location of the script where the action is defined and the results of the action that enables compliance
GEN002230	All shell files must not have extended ACLs	<p>Location /etc/security/psecexpert/dodv2/acldodfiles</p> <p>Compliance action Disables the specified extended ACL.</p> <p>Note: This setting is not automatically changed when the policy is reset to the AIX default policy by using the DoDv2_to_AIXDefault.xml file. You must manually change this setting.</p>
GEN002330	Audio devices must not have extended ACLs.	<p>Location /etc/security/psecexpert/dodv2/acldodfiles</p> <p>Compliance action Disables the specified extended ACL.</p> <p>Note: This setting is not automatically changed when the policy is reset to the AIX default policy by using the DoDv2_to_AIXDefault.xml file. You must manually change this setting.</p>
GEN002710	All system audit files must not have extended ACLs	<p>Location /etc/security/psecexpert/dodv2/acldodfiles</p> <p>Compliance action Disables the specified extended ACL.</p> <p>Note: This setting is not automatically changed when the policy is reset to the AIX default policy by using the DoDv2_to_AIXDefault.xml file. You must manually change this setting.</p>
GEN002990	Extended ACLs should be disabled for the cron.allow and cron.deny files.	<p>Location /etc/security/psecexpert/dodv2/acldodfiles</p> <p>Compliance action Disables the specified extended ACL.</p> <p>Note: This setting is not automatically changed when the policy is reset to the AIX default policy by using the DoDv2_to_AIXDefault.xml file. You must manually change this setting.</p>

Table 5. DoD access control list (ACL) requirements (continued)

Department of Defense STIG checkpoint ID	Description	Location of the script where the action is defined and the results of the action that enables compliance
GEN003090	Crontab files must not have extended ACLs.	<p>Location /etc/security/psecexpert/dodv2/acldodfiles</p> <p>Compliance action Disables the specified extended ACL.</p> <p>Note: This setting is not automatically changed when the policy is reset to the AIX default policy by using the DoDv2_to_AIXDefault.xml file. You must manually change this setting.</p>
GEN003110	Cron and crontab directories must not have extended ACLs.	<p>Location /etc/security/psecexpert/dodv2/acldodfiles</p> <p>Compliance action Disables the specified extended ACL.</p> <p>Note: This setting is not automatically changed when the policy is reset to the AIX default policy by using the DoDv2_to_AIXDefault.xml file. You must manually change this setting.</p>
GEN003190	The cron log files must not have extended ACLs.	<p>Location /etc/security/psecexpert/dodv2/acldodfiles</p> <p>Compliance action Disables the specified extended ACL.</p> <p>Note: This setting is not automatically changed when the policy is reset to the AIX default policy by using the DoDv2_to_AIXDefault.xml file. You must manually change this setting.</p>
GEN003210	The cron.deny file must not have an extended ACL.	<p>Location /etc/security/psecexpert/dodv2/acldodfiles</p> <p>Compliance action Disables the specified extended ACL.</p> <p>Note: This setting is not automatically changed when the policy is reset to the AIX default policy by using the DoDv2_to_AIXDefault.xml file. You must manually change this setting.</p>

Table 5. DoD access control list (ACL) requirements (continued)

Department of Defense STIG checkpoint ID	Description	Location of the script where the action is defined and the results of the action that enables compliance
GEN003245	The <code>at.allow</code> file must not have an extended ACL.	<p>Location <code>/etc/security/psecexpert/dodv2/acldodfiles</code></p> <p>Compliance action Disables the specified extended ACL.</p> <p>Note: This setting is not automatically changed when the policy is reset to the AIX default policy by using the <code>DoDv2_to_AIXDefault.xml</code> file. You must manually change this setting.</p>
GEN003255	The <code>at.deny</code> file must not have an extended ACL.	<p>Location <code>/etc/security/psecexpert/dodv2/acldodfiles</code></p> <p>Compliance action Disables the specified extended ACL.</p> <p>Note: This setting is not automatically changed when the policy is reset to the AIX default policy by using the <code>DoDv2_to_AIXDefault.xml</code> file. You must manually change this setting.</p>
GEN003410	The <code>at</code> directory must not have an extended ACL.	<p>Location <code>/etc/security/psecexpert/dodv2/acldodfiles</code></p> <p>Compliance action Disables the specified extended ACL.</p> <p>Note: This setting is not automatically changed when the policy is reset to the AIX default policy by using the <code>DoDv2_to_AIXDefault.xml</code> file. You must manually change this setting.</p>
GEN003745	The <code>inetd.conf</code> and <code>xinetd.conf</code> files must not have extended ACLs.	<p>Location <code>/etc/security/psecexpert/dodv2/acldodfiles</code></p> <p>Compliance action Disables the specified extended ACL.</p> <p>Note: This setting is not automatically changed when the policy is reset to the AIX default policy by using the <code>DoDv2_to_AIXDefault.xml</code> file. You must manually change this setting.</p>

Table 5. DoD access control list (ACL) requirements (continued)

Department of Defense STIG checkpoint ID	Description	Location of the script where the action is defined and the results of the action that enables compliance
GEN003790	The services file must not have an extended ACL.	<p>Location /etc/security/psecexpert/dodv2/acldodfiles</p> <p>Compliance action Disables the specified extended ACL.</p> <p>Note: This setting is not automatically changed when the policy is reset to the AIX default policy by using the DoDv2_to_AIXDefault.xml file. You must manually change this setting.</p>
GEN003950	The hosts.lpd file (or equivalent) must not have an extended ACL.	<p>Location /etc/security/psecexpert/dodv2/acldodfiles</p> <p>Compliance action Disables the specified extended ACL.</p> <p>Note: This setting is not automatically changed when the policy is reset to the AIX default policy by using the DoDv2_to_AIXDefault.xml file. You must manually change this setting.</p>
GEN004010	The traceroute file must not have an extended ACL.	<p>Location /etc/security/psecexpert/dodv2/acldodfiles</p> <p>Compliance action Disables the specified extended ACL.</p> <p>Note: This setting is not automatically changed when the policy is reset to the AIX default policy by using the DoDv2_to_AIXDefault.xml file. You must manually change this setting.</p>
GEN004390	The alias file must not have an extended ACL.	<p>Location /etc/security/psecexpert/dodv2/acldodfiles</p> <p>Compliance action Disables the specified extended ACL.</p> <p>Note: This setting is not automatically changed when the policy is reset to the AIX default policy by using the DoDv2_to_AIXDefault.xml file. You must manually change this setting.</p>

Table 5. DoD access control list (ACL) requirements (continued)

Department of Defense STIG checkpoint ID	Description	Location of the script where the action is defined and the results of the action that enables compliance
GEN004430	Files that are run through a mail aliases file must not have extended ACLs.	<p>Location /etc/security/psecexpert/dodv2/acldodfiles</p> <p>Compliance action Disables the specified extended ACL.</p> <p>Note: This setting is not automatically changed when the policy is reset to the AIX default policy by using the DoDv2_to_AIXDefault.xml file. You must manually change this setting.</p>
GEN004510	The SMTP service log file must not have an extended ACL.	<p>Location /etc/security/psecexpert/dodv2/acldodfiles</p> <p>Compliance action Disables the specified extended ACL.</p> <p>Note: This setting is not automatically changed when the policy is reset to the AIX default policy by using the DoDv2_to_AIXDefault.xml file. You must manually change this setting.</p>
GEN004950	The ftpusers file must not have an extended ACL.	<p>Location /etc/security/psecexpert/dodv2/acldodfiles</p> <p>Compliance action Disables the specified extended ACL.</p> <p>Note: This setting is not automatically changed when the policy is reset to the AIX default policy by using the DoDv2_to_AIXDefault.xml file. You must manually change this setting.</p>
GEN005190	The .Xauthority files must not have extended ACLs.	<p>Location /etc/security/psecexpert/dodv2/acldodfiles</p> <p>Compliance action Disables the specified extended ACL.</p> <p>Note: This setting is not automatically changed when the policy is reset to the AIX default policy by using the DoDv2_to_AIXDefault.xml file. You must manually change this setting.</p>

Table 5. DoD access control list (ACL) requirements (continued)

Department of Defense STIG checkpoint ID	Description	Location of the script where the action is defined and the results of the action that enables compliance
GEN005350	Management Information Base (MIB) files must not have extended ACLs.	<p>Location <code>/etc/security/psecexpert/dodv2/acldodfiles</code></p> <p>Compliance action Disables the specified extended ACL.</p> <p>Note: This setting is not automatically changed when the policy is reset to the AIX default policy by using the <code>DoDv2_to_AIXDefault.xml</code> file. You must manually change this setting.</p>
GEN005375	The <code>snmpd.conf</code> file must not have an extended ACL	<p>Location <code>/etc/security/psecexpert/dodv2/acldodfiles</code></p> <p>Compliance action Disables the specified extended ACL.</p> <p>Note: This setting is not automatically changed when the policy is reset to the AIX default policy by using the <code>DoDv2_to_AIXDefault.xml</code> file. You must manually change this setting.</p>
GEN005395	The <code>/etc/syslog.conf</code> file must not have an extended ACL.	<p>Location <code>/etc/security/psecexpert/dodv2/acldodfiles</code></p> <p>Compliance action Disables the specified extended ACL.</p> <p>Note: This setting is not automatically changed when the policy is reset to the AIX default policy by using the <code>DoDv2_to_AIXDefault.xml</code> file. You must manually change this setting.</p>
GEN006150	The <code>/usr/lib/smb.conf</code> file must not have an extended ACL.	<p>Location <code>/etc/security/psecexpert/dodv2/acldodfiles</code></p> <p>Compliance action Disables the specified extended ACL.</p> <p>Note: This setting is not automatically changed when the policy is reset to the AIX default policy by using the <code>DoDv2_to_AIXDefault.xml</code> file. You must manually change this setting.</p>

Table 5. DoD access control list (ACL) requirements (continued)

Department of Defense STIG checkpoint ID	Description	Location of the script where the action is defined and the results of the action that enables compliance
GEN006210	The /var/private/smbpasswd file must not have an extended ACL.	<p>Location /etc/security/psecexpert/dodv2/acldodfiles</p> <p>Compliance action Disables the specified extended ACL.</p> <p>Note: This setting is not automatically changed when the policy is reset to the AIX default policy by using the DoDv2_to_AIXDefault.xml file. You must manually change this setting.</p>
GEN006270	The /etc/news/hosts.nntp file must not have an extended ACL.	<p>Location /etc/security/psecexpert/dodv2/acldodfiles</p> <p>Compliance action Disables the specified extended ACL.</p> <p>Note: This setting is not automatically changed when the policy is reset to the AIX default policy by using the DoDv2_to_AIXDefault.xml file. You must manually change this setting.</p>
GEN006290	The /etc/news/hosts.nntp.nolimit file must not have an extended ACL.	<p>Location /etc/security/psecexpert/dodv2/acldodfiles</p> <p>Compliance action Disables the specified extended ACL.</p> <p>Note: This setting is not automatically changed when the policy is reset to the AIX default policy by using the DoDv2_to_AIXDefault.xml file. You must manually change this setting.</p>
GEN006310	The /etc/news/nntp.access file must not have an extended ACL.	<p>Location /etc/security/psecexpert/dodv2/acldodfiles</p> <p>Compliance action Disables the specified extended ACL.</p> <p>Note: This setting is not automatically changed when the policy is reset to the AIX default policy by using the DoDv2_to_AIXDefault.xml file. You must manually change this setting.</p>

Table 5. DoD access control list (ACL) requirements (continued)		
Department of Defense STIG checkpoint ID	Description	Location of the script where the action is defined and the results of the action that enables compliance
GEN006330	The /etc/news/passwd.nntp file must not have an extended ACL.	<p>Location /etc/security/psccexpert/dodv2/acldodfiles</p> <p>Compliance action Disables the specified extended ACL.</p> <p>Note: This setting is not automatically changed when the policy is reset to the AIX default policy by using the DoDv2_to_AIXDefault.xml file. You must manually change this setting.</p>
GEN008120	If the system is using LDAP for authentication or account information, the /etc/ldap.conf (or equivalent) file must not have an extended access control list (ACL).	<p>Location /etc/security/psccexpert/dodv2/acldodfiles</p> <p>Compliance action Ensures that the specified files do not have an extended ACL.</p> <p>Note: This setting is not automatically changed when the policy is reset to the AIX default policy by using the DoDv2_to_AIXDefault.xml file. You must manually change this setting.</p>
GEN008200	If the system is using LDAP for authentication or account information, the LDAP TLS certificate authority file or directory (as appropriate) must not have an extended ACL.	<p>Location /etc/security/psccexpert/dodv2/acldodfiles</p> <p>Compliance action Ensures that the specified directory or file does not have an extended ACL.</p> <p>Note: This setting is not automatically changed when the policy is reset to the AIX default policy by using the DoDv2_to_AIXDefault.xml file. You must manually change this setting.</p>

Payment Card Industry - Data Security Standard (PCI-DSS) compliance for AIX and Linux

The Payment Card Industry - Data Security Standard (PCI - DSS) categorizes IT security into 12 sections that are called the 12 requirements and security assessment procedures. These requirements apply to both AIX and Linux compliance profiles.

The 12 requirements and security assessment procedures of IT security that are defined by PCI - DSS include the following items:

Requirement 1: Install and maintain a firewall configuration to protect the data of the cardholder.

Documented list of services and ports necessary for business. This requirement is implemented by disabling unnecessary and insecure services.

Requirement 2: Do not use vendor-supplied defaults for system passwords and other security parameters.

Always change vendor-supplied defaults before you install a system on the network. This requirement is implemented by disabling the Simple Network Management Protocol (SNMP) daemon.

Requirement 3: Protect the stored data of the cardholder.

This requirement is implemented by enabling the Encrypted File System (EFS) feature that is provided with the AIX operating system.

Requirement 4: Encrypt the data of the cardholder when you transmit the data across open public networks.

This requirement is implemented by enabling the IP Security (IPSEC) feature that is provided with the AIX operating system.

Requirement 5: Use and regularly update anti-virus software programs.

This requirement is implemented by using the Trusted Execution policy program. Trusted Execution is the recommended anti-virus software, and it is native to the AIX operating system. PCI requires that you capture the logs from the Trusted Execution program by enabling security information and event management (SIEM) to monitor the alerts. By running the Trusted Execution program in log-only mode, it does not stop the checks when an error is caused by a hash mismatch.

Requirement 6: Develop and maintain secure systems and applications.

To implement this requirement, you must install the required patches to your system manually. If you purchased PowerSC Standard Edition, you can use the Trusted Network Connect (TNC) feature.

Requirement 7: Restrict access to the cardholder data, by business need to know.

You can implement strong access control measures by using the RBAC feature to enable rules and roles. RBAC cannot be automated because it requires the input of an administrator to be enabled.

The RbacEnablement checks the system to determine whether the isso, so, and sa properties for the roles exist on the system. If these properties do not exist, the script creates them. This script is also run as part of the pscexpert checks that it completes when it is running commands, such as the pscexpert -c command.

Requirement 8: Assign a unique ID to each person who has access to the computer.

You can implement this requirement by enabling PCI profiles. The following rules apply to PCI profile:

- Change user passwords at least every 90 days.
- Require a minimum password length of 7 characters.
- Use a password that contains both numerals and alphabetic characters.
- Do not allow an individual to submit a new password that is the same as the previous four passwords that were used.
- Limit repeated access attempts by locking out the user ID after six unsuccessful attempts.
- Set the lockout duration to 30 minutes, or until an administrator re-enables the user ID.
- Require a user to reenter a password to reactivate a terminal after it is idle for 15 minutes or longer.

Requirement 9: Restrict physical access to the data of the cardholder.

Store repositories that contain sensitive cardholder data in an access-restricted room.

Requirement 10: Track and monitor all access to network resources and to the cardholder data.

This requirement is implemented by logging access to the system components by enabling the automatic logs on the system components.

Requirement 11: Regularly test the security systems and processes.

This requirement is implemented by using the Real-Time Compliance feature.

Requirement 12: Maintain a security policy that includes information security for employees and contractors.

Activation of modems for vendors only when needed by vendors with immediate deactivation after use. This requirement is implemented by disabling remote root login, activating on a needed basis by a system administrator, and then deactivating when it is no longer needed.

PowerSC Standard Edition reduces the configuration management that is required to meet the guidelines that are defined by PCI DSS version 3.0. However, the entire process cannot be automated.

For example, restricting access to the data of the cardholder based on the business requirement cannot be automated. The AIX operating system provides strong security technologies, such as Role Based Access Control (RBAC); however, PowerSC Standard Edition cannot automate this configuration because it cannot determine the individuals who require access and the individuals who do not. IBM Compliance Expert can automate the configuration of other security settings that are consistent with the PCI requirements.

When the PCI profile is applied to a database environment, several TCP and UDP ports that are used by the software stack are disabled by restrictions. You must enable these ports and disable the Trusted Execution function to run the application and workload. Run the following commands to remove the restrictions on the ports and disable the Trusted Execution function:

```
trustchk -p TE=OFF
tcptr -delete 9091 65535
tcptr -delete 9090 9090
tcptr -delete 112 9089
tcptr -add 9091 65535 1024 1
```

Note: All of the custom script files that are provided to maintain PCI - DSS compliance are in the /etc/security/psccexpert/bin directory.

Related information

[Payment Card Industry - Data Security Standard compliance](#)

Payment Card Industry DSS compliance for AIX

This table contains the settings that implement the PCI DSS version 3.0 compliance standard for AIX.

Table 6. Settings related to the PCI DSS compliance version 3.0 standards for AIX			
Implements these PCI DSS standards	Implementation specification	The AIX Security Expert implementation	Location of the script that modifies the value
1.2	Protect unauthorized access to unused ports.	Configures the system to shun the hosts for 5 minutes to prevent other systems from accessing unused ports.	/etc/security/psccexpert/bin/ipsecshunhostls Note: You can enter additional filter rules in the /etc/security/aixpert/bin/filter.txt file. These rules are integrated by the ipsecshunhostls.sh script when you apply the profile. The entries should be in the following format: <pre>port_number:ip_address: action</pre> where the possible values for <i>action</i> are Allow or Deny.

Table 6. Settings related to the PCI DSS compliance version 3.0 standards for AIX (continued)

Implements these PCI DSS standards	Implementation specification	The AIX Security Expert implementation	Location of the script that modifies the value
1.2	Protect the host from port scans.	Configures the system to shun vulnerable ports for 5 minutes, which prevents port scans.	/etc/security/psccexpert/bin/ipsecshunports Note: You can enter additional filter rules in the /etc/security/aixpert/bin/filter.txt file. These rules are integrated by the ipsecshunhosthls.sh script when you apply the profile. The entries should be in the following format: <pre>port_number:ip_address: action</pre> where the possible values for <i>action</i> are Allow or Deny.
1.3.5	Limit traffic access to cardholder information.	Sets the TCP traffic regulation to its high setting, which enforces denial-of-service mitigation on ports.	/etc/security/psccexpert/bin/tcptr_pscexpert
1.3.5	Maintain a secure connection when migrating data.	Enables automated IP Security (IPSec) tunnel creation between Virtual I/O Servers during live partition migration.	/etc/security/psccexpert/bin/cfgsecmig
1.3.5	Limit packets from unknown sources.	Allows the packets from the Hardware Management Console.	/etc/security/psccexpert/bin/ipsecpermithostorport
2.1	Always change vendor-supplied defaults before installing a system on the network. For example, include passwords, simple network management protocol community strings, and eliminate unnecessary accounts.	Sets the number of weeks that an account with an expired password remains in the system to 8 weeks by setting the maxexpired parameter to a value of 8.	/etc/security/psccexpert/bin/chusrattr

Table 6. Settings related to the PCI DSS compliance version 3.0 standards for AIX (continued)

Implements these PCI DSS standards	Implementation specification	The AIX Security Expert implementation	Location of the script that modifies the value
2.1	Always change vendor-supplied defaults before installing a system on the network. For example, include passwords, simple network management protocol community strings, and eliminate unnecessary accounts.	Sets the maximum number of times that a character can be repeated in a password to 8 by setting the maxrepeats parameter to a value of 8. This setting indicates that a character in a password can be repeated an unlimited number of times when it conforms to the other password limitations.	/etc/security/psccexpert/bin/chusrattr
2.1	Change vendor-supplied defaults before installing a system on the network, which includes disabling the netstat command.	Disables the netstat command by commenting out the corresponding entry in the /etc/inetd.conf file.	/etc/security/psccexpert/bin/cominetdconf
2.1.1	Change the vendor-supplied defaults before installing a system on the network, which includes disabling the SNMP daemon.	Stops the SNMP daemon and comments out the corresponding entry in the /etc/rc.tcpip file that automatically starts the daemon.	/etc/security/psccexpert/bin/rctcpip
2.1.1	Change vendor-supplied defaults before installing a system on the network, which includes disabling the SNMPMIBD daemon.	Disables the SNMPMIBD daemon by commenting out the corresponding entry in the /etc/rc.tcpip file that automatically starts the daemon.	/etc/security/psccexpert/bin/rctcpip
2.1	Change vendor-supplied defaults before installing a system on the network, which includes disabling the AIXMIBD daemon.	Disables the AIXMIBD daemon by commenting out the corresponding entry in the /etc/rc.tcpip file that automatically starts the daemon.	/etc/security/psccexpert/bin/rctcpip

Table 6. Settings related to the PCI DSS compliance version 3.0 standards for AIX (continued)

Implements these PCI DSS standards	Implementation specification	The AIX Security Expert implementation	Location of the script that modifies the value
2.1.1	Change vendor-supplied defaults before installing a system on the network, which includes disabling the HOSTMIBD daemon.	Disables the HOSTMIBD daemon by commenting out the corresponding entry in the /etc/rc.tcpip file that automatically starts the daemon.	/etc/security/psccexpert/bin/rctcpip
2.2.2	Disable unnecessary and insecure services, which include the lpd daemon.	Stops the lpd daemon and comments out the corresponding entry in the /etc/rc.tcpip file that automatically starts the daemon.	/etc/security/psccexpert/bin/comntrows
2.2.2	Disable unnecessary and insecure services, which include the Common Desktop Environment (CDE).	Disables the CDE function when the layer four traceroute (LFT) is not configured.	/etc/security/psccexpert/bin/comntrows
2.2.2	Disable unnecessary and insecure services, which include the timed daemon.	Stops the timed daemon and comments out the corresponding entry in the /etc/rc.tcpip file that automatically starts the daemon.	/etc/security/psccexpert/bin/rctcpip
2.2.2	Disable unnecessary and insecure services, which include the rwhod daemon.	Stops the rwhod daemon and comments out the corresponding entry in the /etc/rc.tcpip file that automatically starts the daemon.	/etc/security/psccexpert/bin/rctcpip
2.2.2	Disable unnecessary and insecure services, which include the DPID2 daemon.	Stops the DPID2 daemon and comments out the corresponding entry in the /etc/rc.tcpip file that automatically starts the daemon.	/etc/security/psccexpert/bin/rctcpip
2.2.2	Change vendor-supplied defaults before installing a system on the network, which includes stopping the DHCP server.	Disables the DHCP server.	/etc/security/psccexpert/bin/rctcpip

Table 6. Settings related to the PCI DSS compliance version 3.0 standards for AIX (continued)

Implements these PCI DSS standards	Implementation specification	The AIX Security Expert implementation	Location of the script that modifies the value
2.2.2	Disable unnecessary and insecure services, which include the DHCP agent.	Stops and disables the DHCP relay agent and comments out the corresponding entry in the <code>/etc/rc.tcpip</code> file that automatically starts the agent.	<code>/etc/security/psccexpert/bin/rctcpip</code>
2.2.2	Disable unnecessary and insecure services, which include the rshd daemon.	Stops and disables all instances of the rshd daemon and the shell service, and comments out the corresponding entries in the <code>/etc/inetd.conf</code> file that automatically start the instances.	<code>/etc/security/psccexpert/bin/cominetdconf</code>
2.2.2	Disable unnecessary and insecure services, which include the rlogind daemon.	Stops and disables all instances of the rlogind daemon and rlogin service. The AIX Security Expert utility also comments out the corresponding entries in the <code>/etc/inetd.conf</code> file that automatically start the instances.	<code>/etc/security/psccexpert/bin/cominetdconf</code>
2.2.2	Disable unnecessary and insecure services, which include the rexecd daemon.	Stops and disables all instances of the rexecd daemon. The AIX Security Expert utility also comments out the corresponding entry in the <code>/etc/inetd.conf</code> file that automatically starts the daemon.	<code>/etc/security/psccexpert/bin/cominetdconf</code>
2.2.2	Disable unnecessary and insecure services, which include the comsat daemon.	Stops and disables all instances of the comsat daemon. The AIX Security Expert utility also comments out the corresponding entry in the <code>/etc/inetd.conf</code> file that automatically starts the daemon.	<code>/etc/security/psccexpert/bin/cominetdconf</code>

Table 6. Settings related to the PCI DSS compliance version 3.0 standards for AIX (continued)

Implements these PCI DSS standards	Implementation specification	The AIX Security Expert implementation	Location of the script that modifies the value
2.2.2	Disable unnecessary and insecure services, which include the fingerd daemon.	Stops and disables all instances of the fingerd daemon. The AIX Security Expert utility also comments out the corresponding entry in the /etc/inetd.conf file that automatically starts the daemon.	/etc/security/psccexpert/bin/cominetdconf
2.2.2	Disable unnecessary and insecure services, which include the systat daemon.	Stops and disables all instances of the systat daemon. The AIX Security Expert utility also comments out the corresponding entry in the /etc/inetd.conf file that automatically starts the daemon.	/etc/security/psccexpert/bin/cominetdconf
2.2.2	Disable unnecessary and insecure services, which include the tftp daemon.	Stops and disables all instances of the tftp daemon. The AIX Security Expert utility also comments out the corresponding entry in the /etc/inetd.conf file that automatically starts the daemon.	/etc/security/psccexpert/bin/cominetdconf
2.2.2	Disable unnecessary and insecure services, which include the talkd daemon.	Stops and disables all instances of the talkd daemon. The AIX Security Expert utility also comments out the corresponding entry in the /etc/inetd.conf file that automatically starts the daemon.	/etc/security/psccexpert/bin/cominetdconf
2.2.2	Disable unnecessary and insecure services, which include the rquotad daemon.	Stops and disables all instances of the rquotad daemon. The AIX Security Expert utility also comments out the corresponding entry in the /etc/inetd.conf file that automatically starts the daemon.	/etc/security/psccexpert/bin/cominetdconf

Table 6. Settings related to the PCI DSS compliance version 3.0 standards for AIX (continued)

Implements these PCI DSS standards	Implementation specification	The AIX Security Expert implementation	Location of the script that modifies the value
2.2.2	Disable unnecessary and insecure services, which include the rstatd daemon.	Stops and disables all instances of the rstatd daemon. The AIX Security Expert utility also comments out the corresponding entry in the /etc/inetd.conf file that automatically starts the daemon.	/etc/security/pscxpert/bin/cominetdconf
2.2.2	Disable unnecessary and insecure services, which include the rusersd daemon.	Stops and disables all instances of the rusersd daemon. The AIX Security Expert utility also comments out the corresponding entry in the /etc/inetd.conf file that automatically starts the daemon.	/etc/security/pscxpert/bin/cominetdconf
2.2.2	Disable unnecessary and insecure services, which include the rwall daemon.	Stops and disables all instances of the rwall daemon. The AIX Security Expert utility also comments out the corresponding entry in the /etc/inetd.conf file that automatically starts the daemon.	/etc/security/pscxpert/bin/cominetdconf
2.2.2	Disable unnecessary and insecure services, which include the sprayd daemon.	Stops and disables all instances of the sprayd daemon. The AIX Security Expert utility also comments out the corresponding entry in the /etc/inetd.conf file that automatically starts the daemon.	/etc/security/pscxpert/bin/cominetdconf
2.2.2	Disable unnecessary and insecure services, which include the pcnfsd daemon.	Stops and disables all instances of the pcnfsd daemon. The AIX Security Expert utility also comments out the corresponding entry in the /etc/inetd.conf file that automatically starts the daemon.	/etc/security/pscxpert/bin/cominetdconf

Table 6. Settings related to the PCI DSS compliance version 3.0 standards for AIX (continued)

Implements these PCI DSS standards	Implementation specification	The AIX Security Expert implementation	Location of the script that modifies the value
2.2.2	Disable unnecessary and insecure services, which include the TCP echo service.	Stops and disables all instances of the echo(tcp) service. The AIX Security Expert utility also comments out the corresponding entry in the /etc/inetd.conf file that automatically starts the service.	/etc/security/pscxpert/bin/cominetdconf
2.2.2	Disable unnecessary and insecure services, which include the TCP discard service.	Stops and disables all instances of the discard(tcp) service. The AIX Security Expert utility also comments out the corresponding entry in the /etc/inetd.conf file that automatically starts the service.	/etc/security/pscxpert/bin/cominetdconf
2.2.2	Disable unnecessary and insecure services, which include the TCP chargen service.	Stops and disables all instances of the chargen(tcp) service. The AIX Security Expert utility also comments out the corresponding entry in the /etc/inetd.conf file that automatically starts the service.	/etc/security/pscxpert/bin/cominetdconf
2.2.2	Disable unnecessary and insecure services, which include the TCP daytime service.	Stops and disables all instances of the daytime(tcp) service. The AIX Security Expert utility also comments out the corresponding entry in the /etc/inetd.conf file that automatically starts the service.	/etc/security/pscxpert/bin/cominetdconf

Table 6. Settings related to the PCI DSS compliance version 3.0 standards for AIX (continued)

Implements these PCI DSS standards	Implementation specification	The AIX Security Expert implementation	Location of the script that modifies the value
2.2.2	Disable unnecessary and insecure services, which include the TCP time service.	Stops and disables all instances of the <code>timed(tcp)</code> service. The AIX Security Expert utility also comments out the corresponding entry in the <code>/etc/inetd.conf</code> file that automatically starts the service.	<code>/etc/security/psccexpert/bin/cominetdconf</code>
2.2.2	Disable unnecessary and insecure services, which include the UDP echo service.	Stops and disables all instances of the <code>echo(udp)</code> service. The AIX Security Expert utility also comments out the corresponding entry in the <code>/etc/inetd.conf</code> file that automatically starts the service.	<code>/etc/security/psccexpert/bin/cominetdconf</code>
2.2.2	Disable unnecessary and insecure services, which include the UDP discard service.	Stops and disables all instances of the <code>discard(udp)</code> service. The AIX Security Expert utility also comments out the corresponding entry in the <code>/etc/inetd.conf</code> file that automatically starts the service.	<code>/etc/security/psccexpert/bin/cominetdconf</code>
2.2.2	Disable unnecessary and insecure services, which include the UDP chargen service.	Stops and disables all instances of the <code>chargen(udp)</code> service. The AIX Security Expert utility also comments out the corresponding entry in the <code>/etc/inetd.conf</code> file that automatically starts the service.	<code>/etc/security/psccexpert/bin/cominetdconf</code>

Table 6. Settings related to the PCI DSS compliance version 3.0 standards for AIX (continued)

Implements these PCI DSS standards	Implementation specification	The AIX Security Expert implementation	Location of the script that modifies the value
2.2.2	Disable unnecessary and insecure services, which include the UDP daytime service.	Stops and disables all instances of the daytime(udp) service. The AIX Security Expert utility also comments out the corresponding entry in the /etc/inetd.conf file that automatically starts the service.	/etc/security/pscxpert/bin/cominetdconf
2.2.2	Disable unnecessary and insecure services, which include the UDP time service.	Stops and disables all instances of the timed(udp) service. The AIX Security Expert utility also comments out the corresponding entry in the /etc/inetd.conf file that automatically starts the service.	/etc/security/pscxpert/bin/cominetdconf
2.2.2	Disable unnecessary and insecure services, which include dtspc.	Stops and disables all instances of the dtspc daemon. The AIX Security Expert also comments out the corresponding entry in the /etc/inittab file that automatically starts the daemon when the LFT is not configured and the CDE is disabled in the /etc/inittab file.	/etc/security/pscxpert/bin/cominetdconf
2.2.2	Disable unnecessary and insecure services, which include the ttldbserver service.	Stops and disables all instances of the ttldbserver service. The AIX Security Expert utility also comments out the corresponding entry in the /etc/inetd.conf file that automatically starts the service.	/etc/security/pscxpert/bin/cominetdconf

Table 6. Settings related to the PCI DSS compliance version 3.0 standards for AIX (continued)

Implements these PCI DSS standards	Implementation specification	The AIX Security Expert implementation	Location of the script that modifies the value
2.2.2	Disable unnecessary and insecure services, which include the cmsd service.	Stops and disables all instances of the cmsd service. The AIX Security Expert utility also comments out the corresponding entry in the /etc/inetd.conf file that automatically starts the service.	/etc/security/psccexpert/bin/cominetdconf
2.2.3	Disable unnecessary and insecure services, which include the FTP service.	Stops and disables all instances of the ftpd daemon. The AIX Security Expert utility also comments out the corresponding entry in the /etc/inetd.conf file that automatically starts the daemon.	/etc/security/psccexpert/bin/cominetdconf
2.2.3	Disable unnecessary and insecure services, which include the telnet service.	Stops and disables all instances of the telnetd daemon. The AIX Security Expert utility also comments out the corresponding entry in the /etc/inetd.conf file that automatically starts the daemon.	/etc/security/psccexpert/bin/cominetdconf
2.2.3	Enable only necessary and secure services, protocols, daemons, and so on, as required for the correct function of the system. Implement security features for any required services, protocols or daemons that are considered to be insecure.	Disables the rlogind, rshd, rcpand tftpd commands, which are not secure.	/etc/security/psccexpert/bin/disrmtcmds

Table 6. Settings related to the PCI DSS compliance version 3.0 standards for AIX (continued)

Implements these PCI DSS standards	Implementation specification	The AIX Security Expert implementation	Location of the script that modifies the value
2.2.3	Enable only necessary and secure services, protocols, daemons, and so on, as required for the correct function of the system. Implement security features for any required services, protocols or daemons that are considered to be insecure.	Disables the <code>rlogind</code> , <code>rshd</code> , and <code>tftpd</code> daemons, which are not secure.	<code>/etc/security/psccexpert/bin/disrmtdmns</code>
2.2.3	Implement stateful inspection, or packet filtering, in which only established connections are allowed on the network.	Enables the network clean_partial_conns option by setting its value to 1.	<code>/etc/security/psccexpert/bin/ntwkopts</code>
2.2.3	Implement stateful inspection, or packet filtering, in which only established connections are allowed on the network.	Enables TCP security by setting the network tcp_tcpsecure option to a value of 7. This setting provides protection against data, reset (RST), and TCP connection request (SYN) attacks.	<code>/etc/security/psccexpert/bin/ntwkopts</code>
2.2.3	Enable only necessary and secure services, protocols, daemons, and so on, as required for the correct function of the system. Implement security features for any required services, protocols or daemons that are considered to be insecure.	Disables the <code>rlogind</code> , <code>rshd</code> , and <code>tftpd</code> daemons, which are not secure.	<code>/etc/security/psccexpert/bin/imrhostsnetrc</code>

Table 6. Settings related to the PCI DSS compliance version 3.0 standards for AIX (continued)

Implements these PCI DSS standards	Implementation specification	The AIX Security Expert implementation	Location of the script that modifies the value
2.2.3	Enable only necessary and secure services, protocols, daemons, and so on, as required for the correct function of the system. Implement security features for any required services, protocols or daemons that are considered to be insecure.	Disables the logind, rshd, and tftpdpci_rmetchost sequiv daemons, which are not secure.	/etc/security/psccexpert/bin/rmetchostsequiv
2.2.3	Disable Secure Sockets Layer (SSL) v3 and Transport Layer Security (TLS) v1.0 in applications.	Disable SSLv3 and TLS v1.0 versions in Courier POP3 server (Pop3d) configuration.	/etc/security/psccexpert/bin/disableSSL
3.3.3	Disable SSL v3 and TLS v1.0 in applications.	Disable SSLV3 and TLS v1.0 in the Courier IMAP server (imapd).	/etc/security/psccexpert/bin/disableSSL
2.2.3	Disable SSL v3 and TLS v1.0 in applications.	Check the Network Time Protocol (NTP) configuration file for TLS 1.1, or later security adoption.	/etc/security/psccexpert/bin/checkNTP
2.2.3	Disable SSL v3 and TLS v1.0 in applications.	Check the File Transfer Protocol Daemon (FTPD) configuration file for TLS 1.1, or later security adoption.	/etc/security/psccexpert/bin/secureFTP
2.2.3	Disable SSL v3 and TLS v1.0 in applications.	Check the File Transfer Protocol Client (FTP) configuration file for TLS 1.1, or later security adoption.	/etc/security/psccexpert/bin/secureFTP
2.2.3	Disable SSL v3 and TLS v1.0 in applications.	Disable SSLv3 and TLS v1.0 in sendmail configuration.	/etc/security/psccexpert/bin/sendmailPCIConfig
2.2.3	Disable SSL v3 and TLS v1.0 in applications.	Check whether the SSL version on AIX is greater than 1.0.2.	/etc/security/psccexpert/bin/sslversion

Table 6. Settings related to the PCI DSS compliance version 3.0 standards for AIX (continued)

Implements these PCI DSS standards	Implementation specification	The AIX Security Expert implementation	Location of the script that modifies the value
2.2.4	Configure system security parameters to prevent misuse.	Removes the Set User ID (SUID) commands by commenting out the corresponding entry in the /etc/inetd.conf file that automatically enables the commands.	/etc/security/psccexpert/bin/rmsuidfrmcmds
2.2.4	Configure system security parameters to prevent misuse.	Enables the lowest security level for the File Permissions Manager.	/etc/security/psccexpert/bin/filepermgr
2.2.4	Configure system security parameters to prevent misuse.	Modifies the Network File System protocol with restricted settings that conform to the PCI security requirements. These restricted settings include disabling remote root access and anonymous UID and GID access.	/etc/security/psccexpert/bin/nfsconfig
2.2.3	Implement more security features for any required services, protocols, or daemons that are considered to be insecure.	Check if SSH filesets are installed. Start the SSHD daemon if it is not started and configure to start the SSHD daemon at every reboot.	/etc/security/psccexpert/bin/sshstart
2.2.3	Implement more security features for any required services, protocols, or daemons that are considered to be insecure.	Uses secured technologies such as Secure Shell (SSH), SSH File Transfer Protocol (SFTP), Secure Sockets Layer (SSL), or Internet Protocol Security Virtual Private Network (IPsec VPN) to protect insecure services such as NetBIOS, file-sharing, Telnet, and FTP. It also configures the SSH daemon to use only the SSHv2 protocol.	/etc/security/psccexpert/bin/sshPCIconfig
2.2.3	The SSH Client must be configured to use only the SSHv2 protocol.	Configures the SSH client to use the SSHv2 protocol.	/etc/security/psccexpert/bin/sshPCIconfig

Table 6. Settings related to the PCI DSS compliance version 3.0 standards for AIX (continued)

Implements these PCI DSS standards	Implementation specification	The AIX Security Expert implementation	Location of the script that modifies the value
2.3	The SSH daemon must listen only on management network addresses unless it is authorized for uses other than management.	Ensures that the SSH daemon is set up only to listen.	/etc/security/psccexpert/bin/sshPCIconfig
2.3	The SSH daemon must be configured to use only FIPS 140-2 approved ciphers	Ensures that the SSH daemon uses only the FIPS 140-2 ciphers.	/etc/security/psccexpert/bin/sshPCIconfig
2.3	The SSH daemon must be configured to use only Message Authentication Codes (MACs) that employ FIPS 140-2 approved cryptographic hash algorithms.	Ensures that the MACs are running the approved algorithms.	/etc/security/psccexpert/bin/sshPCIconfig
2.3	The SSH client must be configured to use only FIPS 140-2 approved ciphers	Ensures that the SSH client uses only the FIPS 140-2 ciphers.	/etc/security/psccexpert/bin/sshPCIconfig
2.3	The SSH client must be configured to use only Message Authentication Codes (MACs) that employ FIPS 140-2 approved cryptographic hash algorithms.	Ensures that the MACs are running the approved algorithms.	/etc/security/psccexpert/bin/sshPCIconfig
2.3	The SSH daemon must restrict login ability to specific users or groups.	Restricts login on the system to specific users and groups.	/etc/security/psccexpert/bin/sshPCIconfig
2.3	The system must display the date and time of the last successful account login upon login.	Maintains the information from the last successful login, and displays it after the next successful login.	/etc/security/psccexpert/bin/sshPCIconfig

Table 6. Settings related to the PCI DSS compliance version 3.0 standards for AIX (continued)

Implements these PCI DSS standards	Implementation specification	The AIX Security Expert implementation	Location of the script that modifies the value
2.3	The SSH daemon must complete strict mode checking of home directory configuration files.	Ensures that the home directory configuration files are set to the correct modes.	/etc/security/psccexpert/bin/sshPCIconfig
2.3	The SSH daemon must use privilege separation.	Ensures that the SSH daemon has the correct amount of separation of its privileges.	/etc/security/psccexpert/bin/sshPCIconfig
2.3	The SSH daemon must not allow rhosts to have RSA authentication.	Disables RSA authentication for rhosts when you are using the SSH daemon.	/etc/security/psccexpert/bin/sshPCIconfig
2.3	The SSH daemon must not allow compression.	The SSH daemon must not allow compression or must only allow compression after successful authentication.	/etc/security/psccexpert/bin/sshPCIconfig
5.1.1	Maintain antivirus software.	Maintains the system integrity by detecting, removing, and protecting against known types of malicious software.	/etc/security/psccexpert/bin/manageITsecurity
6.5.8	Remove dot from the path root.	Removes the dots from the PATH environment variable in the following files that are located in the root home directory: <ul style="list-style-type: none"> • .cshrc • .kshrc • .login • .profile 	/etc/security/psccexpert/bin/rmdotfmrpthroot
6.5.8	Remove dot from the non-root path:	Removes the dots from the PATH environment variable in the following files that are in the user home directory: <ul style="list-style-type: none"> • .cshrc • .kshrc • .login • .profile 	/etc/security/psccexpert/bin/rmdotfmrpthroot

Table 6. Settings related to the PCI DSS compliance version 3.0 standards for AIX (continued)

Implements these PCI DSS standards	Implementation specification	The AIX Security Expert implementation	Location of the script that modifies the value
7	Maintain access on an as needed basis.	Enable role-based access control (RBAC) by creating system operator, system administrator, and information system security officer user roles with the required permissions.	/etc/security/psccexpert/bin/EnableRbac
7.1.1	Limit object creation permissions.	Sets the default object creation permissions to 22 by setting the umask parameter to a value of 22.	/etc/security/psccexpert/bin/chusrattr
7.1.1	Limit system access.	Ensures that the root ID is the only one that is listed in the <code>cron.allow</code> file and removes the <code>cron.deny</code> file from the system.	/etc/security/psccexpert/bin/limitsysacc
8.1.1	Assign all users a unique ID before allowing them to access system components or cardholder data.	Identify all users with a unique user name before allowing them to access system components or card holder data.	/etc/security/psccexpert/bin/chuserstanza
8.1.4	Disable a user account when not in use.	Disables user accounts after 90 days of inactivity.	/etc/security/psccexpert/bin/disableacctpci
8.1.6	Limit repeated access attempts by locking out the user ID after not more than six attempts.	Sets the number of consecutive unsuccessful login attempts that disables an account to 6 attempts for each non-root account by setting the loginentries parameter to a value of 6.	/etc/security/psccexpert/bin/chusrattr
8.1.6	Limit repeated access attempts by locking out the user ID after not more than six attempts.	Sets the number of consecutive unsuccessful login attempts that disables a port to 6 attempts by setting the logindisable parameter to a value of 6.	<ul style="list-style-type: none"> • /etc/security/psccexpert/bin/chdefstanza • /etc/security/login.cfg

Table 6. Settings related to the PCI DSS compliance version 3.0 standards for AIX (continued)

Implements these PCI DSS standards	Implementation specification	The AIX Security Expert implementation	Location of the script that modifies the value
8.1.7	Set the lockout duration to a minimum of 30 minutes or until administrator enables the user ID.	Sets the duration of time that a port is locked after it is disabled by the <i>logindisable</i> attribute to 30 minutes by setting the loginreenable parameter to a value of 30.	<ul style="list-style-type: none"> • /etc/security/psccexpert/bin/chdefstanza • /etc/security/login.cfg
8.1.1	Limit access to the system by setting the session idle time.	Sets the idle time limit to 15 minutes. If the session is idle for longer than 15 minutes, you must reenter the password.	/etc/security/psccexpert/bin/autologoff
8.2.1	Enforce two factor authentication.	Enforce two factor authentication such as SHA-256 or SHA-512.	/etc/security/psccexpert/bin/pwdalgchk
8.2.3	Require a minimum password length of at least 7 characters.	Sets the minimum password length to 7 characters by setting the minlen parameter to a value of 7.	/etc/security/psccexpert/bin/chusrattr
8.2.3	Use passwords that contain both numeric and alphabetic characters.	Sets the minimum number of alphabetic characters that are required in a password to 1. This setting ensures that the password contains alphabetic characters by setting the minalpha parameter to a value of 1.	/etc/security/psccexpert/bin/chusrattr
8.2.3	Use passwords that contain both numeric and alphabetic characters.	Sets the minimum number of non-alphabetic characters that are required in a password to 1. This setting ensures that the password contains nonalphabetic characters by setting the minother parameter to a value of 1.	/etc/security/psccexpert/bin/chusrattr

Table 6. Settings related to the PCI DSS compliance version 3.0 standards for AIX (continued)

Implements these PCI DSS standards	Implementation specification	The AIX Security Expert implementation	Location of the script that modifies the value
8.2.4	Change user passwords at least every 90 days.	Sets the maximum number of weeks that a password is valid to 13 weeks by setting the maxage parameter to a value of 13.	/etc/security/pwckexpert/bin/chusrattr
8.2.5	Do not allow an individual to submit a new password that is the same as any of the last four passwords he or she has used.	Sets the number of weeks before a password can be reused to 52 by setting the histexpire parameter to a value of 52.	/etc/security/pwckexpert/bin/chusrattr
8.2.5	Do not allow an individual to submit a new password that is the same as any of the last four passwords he or she has used.	Sets the number of previous passwords that you cannot reuse to 4 by setting the histsize parameter to a value of 4.	/etc/security/pwckexpert/bin/chusrattr
8.3	Secure access using multi-factor Authentication (MFA).	Check that the system is configured for multi-factor Authentication (MFA). If not, inform how to configure.	/etc/security/pwckexpert/bin/execmds
8.5	Remove the guest account.	Removes the guest account and its files.	/etc/security/pwckexpert/bin/execmds
10.2	Enable auditing on the system.	Enables auditing of the binary files on the system.	/etc/security/pwckexpert/bin/pciaudit
10.4	Synchronize all clocks using Time Synchronization technology	Examine configuration standards and processes to verify that time-synchronization technology is implemented and kept current per PCI DSS Requirements 6.1 and 6.2.	/etc/security/pwckexpert/bin/rctcpip

<i>Table 6. Settings related to the PCI DSS compliance version 3.0 standards for AIX (continued)</i>			
Implements these PCI DSS standards	Implementation specification	The AIX Security Expert implementation	Location of the script that modifies the value
12.3.9	Activation of remote-access technologies for vendors and business partners only when needed by vendors and business partners, with immediate deactivation after use.	Disables the remote root login function by setting its value to false. The system administrator can activate the remote login function as needed, and then deactivate it when the task is complete.	<ul style="list-style-type: none"> • /etc/security/pscxpert/bin/chuserstanza • /etc/security/user
2.2.3	Limit system access.	Adds the root user capability and user name in the /etc/ftpusers file.	/etc/security/pscxpert/bin/chetcftpusers
6.5.2	Prevent launching programs in content space.	Enables the stack execution disable (SED) feature.	/etc/security/pscxpert/bin/sedconfig
8.2	Ensure that the password for root is not weak.	Starts a root password integrity check against the root password, thereby ensuring a strong root password.	/etc/security/pscxpert/bin/chuserstanza

Payment Card Industry DSS compliance for Linux

This table contains the settings that implement the PCI DSS version 3.0 compliance standard for Linux.

<i>Table 7. Settings related to the PCI DSS compliance version 3.0 standards for Linux</i>			
Implements these PCI DSS standards	Implementation specification	The Linux Security Expert implementation	Location of the script that modifies the value
2.1	Change vendor-supplied defaults before installing a system on the network, which includes disabling the netstat command.	Disables the netstat command by commenting out the corresponding entry in the /etc/inetd.conf file.	/etc/security/pscxpert/bin/network-services-rules.sh

Table 7. Settings related to the PCI DSS compliance version 3.0 standards for Linux (continued)

Implements these PCI DSS standards	Implementation specification	The Linux Security Expert implementation	Location of the script that modifies the value
2.1	Always change vendor-supplied defaults before installing a system on the network. For example, include passwords, simple network management protocol community strings, and eliminate unnecessary accounts.	Sets the number of weeks that an account with an expired password remains in the system to 8 weeks by setting the maxexpired parameter to a value of 8.	/etc/security/pscxpert/bin/password_rules.sh
2.1	Always change vendor-supplied defaults before installing a system on the network. For example, include passwords, simple network management protocol community strings, and eliminate unnecessary accounts.	Sets the minimum number of weeks that must pass before you can change a password to 0 weeks by setting the minage parameter to a value of 0.	/etc/security/pscxpert/bin/password_rules.sh
2.1.1	Change the vendor-supplied defaults before installing a system on the network, which includes disabling the SNMP daemon.	Stops the SNMP daemon and comments out the corresponding entry in the /etc/rc.tcpip file that automatically starts the daemon.	/etc/security/pscxpert/bin/network-daemon-rules.sh
2.2.2	Disable unnecessary and insecure services, which include the DHCP agent.	Stops and disables the DHCP relay agent and comments out the corresponding entry in the /etc/rc.tcpip file that automatically starts the agent.	/etc/security/pscxpert/bin/network-daemon-rules.sh
2.2.2	Change vendor-supplied defaults before installing a system on the network, which includes stopping the DHCP server.	Disables the DHCP server.	/etc/security/pscxpert/bin/network-daemon-rules.sh

Table 7. Settings related to the PCI DSS compliance version 3.0 standards for Linux (continued)

Implements these PCI DSS standards	Implementation specification	The Linux Security Expert implementation	Location of the script that modifies the value
2.2.2	Disable unnecessary and insecure services, which include the UDP time service.	Stops and disables all instances of the <code>timed(udp)</code> service.	<code>/etc/security/pscxpert/bin/network-services-rules.sh</code>
2.2.2	Disable unnecessary and insecure services, which include the TCP time service.	Stops and disables all instances of the <code>timed(tcp)</code> service.	<code>/etc/security/pscxpert/bin/network-services-rules.sh</code>
2.2.2	Disable unnecessary and insecure services, which include the TCP daytime service.	Stops and disables all instances of the <code>daytime(tcp)</code> service.	<code>/etc/security/pscxpert/bin/network-services-rules.sh</code>
2.2.2	Disable unnecessary and insecure services, which include the UDP daytime service.	Stops and disables all instances of the <code>daytime(udp)</code> service.	<code>/etc/security/pscxpert/bin/network-services-rules.sh</code>
2.2.2	Disable unnecessary and insecure services, which include the <code>rexecd</code> daemon.	Stops and disables all instances of the <code>rexecd</code> daemon. The AIX Security Expert utility also comments out the corresponding entry in the <code>/etc/inetd.conf</code> file that automatically starts the daemon.	<code>/etc/security/pscxpert/bin/network-rexec-rules.sh</code>
2.2.2	Disable unnecessary and insecure services, which include the <code>rshd</code> daemon.	Stops and disables all instances of the <code>rshd</code> daemon and the shell service, and comments out the corresponding entries in the <code>/etc/inetd.conf</code> file that automatically start the instances.	<code>/etc/security/pscxpert/bin/network-rexec-rules.sh</code>
2.2.2	Disable unnecessary and insecure services, which include the <code>krshd</code> daemon.	Stops and disables all instances of the <code>krshd</code> daemon and the shell service, and comments out the corresponding entries in the <code>/etc/inetd.conf</code> file that automatically start the instances.	<code>/etc/security/pscxpert/bin/network-rexec-rules.s</code>

Table 7. Settings related to the PCI DSS compliance version 3.0 standards for Linux (continued)

Implements these PCI DSS standards	Implementation specification	The Linux Security Expert implementation	Location of the script that modifies the value
2.2.2	Disable unnecessary and insecure services, which include the rlogind daemon.	Stops and disables all instances of the rlogind daemon and rlogin service.	/etc/security/pscxpert/bin/network-rexec-rules.sh
2.2.2	Disable unnecessary and insecure services, which include the krlogind daemon.	Stops and disables all instances of the krlogind daemon and rlogin service.	/etc/security/pscxpert/bin/network-rexec-rules.s
2.2.2	Disable unnecessary and insecure services, which include the rwhod daemon.	Stops the rwhod daemon and comments out the corresponding entry in the /etc/rc.tcpip file that automatically starts the daemon.	/etc/security/pscxpert/bin/network-rexec-rules.sh
2.2.2	Disable unnecessary and insecure services, which include the fingerd daemon.	Stops and disables all instances of the fingerd daemon.	/etc/security/pscxpert/bin/network-daemon-rules.sh
2.2.2	Disable unnecessary and insecure services, which include the systat daemon.	Stops and disables all instances of the systat daemon.	/etc/security/pscxpert/bin/network-services-rules.sh
2.2.2	Disable unnecessary and insecure services, which include the rquotad daemon.	Stops and disables all instances of the rquotad daemon.	/etc/security/pscxpert/bin/network-rpc-rules.sh
2.2.2	Disable unnecessary and insecure services, which include the rstatd daemon.	Stops and disables all instances of the rstatd daemon.	/etc/security/pscxpert/bin/network-rpc-rules.sh
2.2.2	Disable unnecessary and insecure services, which include the rusersd daemon.	Stops and disables all instances of the rusersd daemon.	/etc/security/pscxpert/bin/network-rpc-rules.sh
2.2.2	Disable unnecessary and insecure services, which include the UDP chargen service.	Stops and disables all instances of the chargen(udp) service.	/etc/security/pscxpert/bin/network-services-rules.sh

Table 7. Settings related to the PCI DSS compliance version 3.0 standards for Linux (continued)

Implements these PCI DSS standards	Implementation specification	The Linux Security Expert implementation	Location of the script that modifies the value
2.2.2	Disable unnecessary and insecure services, which include the TCP chargen service.	Stops and disables all instances of the chargen(tcp) service.	/etc/security/pscxpert/bin/network-services-rules.sh
2.2.2	Disable unnecessary and insecure services, which include the TCP echo service.	Stops and disables all instances of the echo(tcp) service.	/etc/security/pscxpert/bin/network-services-rules.sh
2.2.2	Disable unnecessary and insecure services, which include the UDP echo service.	Stops and disables all instances of the echo(udp) service.	/etc/security/pscxpert/bin/network-services-rules.sh
2.2.2	Disable unnecessary and insecure services, which include the UDP discard service.	Stops and disables all instances of the discard(udp) service.	/etc/security/pscxpert/bin/network-services-rules.sh
2.2.2	Disable unnecessary and insecure services, which include the TCP discard service.	Stops and disables all instances of the discard(tcp) service.	/etc/security/pscxpert/bin/network-services-rules.sh
2.2.2	Disable unnecessary and insecure services, which include the dsn daemon.	Stops and disables all instances of the dns daemon.	/etc/security/pscxpert/bin/network-daemon-rules.s
2.2.2	Disable unnecessary and insecure services, which include the tftp daemon.	Stops and disables all instances of the tftp daemon.	/etc/security/pscxpert/bin/network-daemon-rules.sh
2.2.2	Disable unnecessary and insecure services, which include the talk daemon.	Stops and disables all instances of the talk daemon.	/etc/security/pscxpert/bin/network-daemon-rules.sh
2.2.2	Disable unnecessary and insecure services, which include the zebra routing manager,	Stop and disable zebra routing manager.	/etc/security/pscxpert/bin/network-daemon-rules

Table 7. Settings related to the PCI DSS compliance version 3.0 standards for Linux (continued)			
Implements these PCI DSS standards	Implementation specification	The Linux Security Expert implementation	Location of the script that modifies the value
2.2.2	Disable unnecessary and insecure services, which includes sendmail.	Stop and disable sendmail.	/etc/security/pscxpert/bin/network-mail-rules.sh
2.2.2	Disable unnecessary and insecure services, which include the exim mail transfer.	Stop and disable exim.	/etc/security/pscxpert/bin/network-mail-rules.sh
2.2.2	Disable unnecessary and insecure services, which include the postfix mail transfer agent.	Stop and disable postfix.	/etc/security/pscxpert/bin/network-mail-rules.sh
2.2.2	Disable Secure Sockets Layer (SSL) v3 and Transport Layer Security (TLS) v1.0 in applications.	Disable SSLv3 and TLS v1.0 versions in Cyrus POP3 server (Pop3d) configuration.	/etc/security/pscxpert/bin/network-mail-rules.sh
2.2.2	Disable Secure Sockets Layer (SSL) v3 and Transport Layer Security (TLS) v1.0 in applications.	Disable SSLv3 and TLS v1.0 versions in Dovecot POP3 server (Pop3d) configuration.	/etc/security/pscxpert/bin/network-mail-rules.sh
2.2.2	Disable SSL v3 and TLS v1.0 in applications.	Disable SSLV3 and TLS v1.0 in the Cyrus IMAP server .	/etc/security/pscxpert/bin/network-mail-rules.sh
2.2.2	Disable SSL v3 and TLS v1.0 in applications.	Disable SSLV3 and TLS v1.0 in the Dovecot IMAP server .	/etc/security/pscxpert/bin/network-mail-rules.sh
2.2.2	Disable SSL v3 and TLS v1.0 in applications.	Disable Dnsmasq network services.	/etc/security/pscxpert/bin/network-daemon-rules.sh
2.2.2	Disable unnecessary and insecure services, which include the vsftpd daemon.	Stop and disable vsftpd daemon.	/etc/security/pscxpert/bin/network-daemon-rules.sh
2.2.2	Disable unnecessary and insecure services, which include the pureftpd daemon.	Stop and disable pureftpd daemon.	/etc/security/pscxpert/bin/network-daemon-rules.sh

Table 7. Settings related to the PCI DSS compliance version 3.0 standards for Linux (continued)

Implements these PCI DSS standards	Implementation specification	The Linux Security Expert implementation	Location of the script that modifies the value
2.2.2	Disable unnecessary and insecure services, which include the kerberos telnetd daemon.	Stops and disables all instances of the kerberos_telnetd daemon.	/etc/security/pscxpert/bin/network-daemon-rules.sh
2.2.2	Disable unnecessary and insecure services, which include the ntalk daemon.	Stops and disables all instances of the ntalk daemon.	/etc/security/pscxpert/bin/network-daemon-rules.sh
2.2.2	Disable unnecessary and insecure services, which include the erklogind daemon.	Stops and disables all instances of the erklogind daemon.	remote_services_rules.sh
2.2.2	Disable unnecessary and insecure services, which include the rlogind, rshd and tftpd daemons.	Stops and disables all instances of the rlogind, rshd and tftpd daemons.	/etc/security/pscxpert/bin/remote_services_rules.sh
2.2.2	Disable unnecessary and insecure services that are specific to nfs.	Remove nfs mounts, stop nfs daemon, and remove nfs from startup.	/etc/security/pscxpert/bin/remote_services_rules.sh
2.2.2	Disable unnecessary and insecure services.	Disables uucp daemon.	/etc/security/pscxpert/bin/network-daemon-rules
2.2.3	Disable unnecessary and insecure services that are specific to telnet.	Stop and disable telnetd.	/etc/security/pscxpert/bin/network-daemon-rules.sh
2.2.3	Disable unnecessary and insecure services, which include the rlogind, rshd, rsh, tftpd, and rcp commands.	Stops and disables all instances of the rlogind, rshd, rsh, tftpd, and rcp daemons.	/etc/security/pscxpert/bin/remote_services_rules.sh
2.2.3	Configure system security parameters to prevent misuse.	Disable ipforwarding.	/etc/security/pscxpert/bin/network-tuning-options-rules.sh

Table 7. Settings related to the PCI DSS compliance version 3.0 standards for Linux (continued)			
Implements these PCI DSS standards	Implementation specification	The Linux Security Expert implementation	Location of the script that modifies the value
2.2.3	Configure system security parameters to prevent misuse.	Enable <code>icmp_ignore_bogus_error_responses</code> .	/etc/security/pscxpert/bin/network-tuning-options-rules.sh
2.2.3	Configure system security parameters to prevent misuse.	Enable <code>rp_filter</code> .	/etc/security/pscxpert/bin/network-tuning-options-rules.sh
2.2.3	Configure system security parameters to prevent misuse.	Disable <code>send_redirects</code> .	/etc/security/pscxpert/bin/network-tuning-options-rules.sh
2.2.3	Configure system security parameters to prevent misuse.	Disable <code>accept_redirects</code> .	/etc/security/pscxpert/bin/network-tuning-options-rules.sh
2.2.3	Configure system security parameters to prevent misuse.	Disable <code>accept_source_route</code> .	/etc/security/pscxpert/bin/network-tuning-options-rules.sh
2.2.3	Configure system security parameters to prevent misuse.	Disable <code>ip_no_pmtu_disc</code> .	/etc/security/pscxpert/bin/network-tuning-options-rules.sh
2.2.3	Configure system security parameters to prevent misuse.	Enable <code>tcp_syncookies</code> .	etc/security/pscxpert/bin/network-tuning-options-rules.sh
2.2.3	Configure system security parameters to prevent misuse.	Enable <code>icmp_echo_ignore_broadcasts</code> .	etc/security/pscxpert/bin/network-tuning-options-rules.sh
2.2.3	Configure system security parameters to prevent misuse.	Enable <code>rfc1323-linux</code> .	etc/security/pscxpert/bin/network-tuning-options-rules.sh
2.2.3	Configure system security parameters to prevent misuse.	Disable <code>secure_redirects</code> .	etc/security/pscxpert/bin/network-tuning-options-rules.sh

Table 7. Settings related to the PCI DSS compliance version 3.0 standards for Linux (continued)

Implements these PCI DSS standards	Implementation specification	The Linux Security Expert implementation	Location of the script that modifies the value
2.2.3	Enable only necessary and secure services, protocols, daemons, and so on, as required for the correct function of the system. Implement security features for any required services, protocols or daemons that are considered to be insecure.	Disables the .rhosts file for every user.	/etc/security/pscxpert/bin/remote_access_rules.sh
2.2.3	Enable only necessary and secure services, protocols, daemons, and so on, as required for the correct function of the system. Implement security features for any required services, protocols or daemons that are considered to be insecure.	Disables the .netrc file for every user.	/etc/security/pscxpert/bin/remote_access_rules.sh
2.2.3	Enable only necessary and secure services, protocols, daemons, and so on, as required for the correct function of the system. Implement security features for any required services, protocols or daemons that are considered to be insecure.	Comments out entries from /etc/hosts.equiv file.	/etc/security/pscxpert/bin/remote_access_rules.sh
2.2.3	Disable Secure Sockets Layer (SSL) v3 and Transport Layer Security (TLS) v1.0 in applications.	Disable SSLv3 and TLS v1.0 versions in POP3 server (Pop3d) configuration.	/etc/security/pscxpert/bin/ssh_rules.sh

Table 7. Settings related to the PCI DSS compliance version 3.0 standards for Linux (continued)			
Implements these PCI DSS standards	Implementation specification	The Linux Security Expert implementation	Location of the script that modifies the value
2.2.3	Disable SSL v3 and TLS v1.0 in applications.	Disable SSLV3 and TLS v1.0 in the IMAP server (imapd).	/etc/security/pscxpert/bin/ssh_rules.sh
2.2.3	Disable SSL v3 and TLS v1.0 in applications.	Check the File Transfer Protocol Daemon (FTPD) configuration file for TLS 1.1, or later security adoption.	/etc/security/pscxpert/bin/ssh_rules.sh
2.2.3	Disable SSL v3 and TLS v1.0 in applications.	Check the File Transfer Protocol Client (FTPC) configuration file for TLS 1.1, or later security adoption.	/etc/security/pscxpert/bin/ssh_rules.sh
2.2.3	Disable SSL v3 and TLS v1.0 in applications.	Disable in sendmail configuration file.	/etc/security/pscxpert/bin/ssh_rules.sh
2.2.3	Disable SSL v3 and TLS v1.0 in applications.	Check for required SSL version.	/etc/security/pscxpert/bin/sslversion.sh
2.2.3	Disable insecure daemons.	Disables rlogind, rshd, and tftpd daemons.	/etc/security/pscxpert/bin/remote_services_rules
2.2.3	Disable insecure commands.	Disables the following insecure commands: <ul style="list-style-type: none"> • rlogin • rsh • rcp • tftp 	/etc/security/pscxpert/bin/remote_services_rules
2.2.4	Configure system security parameters to prevent misuse.	Removes the Set User ID (SUID/SGID) commands by commenting out the corresponding entry in the /etc/inetd.conf file that automatically enables the commands.	/etc/security/pscxpert/bin/suid_rules.sh
2.2.4	Configure system security parameters to prevent misuse.	Enables the lowest security level for the File Permissions Manager.	/etc/security/pscxpert/bin/suid_rules.sh
2.2.4	Configure system security parameters to prevent misuse.	Disable root account from ftp access.	/etc/security/pscxpert/bin/misc_rules

Table 7. Settings related to the PCI DSS compliance version 3.0 standards for Linux (continued)

Implements these PCI DSS standards	Implementation specification	The Linux Security Expert implementation	Location of the script that modifies the value
2.3	Check if SSH file sets are installed.	Start the SSHD daemon if not started and configure to start at every reboot.	/etc/security/pscxpert/bin/network-daemon-rules.sh
2.3	The SSH daemon must be configured to only use the SSHv2 protocol.	Configures the SSH daemon to use only the SSHv2 protocol.	/etc/security/pscxpert/bin/ssh_config_rules.sh
2.3	The SSH Client must be configured to use only the SSHv2 protocol.	Configures the SSH client to use the SSHv2 protocol.	/etc/security/pscxpert/bin/ssh_config_rules.sh
2.3	The SSH daemon must listen only on management network addresses unless it is authorized for uses other than management.	Ensures that the SSH daemon is set up only to listen on management network addresses.	/etc/security/pscxpert/bin/ssh_config_rules.sh
2.3	The SSH daemon must be configured to use only FIPS 140-2 approved ciphers	Ensures that the SSH daemon uses only the FIPS 140-2 ciphers.	/etc/security/pscxpert/bin/ssh_config_rules.sh
2.3	The SSH daemon must be configured to use only Message Authentication Codes (MACs) that employ FIPS 140-2 approved cryptographic hash algorithms.	Ensures that the MACs are running the approved algorithms.	/etc/security/pscxpert/bin/ssh_config_rules.sh
2.3	The SSH client must be configured to use only FIPS 140-2 approved ciphers	Ensures that the SSH client uses only the FIPS 140-2 ciphers.	/etc/security/pscxpert/bin/ssh_config_rules.sh
2.3	The SSH client must be configured to use only Message Authentication Codes (MACs) that employ FIPS 140-2 approved cryptographic hash algorithms.	Ensures that the MACs are running the approved algorithms.	/etc/security/pscxpert/bin/ssh_config_rules.sh

Table 7. Settings related to the PCI DSS compliance version 3.0 standards for Linux (continued)

Implements these PCI DSS standards	Implementation specification	The Linux Security Expert implementation	Location of the script that modifies the value
2.3	The SSH daemon must restrict login ability to specific users or groups.	Restricts login on the system to specific users and groups.	/etc/security/pscxpert/bin/ssh_config_rules.sh
2.3	The system must display the date and time of the last successful account login upon login.	Maintains the information from the last successful login, and displays it after the next successful login.	/etc/security/pscxpert/bin/ssh_config_rules.sh
2.3	The SSH daemon must perform strict mode checking of home directory configuration files.	Ensures that the home directory configuration files are set to the correct modes	/etc/security/pscxpert/bin/ssh_config_rules.sh
2.3	The SSH daemon must use privilege separation.	Ensures that the SSH daemon has the correct amount of separation of its privileges.	/etc/security/pscxpert/bin/ssh_config_rules.sh
2.3	The SSH daemon must not allow rhosts to have RSA authentication.	Disables RSA authentication for rhosts when you are using the SSH daemon.	/etc/security/pscxpert/bin/ssh_config_rules.sh
2.3	The SSH daemon must not allow compression or must only allow compression after successful authentication.	The SSH daemon disables compression unless there is successful authentication.	/etc/security/pscxpert/bin/ssh_config_rules.sh
5.1.1	Maintain antivirus software.	Maintains the system integrity by detecting, removing, and protecting against known types of malicious software.	/etc/security/pscxpert/bin/pci_filemon_rules.sh
6.5.8	Remove dot from the non-root path.	Removes the dots from <i>PATH</i> environment variable in the following files that are in the user home directory: <ul style="list-style-type: none"> • .cshrc • .kshrc • .login • .profile 	/etc/security/pscxpert/bin/misc_rules.sh

Table 7. Settings related to the PCI DSS compliance version 3.0 standards for Linux (continued)

Implements these PCI DSS standards	Implementation specification	The Linux Security Expert implementation	Location of the script that modifies the value
6.5.8	Remove dot from the root path.	Removes the dots from <i>PATH</i> environment variable in the following files that are in the root's home directory: <ul style="list-style-type: none"> • .cshrc • .kshrc • .login • .profile 	/etc/security/pscxpert/bin/misc_rules.sh
7.1.1	Limit system access.	Ensures that the root ID is the only one that is listed in the <i>cron.allow</i> file and removes the <i>cron.deny</i> file from the system.	/etc/security/pscxpert/bin/misc_rules.sh
7.1.1	Limit system access.	Verifies that root cron jobs are owned and can be written to only by root.	/etc/security/pscxpert/bin/misc_rules.sh
7.1.1	Limit system access.	Only allow root to create at jobs.	/etc/security/pscxpert/bin/misc_rules.sh
7.1.1	Limit object creation permissions.	Sets the default object creation permissions to 22 by setting the umask parameter to a value of 22.	/etc/security/pscxpert/bin/misc_rules.sh
7.1.1	Limit system access.	Restrict access rights to privileged user IDs to least privileges necessary to perform job responsibilities.	/etc/security/pscxpert/bin/suid_rules
8.1.1	Prevent root from logging in.	Prevent root from logging in.	/etc/security/pscxpert/bin/login_rules.sh
8.1.4	Disable a user account when not in use.	Disables user accounts after 90 days of inactivity.	/etc/security/pscxpert/bin/ssh_rules.sh
8.1.6	Limit repeated access attempts by locking out the user ID after not more than six attempts.	Sets the number of consecutive unsuccessful login attempts that disables an account to 6 attempts for each non-root account by setting the logintries parameter to a value of 6.	/etc/security/pscxpert/bin/login_rules.sh

Table 7. Settings related to the PCI DSS compliance version 3.0 standards for Linux (continued)

Implements these PCI DSS standards	Implementation specification	The Linux Security Expert implementation	Location of the script that modifies the value
8.1.7	Set the lockout duration to a minimum of 30 minutes or until administrator enables the user ID.	Sets the duration of time that a port is locked after it is disabled by the <i>logindisable</i> attribute to 30 minutes by setting the loginreenable parameter to a value of 30.	/etc/security/pscxpert/bin/login_rules.sh
8.1.8	Limit access to the system by setting the session idle time.	Sets the idle time limit to 15 minutes. If the session is idle for longer than 15 minutes, you must reenter the password.	/etc/security/pscxpert/bin/misc_rules.sh
8.2	Ensure that the password for root is not weak.	Starts a root password integrity check against the root password, thereby ensuring a strong root password.	/etc/security/pscxpert/bin/validation_rules.sh
8.2.1	Ensure the password is not weak.	Set the system password algorithm to a stronger cryptographic hash algorithm.	/etc/security/pscxpert/bin/password_rules.sh
8.2.1	Require a minimum password length of at least 7 characters.	Sets the minimum password length to 7 characters by setting the minlen parameter to a value of 7.	/etc/security/pscxpert/bin/password_rules.sh
8.2.3	Use passwords that contain both numeric and alphabetic characters.	Sets the minimum number of uppercase alphabetic characters that are required in a password to 1. This setting ensures that the password contains uppercase alphabetic characters by setting the minalphaupper parameter to a value of 1.	/etc/security/pscxpert/bin/password_rules.sh

Table 7. Settings related to the PCI DSS compliance version 3.0 standards for Linux (continued)

Implements these PCI DSS standards	Implementation specification	The Linux Security Expert implementation	Location of the script that modifies the value
8.2.3	Use passwords that contain both numeric and alphabetic characters.	Sets the minimum number of lowercase alphabetic characters that are required in a password to 1. This setting ensures that the password contains lowercase alphabetic characters by setting the minalphalower parameter to a value of 1.	/etc/security/pscxpert/bin/password_rules.sh
8.2.3	Use passwords that contain both numeric and alphabetic characters.	Specifies the minimum number of numeric characters in a password to 1.	/etc/security/pscxpert/bin/password_rules.sh
8.2.3	Use passwords that contain both numeric and alphabetic characters.	Sets the minimum number of numeric characters in a password.	/etc/security/pscxpert/bin/password_rules.sh
8.2.3	Use passwords that contain both numeric and alphabetic characters.	Sets the minimum number of uppercase alphabetic characters in a password.	/etc/security/pscxpert/bin/password_rules.sh
8.2.3	Use passwords that contain both numeric and alphabetic characters.	Sets the minimum number of lowercase alphabetic characters in a password.	/etc/security/pscxpert/bin/password_rules.sh
8.2.3	Use passwords that contain both numeric and alphabetic characters.	Sets the minimum number of non-alphabetic characters in a password.	/etc/security/pscxpert/bin/password_rules.sh
8.2.4	Change user passwords at least every 90 days.	Sets the maximum number of weeks that a password is valid to 12 weeks (at most 90 days) by setting the maxage parameter to a value of 12.	/etc/security/pscxpert/bin/password_rules.sh

Table 7. Settings related to the PCI DSS compliance version 3.0 standards for Linux (continued)

Implements these PCI DSS standards	Implementation specification	The Linux Security Expert implementation	Location of the script that modifies the value
8.2.4	Change user passwords at least every 90 days.	Sets the time <n> days prior to maxage at which to warn the user that the password will need to change.	/etc/security/pscxpert/bin/password_rules.sh
8.2.5	Do not allow an individual to submit a new password that is the same as any of the last four passwords he or she has used.	Sets the number of previous passwords that you cannot reuse to 4 by setting the histsize parameter to a value of 4.	/etc/security/pscxpert/bin/password_rules.sh
8.5	Valid passwords that should not be used.	Do not use group, shared, or generic accounts and passwords.	/etc/security/pscxpert/bin/validation_rules.sh
8.5	Remove guest account.	Removes guest account and its files.	/etc/security/pscxpert/bin/misc_rules.sh
10.1	Enable auditing on the system.	Establish a process for linking all access to system components (especially access done with administrative privileges such as root) to each individual user.	/etc/security/pscxpert/bin/audit_rules.sh
10.2.2	Enable auditing on the system.	Implement automated audit trails for all system components to reconstruct all actions taken by any individual with root or administrative privileges.	/etc/security/pscxpert/bin/audit_rules.sh
10.2.4	Enable auditing on the system.	Implement automated audit trails for all system components to reconstruct events of invalid logical access attempts.	/etc/security/pscxpert/bin/audit_rules.sh
10.2.7	Enable auditing on the system.	Implement automated audit trails for all system components to reconstruct all creations and deletions of system-level objects.	/etc/security/pscxpert/bin/audit_rules.sh

Table 7. Settings related to the PCI DSS compliance version 3.0 standards for Linux (continued)

Implements these PCI DSS standards	Implementation specification	The Linux Security Expert implementation	Location of the script that modifies the value
10.4	Examine configuration standards and processes to verify that time-synchronization technology is implemented and kept current per PCI DSS Requirements 6.1 and 6.2.	Enables the ntp daemon.	/etc/security/pscxpert/bin/network-daemon-rules.sh
10.5.2	Enable auditing on the system.	Protect audit trail files from unauthorized modifications.	/etc/security/pscxpert/bin/audit_rules.sh
10.5.5	Use file integrity monitoring or change-detection software on logs to ensure that existing log data cannot be changed without generating alerts.	Enables file integrity monitor	/etc/security/pscxpert/bin/filemon_rules
12.3.9	Activation of remote-access technologies for vendors and business partners only when needed by vendors and business partners, with immediate deactivation after use.	Disables the remote root login function by setting its value to false. The system administrator can activate the remote login function as needed, and then deactivate it when the task is complete.	/etc/security/pscxpert/bin/login_rules.sh
12.3.9	Activation of remote-access technologies for vendors and business partners only when needed by vendors and business partners, with immediate deactivation after use.	Disables the remote root login function by setting its value to false. The system administrator can activate the remote login function as needed, and then deactivate it when the task is complete.	/etc/security/pscxpert/bin/misc_rules.sh

Table 7. Settings related to the PCI DSS compliance version 3.0 standards for Linux (continued)			
Implements these PCI DSS standards	Implementation specification	The Linux Security Expert implementation	Location of the script that modifies the value
12.3.9	Activation of remote-access technologies for vendors and business partners only when needed by vendors and business partners, with immediate deactivation after use.	Disable root account from ftp access.	/etc/security/pscxpert/bin/misc_rules.sh
12.3.9	Activation of remote-access technologies for vendors and business partners only when needed by vendors and business partners, with immediate deactivation after use.	Remove dot from non-root path: Removes the dot from the PATH environment variable in files .profile, .kshrc, .cshrc and .login in the user home directory.	/etc/security/pscxpert/bin/misc_rules.sh

Sarbanes-Oxley Act and COBIT compliance

The Sarbanes-Oxley (SOX) Act of 2002 that is based on the 107th congress of the United States of America oversees the audit of public companies that are subject to the securities laws, and related matters, in order to protect the interests of investors.

SOX Section 404 mandates the management assessment over internal controls. For most organizations, internal controls span their information technology systems, which process and report the financial data of the company. The SOX Act provides specific details on IT and IT security. Many SOX auditors rely on standards, such as COBIT as a method to gauge and audit proper IT governance and control. The PowerSC Standard Edition SOX/COBIT XML configuration option provides the security configuration of AIX and Virtual I/O Server (VIOS systems that is required to meet the COBIT compliance guidelines.

The IBM Compliance Expert runs on the following version of the AIX operating system:

- AIX 6.1
- AIX 7.1
- AIX 7.2

Compliance with external standards is a responsibility of an AIX system administrator's workload. The PowerSC Standard Edition compliance expert feature is designed to simplify managing the operating system settings and the reports that are required for standards compliance.

The preconfigured compliance profiles delivered with the PowerSC Standard Edition reduce the administrative workload of interpreting compliance documentation and implementing those standards as specific system configuration parameters.

The capabilities of the PowerSC Standard Edition compliance expert feature are designed to help clients to effectively manage the system requirements, which are associated with external standard compliance that can potentially reduce costs while improving compliance. All external security standards include aspects other than the system configuration settings. The use of PowerSC Standard Edition compliance

expert feature cannot ensure standards compliance. The PowerSC Standard Edition is designed to simplify the management of systems configuration setting that helps administrators to focus on other aspects of standards compliance.

Related information

[COBIT compliance](#)

Health Insurance Portability and Accountability Act (HIPAA)

The Health Insurance Portability and Accountability Act (HIPAA) is a security profile that focuses on the protection of Electronically Protected Health Information (EPHI).

The HIPAA Security Rule specifically focuses on the protection of EPHI, and only a subset of agencies are subject to the HIPAA Security Rule based on their functions and use of EPHI.

All HIPAA covered entities, similar to some of the federal agencies, must comply with the HIPAA Security Rule.

The HIPAA Security Rule focuses on protecting the confidentiality, integrity, and availability of EPHI, as defined in the Security Rule.

The EPHI that a covered entity creates, receives, maintains, or transmits must be protected against reasonably anticipated threats, hazards, and impermissible uses and disclosures.

The requirements, standards, and implementation specifications of the HIPAA Security Rule apply to the following covered entities:

- Healthcare providers
- Health plans
- Healthcare clearinghouses
- Medicare prescriptions and drug card sponsors

The following table details about the several sections of the HIPAA Security Rule and each section includes several standards and implementation specifications.

Note: All of the custom script files that are provided to maintain HIPAA compliance are in the `/etc/security/psccexpert/bin` directory.

Table 8. HIPAA rules and implementation details			
Sections of HIPAA Security Rule	Implementation specification	The aixpert implementation	Commands and return values
164.308 (a) (1) (ii) (D) 164.308 (a) (5) (ii) (C) 164.312 (b)	Implements the procedures to regularly review the records of the information system activity, such as audit logs, access reports, and security incident reports.	Determines whether auditing is enabled in the system.	Command: #audit query. Return value: If successful, this command exits with a value of 0. If unsuccessful, the command exits with a value of 1.

Table 8. HIPAA rules and implementation details (continued)

Sections of HIPAA Security Rule	Implementation specification	The aixpert implementation	Commands and return values
164.308 (a) (1) (ii) (D) 164.308 (a) (5) (ii) (C) 166.312 (b)	Implements the procedures to regularly review the records of the information system activity, such as audit logs, access reports, and security incident reports.	Enables auditing in the system. Also, configures the events to be captured.	<p>Command:</p> <pre># audit start >/dev/null 2>&1.</pre> <p>Return value: If successful, this command exits with a value of 0. If unsuccessful, the command exits with a value of 1.</p> <p>The following events are audited:</p> <p>FILE_Mknod, FILE_Open, FS_Mkdir, PROC_Execute, DEV_Create, FILE_Acl, FILE_Chpriv, FILE_Fchpriv, FILE_Mode, INIT_Start, PASSWORD_Change, PASSWORD_Check, PROC_Adjtime, PROC_Kill, PROC_Privilege, PROC_Setpgid, USER_SU, USER_Change, USER_Create, USER_Login, USER_Logout, USER_Reboot, USER_Remove, USER_SetEnv, USER_SU, FILE_Acl, FILE_Fchmod, FILE_Fchown</p>
164.312 (a) (2) (iv)	Encryption and Decryption (A): Implements a mechanism to encrypt and decrypt the EPHI.	Determines whether the encrypted file system (EFS) is enabled on the system.	<p>Command:</p> <pre># efskeymgr -V >/dev/null 2>&1.</pre> <p>Return value: If EFS is already enabled, this command exits with a value of 0. If EFS is not enabled, this command exits with a value of 1.</p>
164.312 (a) (2) (iii)	Automatic Logoff (A): Implements the electronic procedures to end an electronic session after a predefined interval of inactivity.	Configures the system to log out from interactive processes after 15 minutes of inactivity.	<p>Command:</p> <pre>grep TMOUT= /etc/security /.profile > /dev/null 2>&1 echo "TMOUT=900 ; TIMEOUT=900; export TMOUT TIMEOUT.</pre> <p>Return value: If the command fails to find the value TMOUT=15, the script exits with a value of 1. Otherwise, the command exits with a value of 0.</p>

Table 8. HIPAA rules and implementation details (continued)

Sections of HIPAA Security Rule	Implementation specification	The aixpert implementation	Commands and return values
164.308 (a) (5) (ii) (D) 164.312 (a) (2) (i)	Password Management (A): Implements the procedures for creating, changing, and protecting passwords.	Ensures that all passwords contain a minimum of 14 characters.	Command: chsec -f /etc/security/user -s user -a minlen=8. Return value: If successful, this script exits with a value of 0. If unsuccessful, the script exits with an error code of 1.
164.308 (a) (5) (ii) (D) 164.312 (a) (2) (i)	Password Management (A): Implements the procedures for creating, changing, and protecting passwords.	Ensures that all passwords include at least two alphabetic characters, one of which must be capitalized.	Command: chsec -f /etc/security/user -s user -a minalpha=4. Return value: If successful, this script exits with a value of 0. If unsuccessful, the command exits with an error code of 1.
164.308 (a) (5) (ii) (D) 164.312 (a) (2) (i)	Password Management (A): Implements the procedures for creating, changing, and protecting passwords.	Specifies the minimum number of non-alphabetic characters in a password to 2.	Command: #chsec -f /etc/security/user -s user -a minother=2. Return value: If successful, this script exits with a value of 0. If unsuccessful, the command exits with an error code of 1.
164.308 (a) (5) (ii) (D) 164.312 (a) (2) (i)	Password Management (A): Implements the procedures for creating, changing, and protecting passwords.	Ensure that all passwords contain no repetitive characters.	Command: #chsec -f /etc/security/user -s user -a maxrepeats=1. Return value: If successful, this script exits with a value of 0. If unsuccessful, the command exits with an error code of 1.
164.308 (a) (5) (ii) (D) 164.312 (a) (2) (i)	Password Management (A): Implements the procedures for creating, changing, and protecting passwords.	Ensure that a password is not reused within the last five changes.	Command: #chsec -f /etc/security/user -s user -a histsize=5. Return value: If successful, this script exits with a value of 0. If unsuccessful, the command exits with an error code of 1.

Table 8. HIPAA rules and implementation details (continued)

Sections of HIPAA Security Rule	Implementation specification	The aixpert implementation	Commands and return values
164.308 (a) (5) (ii) (D) 164.312 (a) (2) (i)	Password Management (A): Implements the procedures for creating, changing, and protecting passwords.	Specifies the maximum number of weeks to 13 weeks, for the password to remain valid.	Command: #chsec -f /etc/security/user -s user -a maxage=8. Return value: If successful, this script exits with a value of 0. If unsuccessful, the command exits with an error code of 1.
164.308 (a) (5) (ii) (D) 164.312 (a) (2) (i)	Password Management (A): Implements the procedures for creating, changing, and protecting passwords.	Removes any minimum number of week requirements before a password can be changed.	Command: #chsec -f /etc/security/user -s user -a minage=2. Return value: If successful, this script exits with a value of 0. If unsuccessful, the command exits with an error code of 1.
164.308 (a) (5) (ii) (D) 164.312 (a) (2) (i)	Password Management (A): Implements the procedures for creating, changing, and protecting passwords.	Specifies the maximum number of weeks to 4 weeks, to change an expired password, after the value of the maxage parameter set by the user expires.	Command: #chsec -f /etc/security/user -s user -a maxexpired=4. Return value: If successful, this script exits with a value of 0. If unsuccessful, the command exits with an error code of 1.
164.308 (a) (5) (ii) (D) 164.312 (a) (2) (i)	Password Management (A): Implements the procedures for creating, changing, and protecting passwords.	Specifies the minimum number of characters that cannot be repeated from the old password is 4 characters.	Command: #chsec -f /etc/security/user -s user -a mindiff=4. Return value: If successful, this script exits with a value of 0. If unsuccessful, the command exits with an error code of 1.
164.308 (a) (5) (ii) (D) 164.312 (a) (2) (i)	Password Management (A): Implements the procedures for creating, changing, and protecting passwords.	Specifies that the number of days is 5 to wait before the system issues a warning that a password change is required.	Command: #chsec -f /etc/security/user -s user -a pwdwarntime = 5. Return value: If successful, this script exits with a value of 0. If unsuccessful, the command exits with an error code of 1.

Table 8. HIPAA rules and implementation details (continued)

Sections of HIPAA Security Rule	Implementation specification	The aixpert implementation	Commands and return values
164.308 (a) (5) (ii) (D) 164.312 (a) (2) (i)	Password Management (A): Implements the procedures for creating, changing, and protecting passwords.	Verifies the correctness of user definitions and fixes the errors.	Command: /usr/bin/usrck -y ALL /usr/bin/usrck -n ALL. Return value: The command does not return a value. The command checks and fixes the errors, if any.
164.308 (a) (5) (ii) (D) 164.312 (a) (2) (i)	Password Management (A): Implements the procedures for creating, changing, and protecting passwords.	Locks the account after three consecutive failed login attempts.	Command: #chsec -f /etc/security/user -s user -a loginretries=3. Return value: If successful, this script exits with a value of 0. If unsuccessful, the command exits with an error code of 1.
164.308 (a) (5) (ii) (D) 164.312 (a) (2) (i)	Password Management (A): Implements the procedures for creating, changing, and protecting passwords.	Specifies the delay between one unsuccessful login to the other as 5 seconds.	Command: chsec -f /etc/security/login.cfg -s default -a logindelay=5. Return value: If successful, this script exits with a value of 0. If unsuccessful, the command exits with an error code of 1.
164.308 (a) (5) (ii) (D) 164.312 (a) (2) (i)	Password Management (A): Implements the procedures for creating, changing, and protecting passwords.	Specifies the number of unsuccessful login attempts on a port, before the port is locked as 10.	Command: chsec -f /etc/security/lastlog -s username -a \ unsuccessful_login_count=10. Return value: If successful, this script exits with a value of 0. If unsuccessful, the command exits with an error code of 1.
164.308 (a) (5) (ii) (D) 164.312 (a) (2) (i)	Password Management (A): Implements the procedures for creating, changing, and protecting passwords.	Specifies the time interval in a port for the unsuccessful login attempts before the port is disabled as 60 seconds.	Command: #chsec -f /etc/security/lastlog -s user -a time_last_unsuccessful_login=60. Return value: If successful, this script exits with a value of 0. If unsuccessful, the command exits with an error code of 1.

Table 8. HIPAA rules and implementation details (continued)

Sections of HIPAA Security Rule	Implementation specification	The aixpert implementation	Commands and return values
164.308 (a) (5) (ii) (D) 164.312 (a) (2) (i)	Password Management (A): Implements the procedures for creating, changing, and protecting passwords.	Specifies the time interval after which a port is unlocked and after being disabled, as 30 minutes.	Command: #chsec -f /etc/security/login.cfg -s default -a loginreenable = 30. Return value: If successful, this script exits with a value of 0. If unsuccessful, the command exits with an error code of 1.
164.308 (a) (5) (ii) (D) 164.312 (a) (2) (i)	Password Management (A): Implements the procedures for creating, changing, and protecting passwords.	Specifies the time interval to type a password as 30 seconds.	Command: chsec -f /etc/security/login.cfg -s usw -a logintimeout=30. Return value: If successful, this script exits with a value of 0. If unsuccessful, the command exits with an error code of 1.
164.308 (a) (5) (ii) (D) 164.312 (a) (2) (i)	Password Management (A): Implements the procedures for creating, changing, and protecting passwords.	Ensure that accounts are locked after 35 days of inactivity.	Command: grep TMOUT= /etc/security /.profile > /dev/null 2>&1if TMOUT = (35x24x60x60){#chsec -f /etc/security/user -s user -aaccount_locked = true}. Return value: If the command fails to set the value of account_locked to true , the script exits with a value of 1. Otherwise, the command exits with a value of 0.
164.312 (c) (1)	Implements the policies and procedures to protect the EPHI from incorrect alteration or destruction.	Set the trusted execution (TE) policies to ON.	Command: Turns on CHKEXEC , CHKSHLIB , CHKSCRIPT , CHKKERNEXT , STOP_ON_CHKFAIL , TE=ON For example, trustchk -p TE=ON CHKEXEC = ON, CHKSHLIB,=ON, CHKSCRIPT=ON, CHKKERNEXT = ON. Return value: On failure, the script exits with a value of 1.

Table 8. HIPAA rules and implementation details (continued)

Sections of HIPAA Security Rule	Implementation specification	The aixpert implementation	Commands and return values
164.312 (e) (1)	Implements the technical security measures to prevent unauthorized access to the EPHI that is being transmitted over an electronic communication network.	Determines whether the ssh filesets are installed. If not, displays an error message.	Command: <pre># ls1pp -1 grep openssh</pre> <pre>> /dev/null 2>&1.</pre> Return value: If return code for this command is 0, the script exits with a value of 0. If ssh filesets are not installed, the script exits with a value of 1 and displays the error message Install ssh filesets for secure transmission.

The following table details about the several functions of the HIPAA Security Rule and each function includes several standards and implementation specifications.

Table 9. HIPAA Functions and implementation details

HIPAA functions	Implementation specification	The aixpert implementation	Commands and return values
Error logging	Consolidates errors from different logs and sends emails the administrator.	Determines whether any hardware errors exist. Determines whether there are any unrecoverable errors from the trcfile file in the location, <code>/var/adm/ras/trcfile</code> . Sends the errors to root@<hostname> .	Command: <pre>errpt -d H.</pre> Return value: If successful, this command exits with a value of 0. If unsuccessful, the command exits with a value of 1.
FPM enablement	Changes file permissions.	Changes the permission of files from a list of permissions and files by using the fpm command.	Command: <pre># fpm -1 <level> -f <commands file>.</pre> Return value: If successful, this command exits with a value of 0. If unsuccessful, the command exits with a value of 1.
RBAC enablement	Creates isso , so , and sa users and assigns appropriate roles to the users.	Suggests that you create isso , so , and sa users. Assigns appropriate roles to the users.	Command: <pre>/etc/security/psccexpert/bin/RbacEnablement.</pre>

Related information

[Health Insurance Portability and Accountability Act \(HIPAA\)](#)

North American Electric Reliability Corporation compliance

The North American Electric Reliability Corporation (NERC) is a nonprofit corporation that develops standard for the electric power systems industry. PowerSC Standard Edition contains a preconfigured NERC profile, which provides security standards that you can use to protect critical electric power systems.

The NERC profile follows the Critical Infrastructure Protection (CIP) standards.

The NERC profile is located at `/etc/security/aixpert/custom/NERC.xml`. You can reset the CIP requirements that are applied to the NERC profile to the default state by applying the `NERC_to_AIXDefault.xml` profile that is located in the `/etc/security/aixpert/custom` directory. This process is not the same as the undo operation of the NERC profile.

The following table provides information about the CIP standards that are applied to the AIX operating system, and how PowerSC Standard Edition handles the CIP standards:

Table 10. CIP standards for PowerSC Standard Edition		
CIP standard	AIX Security Expert implementation	Location of the script that modifies the value
CIP-003-3 R5.1	Configures system security parameters to prevent problems by removing the set-user identification (SUID) and set-group identification (SGID) attributes from the binary files.	<ul style="list-style-type: none"><code>/etc/security/pscxpert/bin/filepermgr</code><code>/etc/security/pscxpert/bin/rmsuidfrmcmds</code>
CIP-003-3 R5.1.1	Enables role-based access control (RBAC) by creating system operator, system administrator, and information system security officer user roles with the required permissions.	<code>/etc/security/pscxpert/bin/EnableRbac</code>
CIP-005-3a R2.1-R2.4	Enables Secure Shell (SSH) for security access.	<code>/etc/security/pscxpert/bin/sshstart</code>
CIP-005-3a R2.5 CIP-007-5 R1.1	Disables the following unnecessary and insecure services: <ul style="list-style-type: none">lpd daemonCommon Desktop Environment (CDE)	<code>/etc/security/pscxpert/bin/comntrows</code>

Table 10. CIP standards for PowerSC Standard Edition (continued)

CIP standard	AIX Security Expert implementation	Location of the script that modifies the value
CIP-005-3a R2.5 CIP-007-5 R1.1	<p>Disables the following unnecessary and insecure services:</p> <ul style="list-style-type: none"> • timed daemon • NTP daemon • rwhod daemon • DPID2 daemon • DHCP agent 	/etc/security/pscxpert/bin/rctcpip
CIP-005-3a R2.5 CIP-007-5 R1.1	<p>Disables the following unnecessary and insecure services:</p> <ul style="list-style-type: none"> • comsat daemon • dtspcd daemon • fingerd daemon • ftpd daemon • rshd daemon • rlogind daemon • rexecd daemon • systat daemon • tfptd daemon • talkd daemon • rquotad daemon • rstatd daemon • rusersd daemon • rwalld daemon • sprayd daemon • pcnfsd daemon • telnet daemon • cmsd service • ttldbserver service • TCP echo service • TCP discard service • TCP chargen service • TCP daytime service • TCP time service • UDP echo service • UDP discard service • UDP chargen service • UDP daytime service • UDP time service 	/etc/security/pscxpert/bin/cominetdconf

Table 10. CIP standards for PowerSC Standard Edition (continued)

CIP standard	AIX Security Expert implementation	Location of the script that modifies the value
CIP-005-3a R2.5 CIP-007-5 R1.1	Enforces the denial of service request for mitigation ports.	/etc/security/pscxpert/bin/tcptr_aixpert
CIP-005-3a R3 CIP-007-3a R5, R6.5 CIP-007-5 R4.4	Enables auditing of the binary files on the system.	/etc/security/pscxpert/bin/pciaudit
CIP-007-3a R3 CIP-007-5 R2.1	Displays a message to enable Trusted Network Connect (TNC).	/etc/security/pscxpert/bin/GeneralMsg
CIP-007-3a R4 CIP-007-5 R3.3	Maintains the system integrity by detecting, removing, and protecting against known types of malicious software.	/etc/security/pscxpert/bin/manageITsecurity
CIP-007-3a R5.2.1	Enables the password to be changed at the first login for all default users accounts that are not locked.	/etc/security/pscxpert/bin/pwdchg
CIP-007-3a R5.2.2-R5.2.3	Locks all default user accounts.	/etc/security/pscxpert/dodv2/lockacc_rlogin
CIP-007-3a R5.3.1	Sets each password to a minimum of 6 characters.	/etc/security/pscxpert/bin/chusrattr
CIP-007-5 R5.5.1	Sets each password to a minimum of 8 characters.	/etc/security/pscxpert/bin/chusrattr
CIP-007-3a R5.3.2 CIP-007-5 R5.5.2	Sets each password to a combination of alpha, numeric, and special characters.	/etc/security/pscxpert/bin/chusrattr
CIP-007-3a R5.3.3 CIP-007-5 R5.6	Changes each password annually.	/etc/security/pscxpert/bin/chusrattr
CIP-007-3a R7	Displays a message to enable Encrypted File System (EFS).	/etc/security/pscxpert/bin/GeneralMsg
CIP-007-5 R5.7	Limit the number of unsuccessful authentication attempts.	/etc/security/pscxpert/bin/chusrattr
CIP-010-1 CIP-010-2 R2.1	Displays a message to enable Real Time Compliance (RTC).	/etc/security/pscxpert/bin/GeneralMsg

Related information

[North American Electric Reliability Corporation compliance](#)

General Data Protection Regulation (GDPR) compliance for AIX and Linux

General Data Protection Regulation (GDPR) is designed to unify data privacy requirements across the European Union (EU). If you market to or process the information of EU Data Subjects, you need to be GDPR compliant.

GDPR requires attention to multiple levels of compliance, each with numerous sub-points. The levels of compliance that can be interpreted as requirements for server and network configuration are addressed with the PowerSC product.

The following is a summary introduction to GDPR-defined categories:

- Principles relating to processing of personal data (Article 5) such as legitimate purpose and up to date status.
- Lawfulness of processing such as consent given and necessity of processing.
- Change in purpose since collection that might require additional consent.
- Lawfulness of the use consent such as was the consent written and freely given.
- Processing of special categories of personal data (Article 9). Special categories of personal data include data revealing racial or ethnic origin; political opinions; religious or philosophical beliefs; trade-union membership; genetic or biometric data for the purpose of uniquely identifying a natural; data concerning health; data concerning sexual orientation. Processing may be prohibited under various circumstances.
- Upholding the rights and freedoms of a subject (Article 12) with regard to their data such as transparency of collection and future use of the data.
- Right of access by the data subject (Article 15) such as the right to obtain confirmation as to whether or not personal data is being processed.
- Right to rectification (Article 16) including timely correction of inaccurate data.
- Right to erasure (Article 17) which state that in certain circumstances, upon request, the controller of the data has the obligation to erase personal data without undue delay.
- Right to restriction of processing (Article 18) based on legitimate grounds.
- Right to data portability (Article 20) means that the subject can request and receive their own personal data in a structured, commonly used, and machine-readable format; without hindrance from the data controller.
- Right to object (Article 21) includes a list of points that may constitute sufficient grounds for an individual to object to processing of their personal data.
- Automated individual decision-making, including profiling (Article 22) specifies the right of an individual to not be subject to a decision based solely on automated processing, including profiling.
- Processing (Article 28) specifies the rules about sub-contracting the processing of personal data.
- Records of processing activities such as requirements for record keeping (Article 32).
- Security of processing (Article 32) specifies the requirements to implement appropriate technical and organizational measures to ensure a level of security appropriate to the risk. Includes pseudonymization and encryption of personal data.
- Data protection impact assessment (Article 35) details the responsibility to carry out a meaningful assessment of the data protection risks and impacts of certain high-risk processing.
- Data Protection officer (Article 39) specifies the requirements for a Data Protection Officer (DPO).
- Transfer of personal data to third countries or other international organizations (Article 44) includes numerous restrictions.

The details of operating system and network configuration parameters relevant to maintaining the required level of data protection are subjective, and can vary depending on the specific situation.

Not all PowerSC rules for GDPR correspond precisely to an article number or page of the official GDPR document, and rules often can be associated with one or more of the GDPR principles that are described above. The primary GDPR principles and Articles addressed by PowerSC profile rules are:

- Article 5 GDPR Principles relating to processing of personal data
- Article 25 GDPR Data protection by design and by default
- Article 30 GDPR Records of processing activities (audit rules)
- Article 32 GDPR Security of processing (most rules address this article)

As noted, accomplishing GDPR compliance is much broader than just applying a server security and compliance profile. GDPR involves business processes and data management layers. The GDPR profile provided will not accomplish GDPR compliance, and it is not accurate to declare a system as being GDPR compliant based solely on applying the GDPR profile. There is no single solution that will address all the requirements of GDPR.

General Data Protection Regulation (GDPR) compliance for AIX

This table contains the settings that implement the GDPR compliance standard for AIX.

The details of operating system and network configuration parameters relevant to maintaining the required level of data protection are subjective, and can vary depending on the specific situation. Not all the entries in the following table correspond precisely to an article number or page of the official GDPR document. Principles listed in the table combine one or more of the GDPR principles described above.

Table 11. GDPR Compliance Profile rules for AIX	
Requirement	Location of the script that modifies the setting
Always change vendor-supplied defaults before installing a system on the network. For example, include passwords, simple network management protocol community strings, and eliminate unnecessary accounts.	/etc/security/psccexpert/bin/chusrattr
Change user passwords at least every 90 days.	/etc/security/psccexpert/bin/chusrattr
Require a minimum password length of at least 7 characters.	/etc/security/psccexpert/bin/chusrattr
Use passwords that contain both numeric and alphabetic characters.	/etc/security/psccexpert/bin/chusrattr
Do not allow an individual to submit a new password that is the same as any of the last four passwords he or she has used.	/etc/security/psccexpert/bin/chusrattr
Limit repeated access attempts by locking out the user ID after not more than six attempts.	/etc/security/psccexpert/bin/chusrattr /etc/security/psccexpert/bin/chdefstanza /etc/security/login.cfg
Set the lockout duration to a minimum of 30 minutes or until administrator enables the user ID.	/etc/security/psccexpert/bin/chdefstanza /etc/security/login.cfg
Activate remote-access technologies for vendors and business partners only when needed and deactivate immediately after use.	/etc/security/psccexpert/bin/chuserstanza /etc/security/user
Assign all users a unique ID before allowing access to system components or user data.	/etc/security/psccexpert/bin/chuserstanza /etc/security/user

Table 11. GDPR Compliance Profile rules for AIX (continued)

Requirement	Location of the script that modifies the setting
Enable auditing on the system.	/etc/security/psccexpert/bin/pccaudit
Disable unnecessary and insecure services which include the Common Desktop Environment (CDE).	/etc/security/psccexpert/bin/comntrows
Disable unnecessary and insecure services which include the timed daemon.	/etc/security/psccexpert/bin/rctcpip
Disable unnecessary and insecure services which include the rwhod daemon.	/etc/security/psccexpert/bin/rctcpip
Change the vendor supplied defaults before installing a system on the network which includes disabling the SNMP daemon.	/etc/security/psccexpert/bin/rctcpip
Change vendor supplied defaults before installing a system on the network which includes disabling the SNMPMIBD daemon.	/etc/security/psccexpert/bin/rctcpip
Change vendor-supplied defaults before installing a system on the network which includes disabling the AIXMIBD daemon.	/etc/security/psccexpert/bin/rctcpip
Change vendor-supplied defaults before installing a system on the network which includes disabling the HOSTMIBD daemon.	/etc/security/psccexpert/bin/rctcpip
Disable unnecessary and insecure services which include the DPID2 daemon.	/etc/security/psccexpert/bin/rctcpip
Change vendor supplied defaults before installing a system on the network which includes stopping the DHCP server.	/etc/security/psccexpert/bin/rctcpip
Disable unnecessary and insecure services which include the DHCP agent.	/etc/security/psccexpert/bin/rctcpip
Disable unnecessary and insecure services which include the rshd daemon.	/etc/security/psccexpert/bin/cominetdconf
Disable unnecessary and insecure services which include the rlogind daemon.	/etc/security/psccexpert/bin/cominetdconf
Disable unnecessary and insecure services which include the rexecd daemon.	/etc/security/psccexpert/bin/cominetdconf
Disable unnecessary and insecure services which include the comsat daemon	/etc/security/psccexpert/bin/cominetdconf
Disable unnecessary and insecure services which include the fingerd daemon.	/etc/security/psccexpert/bin/cominetdconf
Disable unnecessary and insecure services which include the sysstat daemon.	/etc/security/psccexpert/bin/cominetdconf
Change vendor-supplied defaults before installing a system on the network which includes disabling the netstat command.	/etc/security/psccexpert/bin/cominetdconf

Table 11. GDPR Compliance Profile rules for AIX (continued)

Requirement	Location of the script that modifies the setting
Disable unnecessary and insecure services which include the tftp daemon.	/etc/security/psccexpert/bin/cominetdconf
Disable unnecessary and insecure services which include the talkd daemon.	/etc/security/psccexpert/bin/cominetdconf
Disable unnecessary and insecure services which include the rquotad daemon.	/etc/security/psccexpert/bin/cominetdconf
Disable unnecessary and insecure services which include the rstatd daemon.	/etc/security/psccexpert/bin/cominetdconf
Disable unnecessary and insecure services which include the rusersd daemon.	/etc/security/psccexpert/bin/cominetdconf
Disable unnecessary and insecure services which include the rwall daemon.	/etc/security/psccexpert/bin/cominetdconf
Disable unnecessary and insecure services which include the sprayd daemon.	/etc/security/psccexpert/bin/cominetdconf
Disable unnecessary and insecure services which include the pcnfsd daemon.	/etc/security/psccexpert/bin/cominetdconf
Disable unnecessary and insecure services which include the TCP echo service.	/etc/security/psccexpert/bin/cominetdconf
Disable unnecessary and insecure services which include the TCP discard service.	/etc/security/psccexpert/bin/cominetdconf
Disable unnecessary and insecure services which include the TCP chargen service.	/etc/security/psccexpert/bin/cominetdconf
Disable unnecessary and insecure services which include the TCP daytime service.	/etc/security/psccexpert/bin/cominetdconf
Disable unnecessary and insecure services which include the TCP time service.	/etc/security/psccexpert/bin/cominetdconf
Disable unnecessary and insecure services which include the UDP echo service.	/etc/security/psccexpert/bin/cominetdconf
Disable unnecessary and insecure services which include the UDP discard service.	/etc/security/psccexpert/bin/cominetdconf
Disable unnecessary and insecure services which include the UDP chargen service.	/etc/security/psccexpert/bin/cominetdconf
Disable unnecessary and insecure services which include the UDP daytime service.	/etc/security/psccexpert/bin/cominetdconf
Disable unnecessary and insecure services which include the UDP time service.	/etc/security/psccexpert/bin/cominetdconf
Disable unnecessary and insecure services which include the FTP service.	/etc/security/psccexpert/bin/cominetdconf
Disable unnecessary and insecure services which include the telnet service.	/etc/security/psccexpert/bin/cominetdconf
Disable unnecessary and insecure services which include dtspc service.	/etc/security/psccexpert/bin/cominetdconf

Table 11. GDPR Compliance Profile rules for AIX (continued)

Requirement	Location of the script that modifies the setting
Disable unnecessary and insecure services which include the ttldbserver service.	/etc/security/psccexpert/bin/cominetdconf
Disable unnecessary and insecure services which include the cmsd service.	/etc/security/psccexpert/bin/cominetdconf
Configure system security parameters to prevent misuse.	/etc/security/psccexpert/bin/rmsuidfrmcmds /etc/security/psccexpert/bin/filepermgr /etc/security/psccexpert/bin/nfsconfig
Enable only necessary and secure services, protocols, and daemons as required for the correct function of the system. Implement security features for any required services, protocols or daemons that are considered to be insecure.	/etc/security/psccexpert/bin/dismtdmns /etc/security/psccexpert/bin/rmrhostsnetrc /etc/security/psccexpert/bin/rmetchostsequiv
Implement stateful inspection, or packet filtering, in which only established connections are allowed on the network.	/etc/security/psccexpert/bin/ntwkopts
Protect unauthorized access to unused ports.	/etc/security/psccexpert/bin/ipsecshunhosthls
Protect the host from port scans.	/etc/security/psccexpert/bin/ipsecshunhosthls
Limit object creation permissions.	/etc/security/psccexpert/bin/chusrattr
Limit system access.	/etc/security/psccexpert/bin/limitsysacc /etc/security/psccexpert/bin/chetcftpusers
Remove dot from the path root.	/etc/security/psccexpert/bin/rmdotfrmpathroot
Remove dot from the non-root path.	/etc/security/psccexpert/bin/rmdotfrmpathnroot
Remove the guest account.	/etc/security/psccexpert/bin/execcmds
Prevent launching programs in content space.	/etc/security/psccexpert/bin/sedconfig
Ensure that the password for root is not weak.	/etc/security/psccexpert/bin/chuserstanza
Limit access to the system by setting the session idle time.	/etc/security/psccexpert/bin/autologoff
Limit traffic access to cardholder information.	/etc/security/psccexpert/bin/tcptr_psccexpert
Maintain a secure connection when migrating data.	/etc/security/psccexpert/bin/cfgsecmig
Limit packets from unknown sources.	/etc/security/psccexpert/bin/ipsecpermithostorport
Maintain antivirus software.	/etc/security/psccexpert/bin/manageITsecurity
Maintain access on an as needed basis.	/etc/security/psccexpert/bin/EnableRbac

Table 11. GDPR Compliance Profile rules for AIX (continued)

Requirement	Location of the script that modifies the setting
Implement more security features for any required services, protocols, or daemons that are considered to be insecure.	/etc/security/psccexpert/bin/sshPCIconfig
The SSH client must be configured to use only the SSHv2 protocol.	/etc/security/psccexpert/bin/sshPCIconfig
The SSH daemon must listen only on management network addresses unless it is authorized for uses other than management.	/etc/security/psccexpert/bin/sshPCIconfig
The SSH daemon must be configured to use only FIPS 140-2 approved ciphers.	/etc/security/psccexpert/bin/sshPCIconfig
The SSH daemon must be configured to use only Message Authentication Codes (MACs) that employ FIPS 140-2 approved cryptographic hash algorithms.	/etc/security/psccexpert/bin/sshPCIconfig
The SSH daemon must restrict login ability to specific users or groups.	/etc/security/psccexpert/bin/sshPCIconfig
The system must display the date and time of the last successful account login upon login.	/etc/security/psccexpert/bin/sshPCIconfig
The SSH daemon must complete strict mode checking of home directory configuration files.	/etc/security/psccexpert/bin/sshPCIconfig
The SSH daemon must use privilege separation.	/etc/security/psccexpert/bin/sshPCIconfig
The SSH daemon must not allow rhosts to have RSA authentication.	/etc/security/psccexpert/bin/sshPCIconfig
Examine configuration standards and processes to verify that time-synchronization technology is implemented and kept current per PCI DSS Requirements 6.1 and 6.2.	/etc/security/psccexpert/bin/rctcpip
Disable a user account when not in use.	/etc/security/psccexpert/bin/disableacctpci
Disable Secure Sockets Layer (SSL) v3 and Transport Layer Security (TLS) v1.0 in applications.	/etc/security/psccexpert/bin/disableSSL
Disable SSL v3 and TLS v1.0 in applications.	/etc/security/psccexpert/bin/disableSSL /etc/security/psccexpert/bin/checkNTP /etc/security/psccexpert/bin/secureFTP /etc/security/psccexpert/bin/sendmailPCIconfig /etc/security/psccexpert/bin/sslversion
Enforce two-factor authentication.	/etc/security/psccexpert/bin/pwdalgchk

General Data Protection Regulation (GDPR) compliance for Linux

Table 11 on page 149 describes the compliance profile rules.

Table 12. GDPR Compliance Profile rules for Linux		
Requirement	The Linux Security Expert implementation	Location of the script that modifies the setting
Change vendor-supplied defaults before installing a system on the network, which includes disabling the netstat command.	Disables the netstat command by commenting out the corresponding entry in the /etc/inetd.conf file.	/etc/security/pscxpert/bin/network-services-rules.sh
Always change vendor-supplied defaults before installing a system on the network. For example, include passwords, simple network management protocol community strings, and eliminate unnecessary accounts.	Sets the number of weeks that an account with an expired password remains in the system to 8 weeks by setting the maxexpired parameter to a value of 8.	/etc/security/pscxpert/bin/password_rules.sh
Always change vendor-supplied defaults before installing a system on the network. For example, include passwords, simple network management protocol community strings, and eliminate unnecessary accounts.	Sets the minimum number of weeks that must pass before you can change a password to 0 weeks by setting the minage parameter to a value of 0.	/etc/security/pscxpert/bin/password_rules.sh
NFS. Change the vendor-supplied defaults before installing a system on the network, which includes disabling the SNMP daemon.	Stops the SNMP daemon and comments out the corresponding entry in the /etc/rc.tcpip file that automatically starts the daemon.	/etc/security/pscxpert/bin/network-daemon-rules.sh
Disable unnecessary and insecure services, which include the DHCP agent.	Stops and disables the DHCP relay agent and comments out the corresponding entry in the /etc/rc.tcpip file that automatically starts the agent.	/etc/security/pscxpert/bin/network-daemon-rules.sh
Change vendor-supplied defaults before installing a system on the network, which includes stopping the DHCP server.	Disables the DHCP server.	/etc/security/pscxpert/bin/network-daemon-rules.sh
Disable unnecessary and insecure services, which include the UDP time service.	Stops and disables all instances of the timed(udp) service.	/etc/security/pscxpert/bin/network-services-rules.sh

Table 12. GDPR Compliance Profile rules for Linux (continued)

Requirement	The Linux Security Expert implementation	Location of the script that modifies the setting
Disable unnecessary and insecure services, which include the TCP time service.	Stops and disables all instances of the <code>timed(tcp)</code> service.	<code>/etc/security/pscxpert/bin/network-services-rules.sh</code>
Disable unnecessary and insecure services, which include the TCP daytime service.	Stops and disables all instances of the <code>daytime(tcp)</code> service.	<code>/etc/security/pscxpert/bin/network-services-rules.sh</code>
Disable unnecessary and insecure services, which include the UDP daytime service.	Stops and disables all instances of the <code>daytime(udp)</code> service.	<code>/etc/security/pscxpert/bin/network-services-rules.sh</code>
Disable unnecessary and insecure services, which include the <code>rexecd</code> daemon.	Stops and disables all instances of the <code>rexecd</code> daemon. The AIX Security Expert utility also comments out the corresponding entry in the <code>/etc/inetd.conf</code> file that automatically starts the daemon.	<code>/etc/security/pscxpert/bin/network-rexec-rules.sh</code>
Disable unnecessary and insecure services, which include the <code>rshd</code> daemon.	Stops and disables all instances of the <code>rshd</code> daemon and the shell service, and comments out the corresponding entries in the <code>/etc/inetd.conf</code> file that automatically start the instances.	<code>/etc/security/pscxpert/bin/network-rexec-rules.sh</code>
Disable unnecessary and insecure services, which include the <code>krshd</code> daemon.	Stops and disables all instances of the <code>krshd</code> daemon and the shell service, and comments out the corresponding entries in the <code>/etc/inetd.conf</code> file that automatically start the instances.	<code>/etc/security/pscxpert/bin/network-rexec-rules.s</code>
Disable unnecessary and insecure services, which include the <code>rlogind</code> daemon.	Stops and disables all instances of the <code>rlogind</code> daemon and <code>rlogin</code> service.	<code>/etc/security/pscxpert/bin/network-rexec-rules.sh</code>
Disable unnecessary and insecure services, which include the <code>krlogind</code> daemon.	Stops and disables all instances of the <code>krlogind</code> daemon and <code>rlogin</code> service.	<code>/etc/security/pscxpert/bin/network-rexec-rules.s</code>

Table 12. GDPR Compliance Profile rules for Linux (continued)

Requirement	The Linux Security Expert implementation	Location of the script that modifies the setting
Disable unnecessary and insecure services, which include the rwhod daemon.	Stops the rwhod daemon and comments out the corresponding entry in the /etc/rc.tcpip file that automatically starts the daemon.	/etc/security/pscxpert/bin/network-rexec-rules.sh
Disable unnecessary and insecure services, which include the fingerd daemon.	Stops and disables all instances of the fingerd daemon.	/etc/security/pscxpert/bin/network-daemon-rules.sh
Disable unnecessary and insecure services, which include the systat daemon.	Stops and disables all instances of the systat daemon.	/etc/security/pscxpert/bin/network-services-rules.sh
Disable unnecessary and insecure services, which include the rquotad daemon.	Stops and disables all instances of the rquotad daemon.	/etc/security/pscxpert/bin/network-rpc-rules.sh
Disable unnecessary and insecure services, which include the rstatd daemon.	Stops and disables all instances of the rstatd daemon.	/etc/security/pscxpert/bin/network-rpc-rules.sh
Disable unnecessary and insecure services, which include the rusersd daemon.	Stops and disables all instances of the rusersd daemon.	/etc/security/pscxpert/bin/network-rpc-rules.sh
Disable unnecessary and insecure services, which include the UDP chargen service.	Stops and disables all instances of the chargen(udp) service.	/etc/security/pscxpert/bin/network-services-rules.sh
Disable unnecessary and insecure services, which include the TCP chargen service.	Stops and disables all instances of the chargen(tcp) service.	/etc/security/pscxpert/bin/network-services-rules.sh
Disable unnecessary and insecure services, which include the TCP echo service.	Stops and disables all instances of the echo(tcp) service.	/etc/security/pscxpert/bin/network-services-rules.sh
Disable unnecessary and insecure services, which include the UDP echo service.	Stops and disables all instances of the echo(udp) service.	/etc/security/pscxpert/bin/network-services-rules.sh
Disable unnecessary and insecure services, which include the UDP discard service.	Stops and disables all instances of the discard(udp) service.	/etc/security/pscxpert/bin/network-services-rules.sh

Table 12. GDPR Compliance Profile rules for Linux (continued)

Requirement	The Linux Security Expert implementation	Location of the script that modifies the setting
Disable unnecessary and insecure services, which include the TCP discard service.	Stops and disables all instances of the discard(tcp) service.	/etc/security/pscxpert/bin/network-services-rules.sh
Disable unnecessary and insecure services, which include the dns daemon.	Stops and disables all instances of the dns daemon.	/etc/security/pscxpert/bin/network-daemon-rules.s
Disable unnecessary and insecure services, which include the tftp daemon.	Stops and disables all instances of the tftp daemon.	/etc/security/pscxpert/bin/network-daemon-rules.sh
Disable unnecessary and insecure services, which include the uucpd daemon.	Stops and disables all instances of the uucpd daemon.	/etc/security/pscxpert/bin/network-daemon-rules.sh
Disable unnecessary and insecure services, which include the talk daemon.	Stops and disables all instances of the talk daemon.	/etc/security/pscxpert/bin/network-daemon-rules.sh
Disable unnecessary and insecure services, which include the zebra routing manager,	Stop and disable zebra routing manager.	
Disable SSL v3 and TLS v1.0 in applications.	Disable SSLv3 and TLS v1.0 in sendmail configuration.	/etc/security/pscxpert/bin/network-mail-rules.sh
Disable unnecessary and insecure services, which include the exim mail transfer.	Stop and disable exim.	/etc/security/pscxpert/bin/network-mail-rules.sh
Disable unnecessary and insecure services, which include the postfix mail transfer agent.	Stop and disable postfix.	/etc/security/pscxpert/bin/network-mail-rules.sh
Disable unnecessary and insecure services, which include the qpopper-pop3 server.	Stop and disable qpopper-pop3 server.	/etc/security/pscxpert/bin/network-mail-rules.sh
Disable Secure Sockets Layer (SSL) v3 and Transport Layer Security (TLS) v1.0 in applications.	Disable SSLv3 and TLS v1.0 versions in Cyrus POP3 server (Pop3d) configuration.	/etc/security/pscxpert/bin/network-mail-rules.sh
Disable Secure Sockets Layer (SSL) v3 and Transport Layer Security (TLS) v1.0 in applications.	Disable SSLv3 and TLS v1.0 versions in Dovecot POP3 server (Pop3d) configuration.	/etc/security/pscxpert/bin/network-mail-rules.sh

Table 12. GDPR Compliance Profile rules for Linux (continued)

Requirement	The Linux Security Expert implementation	Location of the script that modifies the setting
Disable SSL v3 and TLS v1.0 in applications.	Disable SSLV3 and TLS v1.0 in the Cyrus IMAP server .	/etc/security/pscxpert/bin/network-mail-rules.sh
Disable SSL v3 and TLS v1.0 in applications.	Disable SSLV3 and TLS v1.0 in the Dovecot IMAP server .	/etc/security/pscxpert/bin/network-mail-rules.sh
Disable SSL v3 and TLS v1.0 in applications.	Disable Dnsmasq network services.	/etc/security/pscxpert/bin/network-daemon-rules.sh
Disable unnecessary and insecure services, which include the atftp daemon.	Stop and disable atftp daemon.	/etc/security/pscxpert/bin/network-daemon-rules.sh
Disable unnecessary and insecure services, which include the vsftp daemon.	Stop and disable vsftp daemon.	/etc/security/pscxpert/bin/network-daemon-rules.sh
Disable unnecessary and insecure services, which include the pureftpd daemon.	Stop and disable pureftpd daemon.	/etc/security/pscxpert/bin/network-daemon-rules.sh
Disable unnecessary and insecure services, which include the gssftpd daemon.	Stop and disable gssftpd daemon.	/etc/security/pscxpert/bin/network-daemon-rules.sh
Disable unnecessary and insecure services, which include the kerberos telnetd daemon.	Stops and disables all instances of the kerberos_telnetd daemon.	/etc/security/pscxpert/bin/network-daemon-rules.sh
Disable unnecessary and insecure services, which include the erkrb5 telnet service.	Stops and disables all instances of the ekrb5_telnetd daemon.	/etc/security/pscxpert/bin/network-daemon-rules.sh
Disable unnecessary and insecure services, which include the ntalk daemon.	Stops and disables all instances of the ntalk daemon.	/etc/security/pscxpert/bin/network-daemon-rules.sh
Disable unnecessary and insecure services, which include the DHCPV6 agent.	Stops and disables the DHCPV6 relay agent and comments out the corresponding entry in the /etc/rc.tcpip file that automatically starts the agent.	/etc/security/pscxpert/bin/network-daemon-rules.sh
Change vendor-supplied defaults before installing a system on the network, which includes stopping the DHCPV6 server.	Disables the DHCPV6 server.	/etc/security/pscxpert/bin/network-daemon-rules.sh

Table 12. GDPR Compliance Profile rules for Linux (continued)

Requirement	The Linux Security Expert implementation	Location of the script that modifies the setting
Disable unnecessary and insecure services, which include the <code>erklogind</code> daemon.	Stops and disables all instances of the <code>erklogind</code> daemon.	<code>remote_services_rules.sh</code>
Disable unnecessary and insecure services, which include the <code>rlogind</code> , <code>rshd</code> and <code>tftpd</code> daemons.	Stops and disables all instances of the <code>rlogind</code> , <code>rshd</code> and <code>tftpd</code> daemons.	<code>/etc/security/pscxpert/bin/remote_services_rules.sh</code>
Disable unnecessary and insecure services that are specific to <code>nfs</code> .	Remove <code>nfs</code> mounts, stop <code>nfs</code> daemon, and remove <code>nfs</code> from startup.	<code>/etc/security/pscxpert/bin/remote_services_rules.sh</code>
Disable unnecessary and insecure services.	Disables <code>uucp</code> daemon.	<code>/etc/security/pscxpert/bin/network-daemon-rules</code>
Disable unnecessary and insecure services that are specific to <code>telnet</code> .	Stop and disable <code>telnetd</code> .	<code>/etc/security/pscxpert/bin/network-daemon-rules.sh</code>
Disable unnecessary and insecure services, which include the <code>rlogind</code> , <code>rshd</code> , <code>rsh</code> , <code>tftp</code> , and <code>rcp</code> commands.	Stops and disables all instances of the <code>rlogind</code> , <code>rshd</code> , <code>rsh</code> , <code>tftpd</code> , and <code>rcp</code> daemons.	<code>/etc/security/pscxpert/bin/remote_services_rules.sh</code>
Configure system security parameters to prevent misuse.	Disable <code>ipforwarding</code> .	<code>/etc/security/pscxpert/bin/network-tuning-options-rules.sh</code>
Configure system security parameters to prevent misuse.	Enable <code>icmp_ignore_bogus_error_responses</code> .	<code>/etc/security/pscxpert/bin/network-tuning-options-rules.sh</code>
Configure system security parameters to prevent misuse.	Enable <code>rp_filter</code> .	<code>/etc/security/pscxpert/bin/network-tuning-options-rules.sh</code>
Configure system security parameters to prevent misuse.	Disable <code>send_redirects</code> .	<code>/etc/security/pscxpert/bin/network-tuning-options-rules.sh</code>
Configure system security parameters to prevent misuse.	Disable <code>accept_redirects</code> .	<code>/etc/security/pscxpert/bin/network-tuning-options-rules.sh</code>
Configure system security parameters to prevent misuse.	Disable <code>accept_source_route</code> .	<code>/etc/security/pscxpert/bin/network-tuning-options-rules.sh</code>
Configure system security parameters to prevent misuse.	Disable <code>ip_no_pmtu_disc</code> .	<code>/etc/security/pscxpert/bin/network-tuning-options-rules.sh</code>

Table 12. GDPR Compliance Profile rules for Linux (continued)

Requirement	The Linux Security Expert implementation	Location of the script that modifies the setting
Configure system security parameters to prevent misuse.	Enable tcp_syncookies.	etc/security/pscxpert/bin/network-tuning-options-rules.sh
Configure system security parameters to prevent misuse.	Enable <pre>icmp_echo _ignore_broadcasts</pre>	etc/security/pscxpert/bin/network-tuning-options-rules.sh
Configure system security parameters to prevent misuse.	Enable rfc1323-linux.	etc/security/pscxpert/bin/network-tuning-options-rules.sh
Configure system security parameters to prevent misuse.	Disable secure_redirects.	etc/security/pscxpert/bin/network-tuning-options-rules.sh
Enable only necessary and secure services, protocols, daemons, and so on, as required for the correct function of the system. Implement security features for any required services, protocols or daemons that are considered to be insecure.	Disables the .rhosts file for every user.	/etc/security/pscxpert/bin/remote_access_rules.sh
Enable only necessary and secure services, protocols, daemons, and so on, as required for the correct function of the system. Implement security features for any required services, protocols or daemons that are considered to be insecure.	Disables the .netrc file for every user.	/etc/security/pscxpert/bin/remote_access_rules.sh
Enable only necessary and secure services, protocols, daemons, and so on, as required for the correct function of the system. Implement security features for any required services, protocols or daemons that are considered to be insecure.	Comments out entries from /etc/hosts.equiv file.	/etc/security/pscxpert/bin/remote_access_rules.sh

Table 12. GDPR Compliance Profile rules for Linux (continued)		
Requirement	The Linux Security Expert implementation	Location of the script that modifies the setting
Disable Secure Sockets Layer (SSL) v3 and Transport Layer Security (TLS) v1.0 in applications.	Disable SSLv3 and TLS v1.0 versions in POP3 server (Pop3d) configuration.	/etc/security/pscxpert/bin/ssh_rules.sh
Disable SSL v3 and TLS v1.0 in applications.	Disable SSLV3 and TLS v1.0 in the IMAP server (imapd).	/etc/security/pscxpert/bin/ssh_rules.sh
Disable SSL v3 and TLS v1.0 in applications.	Check the File Transfer Protocol Daemon (FTPD) configuration file for TLS 1.1, or later security adoption.	/etc/security/pscxpert/bin/ssh_rules.sh
Disable SSL v3 and TLS v1.0 in applications.	Check the File Transfer Protocol Client (FTPC) configuration file for TLS 1.1, or later security adoption.	/etc/security/pscxpert/bin/ssh_rules.sh
Disable SSL v3 and TLS v1.0 in applications.	Disable in sendmail configuration file.	/etc/security/pscxpert/bin/ssh_rules.sh
Disable SSL v3 and TLS v1.0 in applications.	Check for required SSL version.	/etc/security/pscxpert/bin/sslversion.sh
Disable insecure daemons.	Disables rlogind, rshd, and tftpd daemons	/etc/security/pscxpert/bin/remote_services_rules
Disable insecure commands.	Disables the following insecure commands: <ul style="list-style-type: none"> • rlogin • rsh • rcp • tftp 	/etc/security/pscxpert/bin/remote_services_rules
Configure system security parameters to prevent misuse.	Removes the Set User ID (SUID/SGID) commands by commenting out the corresponding entry in the /etc/inetd.conf file that automatically enables the commands.	/etc/security/pscxpert/bin/suid_rules.sh
Configure system security parameters to prevent misuse.	Enables the lowest security level for the File Permissions Manager.	/etc/security/pscxpert/bin/suid_rules.sh
Configure system security parameters to prevent misuse.	Disable root account from ftp access.	/etc/security/pscxpert/bin/misc_rules
Check if ssh file sets are installed.	Start the sshd daemon if not started and configure to start at every reboot.	/etc/security/pscxpert/bin/network-daemon-rules.sh

Table 12. GDPR Compliance Profile rules for Linux (continued)

Requirement	The Linux Security Expert implementation	Location of the script that modifies the setting
The SSH daemon must be configured to only use the SSHv2 protocol.	Configures the SSH daemon to use only the SSHv2 protocol.	/etc/security/pscxpert/bin/ssh_config_rules.sh
The SSH Client must be configured to use only the SSHv2 protocol.	Configures the SSH client to use the SSHv2 protocol.	/etc/security/pscxpert/bin/ssh_config_rules.sh
The SSH daemon must listen only on management network addresses unless it is authorized for uses other than management.	Ensures that the SSH daemon is set up only to listen.	/etc/security/pscxpert/bin/ssh_config_rules.sh
The SSH daemon must be configured to use only FIPS 140-2 approved ciphers	Ensures that the SSH daemon uses only the FIPS 140-2 ciphers.	/etc/security/pscxpert/bin/ssh_config_rules.sh
The SSH daemon must be configured to use only Message Authentication Codes (MACs) that employ FIPS 140-2 approved cryptographic hash algorithms.	Ensures that the MACs are running the approved algorithms.	/etc/security/pscxpert/bin/ssh_config_rules.sh
The SSH client must be configured to use only FIPS 140-2 approved ciphers	Ensures that the SSH client uses only the FIPS 140-2 ciphers.	/etc/security/pscxpert/bin/ssh_config_rules.sh
The SSH client must be configured to use only Message Authentication Codes (MACs) that employ FIPS 140-2 approved cryptographic hash algorithms.	Ensures that the MACs are running the approved algorithms.	/etc/security/pscxpert/bin/ssh_config_rules.sh
The SSH daemon must restrict login ability to specific users or groups.	Restricts login on the system to specific users and groups.	/etc/security/pscxpert/bin/ssh_config_rules.sh
The system must display the date and time of the last successful account login upon login.	Maintains the information from the last successful login, and displays it after the next successful login.	/etc/security/pscxpert/bin/ssh_config_rules.sh
The SSH daemon must perform strict mode checking of home directory configuration files.	Ensures that the home directory configuration files are set to the correct modes	/etc/security/pscxpert/bin/ssh_config_rules.sh

Table 12. GDPR Compliance Profile rules for Linux (continued)		
Requirement	The Linux Security Expert implementation	Location of the script that modifies the setting
The SSH daemon must use privilege separation.	Ensures that the SSH daemon has the correct amount of separation of its privileges.	/etc/security/pscxpert/bin/ssh_config_rules.sh
The SSH daemon must not allow rhosts to have RSA authentication.	Disables RSA authentication for rhosts when you are using the SSH daemon.	/etc/security/pscxpert/bin/ssh_config_rules.sh
The SSH daemon must not allow compression or must only allow compression after successful authentication.	The SSH daemon disables compression unless there is successful authentication.	/etc/security/pscxpert/bin/ssh_config_rules.sh
Maintain antivirus software.	Maintains the system integrity by detecting, removing, and protecting against known types of malicious software.	/etc/security/pscxpert/bin/pci_filemon_rules.sh
Remove dot from the non-root path.	Removes the dots from <i>PATH</i> environment variable in the following files that are in the user home directory: <ul style="list-style-type: none"> • .cshrc • .kshrc • .login • .profile 	/etc/security/pscxpert/bin/misc_rules.sh
Remove dot from the root path.	Removes the dots from <i>PATH</i> environment variable in the following files that are in the root's home directory: <ul style="list-style-type: none"> • .cshrc • .kshrc • .login • .profile 	/etc/security/pscxpert/bin/misc_rules.sh
Limit system access.	Ensures that the root ID is the only one that is listed in the <i>cron.allow</i> file and removes the <i>cron.deny</i> file from the system.	/etc/security/pscxpert/bin/misc_rules.sh
Limit system access.	Verifies that root cron jobs are owned and can be written to only by root.	/etc/security/pscxpert/bin/misc_rules.sh
Limit system access.	Only allow root to create at jobs.	/etc/security/pscxpert/bin/misc_rules.sh

Table 12. GDPR Compliance Profile rules for Linux (continued)		
Requirement	The Linux Security Expert implementation	Location of the script that modifies the setting
Limit object creation permissions.	Sets the default object creation permissions to 22 by setting the umask parameter to a value of 22.	/etc/security/pscxpert/bin/misc_rules.sh
Limit system access.	Restrict access rights to privileged user IDs to the least privileges necessary to perform job responsibilities.	/etc/security/pscxpert/bin/suid_rules
Prevent root from logging in.	Prevent root from logging in.	/etc/security/pscxpert/bin/login_rules.sh
Disable a user account when not in use.	Disables user accounts after 90 days of inactivity.	/etc/security/pscxpert/bin/ssh_rules.sh
Limit repeated access attempts by locking out the user ID after not more than six attempts.	Sets the number of consecutive unsuccessful login attempts that disables an account to 6 attempts for each non-root account by setting the loginentries parameter to a value of 6.	/etc/security/pscxpert/bin/login_rules.sh
Set the lockout duration to a minimum of 30 minutes or until administrator enables the user ID.	Sets the duration of time that a port is locked after it is disabled by the <i>logindisable</i> attribute to 30 minutes by setting the loginreenable parameter to a value of 30.	/etc/security/pscxpert/bin/login_rules.sh
Limit access to the system by setting the session idle time.	Sets the idle time limit to 15 minutes. If the session is idle for longer than 15 minutes, you must reenter the password.	/etc/security/pscxpert/bin/misc_rules.sh
Ensure that the password for root is not weak.	Starts a root password integrity check against the root password, thereby ensuring a strong root password.	/etc/security/pscxpert/bin/validation_rules.sh
Ensure the password is not weak.	Set the system password algorithm to a stronger cryptographic hash algorithm.	/etc/security/pscxpert/bin/password_rules.sh
Require a minimum password length of at least 7 characters.	Sets the minimum password length to 7 characters by setting the minlen parameter to a value of 7.	/etc/security/pscxpert/bin/password_rules.sh

Table 12. GDPR Compliance Profile rules for Linux (continued)

Requirement	The Linux Security Expert implementation	Location of the script that modifies the setting
Use passwords that contain both numeric and alphabetic characters.	Sets the minimum number of uppercase alphabetic characters that are required in a password to 1. This setting ensures that the password contains uppercase alphabetic characters by setting the minalphaupper parameter to a value of 1.	/etc/security/pwscexpert/bin/password_rules.sh
Use passwords that contain both numeric and alphabetic characters.	Sets the minimum number of lowercase alphabetic characters that are required in a password to 1. This setting ensures that the password contains lowercase alphabetic characters by setting the minalphalower parameter to a value of 1.	/etc/security/pwscexpert/bin/password_rules.sh
Use passwords that contain both numeric and alphabetic characters.	Specifies the minimum number of numeric characters in a password to 1.	/etc/security/pwscexpert/bin/password_rules.sh
Change user passwords at least every 90 days.	Sets the maximum number of weeks that a password is valid to 12 weeks (at most 90 days) by setting the maxage parameter to a value of 12.	/etc/security/pwscexpert/bin/password_rules.sh
Do not allow an individual to submit a new password that is the same as any of the last four passwords he or she has used.	Sets the number of previous passwords that you cannot reuse to 4 by setting the histsize parameter to a value of 4.	/etc/security/pwscexpert/bin/password_rules.sh
Valid passwords that should not be used.	Do not use group, shared, or generic accounts and passwords.	/etc/security/pwscexpert/bin/validation_rules.sh
Disable system account	Default system accounts must be disabled.	etc/security/pwscexpert/dodv2/lockacc_rlogin
Remove guest account.	Removes guest account and its files.	/etc/security/pwscexpert/bin/misc_rules.sh
Enable auditing on the system.	Establish a process for linking all access to system components (especially access done with administrative privileges such as root) to each individual user.	/etc/security/pwscexpert/bin/audit_rules.sh

Table 12. GDPR Compliance Profile rules for Linux (continued)

Requirement	The Linux Security Expert implementation	Location of the script that modifies the setting
Enable auditing on the system.	Implement automated audit trails for all system components to reconstruct all actions taken by any individual with root or administrative privileges.	/etc/security/pscxpert/bin/audit_rules.sh
Enable auditing on the system.	Implement automated audit trails for all system components to reconstruct events of invalid logical access attempts.	/etc/security/pscxpert/bin/audit_rules.sh
Enable auditing on the system.	Implement automated audit trails for all system components to reconstruct all creations and deletions of system-level objects.	/etc/security/pscxpert/bin/audit_rules.sh
Examine configuration standards and processes to verify that time-synchronization technology is implemented and kept current per PCI DSS Requirements 6.1 and 6.2.	Enables the ntp daemon.	/etc/security/pscxpert/bin/network-daemon-rules.sh
Enable auditing on the system.	Protect audit trail files from unauthorized modifications.	/etc/security/pscxpert/bin/audit_rules.sh
Use file integrity monitoring or change-detection software on logs to ensure that existing log data cannot be changed without generating alerts.	Enables file integrity monitor.	/etc/security/pscxpert/bin/filemon_rules
Activation of remote-access technologies for vendors and business partners only when needed by vendors and business partners, with immediate deactivation after use.	Disables the remote root login function by setting its value to false. The system administrator can activate the remote login function as needed, and then deactivate it when the task is complete.	/etc/security/pscxpert/bin/login_rules.sh
Configure system security parameters to prevent misuse.	Remove dot from non-root path: Removes the dot from the PATH environment variable in files .profile, .kshrc, .cshrc and .login in the user home directory.	/etc/security/pscxpert/bin/misc_rules.sh

Table 12. GDPR Compliance Profile rules for Linux (continued)		
Requirement	The Linux Security Expert implementation	Location of the script that modifies the setting
Use passwords that contain both numeric and alphabetic characters.	Sets the minimum number of numeric characters in a password.	/etc/security/pscxpert/bin/password_rules.sh
Use passwords that contain both numeric and alphabetic characters.	Sets the minimum number of uppercase alphabetic characters in a password.	/etc/security/pscxpert/bin/password_rules.sh
Use passwords that contain both numeric and alphabetic characters.	Sets the minimum number of lowercase alphabetic characters in a password.	/etc/security/pscxpert/bin/password_rules.sh
Use passwords that contain both numeric and alphabetic characters.	Sets the minimum number of non-alphabetic characters in a password.	/etc/security/pscxpert/bin/password_rules.sh
Change user passwords at least every 90 days.	Sets the time <n> days prior to maxage at which to warn the user that the password will need to change.	/etc/security/pscxpert/bin/password_rules.sh

SAP compliance for AIX

The SAP Compliance profile provides the ability to harden the AIX systems with SAP software. A list of hardening settings were identified for this environment.

The details of operating system and network configuration parameters relevant to maintaining the required level of data protection are subjective, and can vary depending on the specific situation.

Using exceptions

Exceptions allow you to exclude entries from being managed by PowerSC Compliance (**pscxpert**). For example, you can keep the **telnet** daemon enabled even there is a rule in a profile to disable it.

To create an exception, add one or more entries to the listed exception file. The following exception files are provided:

- The /etc/security/aixpert/exception/sapv1_service.exception exception file specifies services that should not be enabled or disabled. Each line must contain only one service name. For example, **lpd**. The file is blank by default.
- The /etc/security/aixpert/exception/sapv1_account.exception exception file contains exceptions for user or group accounts that compliance scripts use to determine if a certain psxcpert rule should be applied to a user or group. The file contains usage information and examples.

sapv1_account.exception exception syntax

The /etc/security/aixpert/exception/sapv1_account.exception exception syntax is as follows:

```
U:dbuser:minage:4
```

where:

- **U** indicates that the exception applies to a user account. A **G** in this field would indicate that the exception applies to a group.
- **dbuser** is the name of the user.
- **minage** is the attribute for the user.

- 4 is the override value for **minage** for the user.

Exception examples

Consider the following examples of exceptions:

- U:tstuser1

The user *tstuser1* is an exception. This user's settings for any attribute are not modified by a rule.

- U:tstuser2:minlen

The attribute **minlen** for the user *tstuser2* is an exception and is not modified by a rule. However, if there is a rule to modify a different attribute, such as **mindigit** for all users, it is handled in the normal manner without an exception. That is, the **mindigit** attribute for *tstuser2* will be changed.

- U:tstuser3:minlen:8

This entry overrides the value specified in the rule for the **minlen** attribute for *tstuser3*. For example, if the rule contains `minlen=10 ALL exceptfile:sapv1_account.exception sapv1_minlen`, then **minlen** is set to 10 for all local users, except for *tstuser3* which is overridden to 8.

Setting the minimum length for password

The **Local Accounts: Minimum length for password** requirement sets the minimum length of all local users to 10. However, with the default configuration of the system, the maximum allowed value for minimum length is 8. To support the minimum length of 10, configure the `/etc/security/login.cfg` **pwd_algorithm** to SSHA256 or higher.

Enter the following command to get the current value:

```
# lssec -f /etc/security/login.cfg -s usw -a pwd_algorithm
usw pwd_algorithm=
```

Enter the following command to set the **pwd_algorithm** to SSHA256:

```
# chsec -f /etc/security/login.cfg -s usw -a pwd_algorithm=ssha256
# lssec -f /etc/security/login.cfg -s usw -a pwd_algorithm
usw pwd_algorithm=ssha256
```

SAP Compliance Profile rules for AIX

Table 13. SAP Compliance Profile rules for AIX		
Group	Requirement	Location of the script that modifies the setting
Login policy recommendations	Disable login after unsuccessful login attempts: Specifies 10 as the number of unsuccessful login attempts on a port before the port is locked.	/etc/security/psccexpert/bin/chdefstanza Arguments: /etc/security/login.cfg logindisable=10 default sapv1_logindisable
Login policy recommendations	Reenable login after locking: Specifies the time interval (360 minutes) after which a port is unlocked after being disabled by logindisable.	/etc/security/psccexpert/bin/chdefstanza Arguments: /etc/security/login.cfg loginreenable=360 default sapv1_loginreenable

Table 13. SAP Compliance Profile rules for AIX (continued)

Group	Requirement	Location of the script that modifies the setting
Login policy recommendations	Delay between unsuccessful logins: Specifies the delay between unsuccessful logins to 5 seconds.	/etc/security/pscxpert/bin/chdefstanza Arguments: /etc/security/login.cfg logindelay=5 default sapv1_logindelay
Login policy recommendations	Login timeout: Specifies the time interval (60 seconds) to enter a password.	/etc/security/pscxpert/bin/chdefstanza Arguments: /etc/security/login.cfg logintimeout=5 usw sapv1_logintimeout
Login policy recommendations	Interval between unsuccessful logins: Specifies the time interval (300 seconds) for a port in which the unsuccessful login attempts must occur before the port is disabled.	/etc/security/pscxpert/bin/chdefstanza Arguments: /etc/security/login.cfg logininterval=300 default sapv1_logininterval
Resource limits recommendations	Core Dumps: Set the default stanza for core limit to 0 in /etc/security/limits.	/etc/security/pscxpert/bin/chdefstanza Arguments: /etc/security/limits core=0 default sapv1_corelimit
Resource limits recommendations	Core Dumps: Set the default stanza for core_hard limit to 0 in /etc/security/limits.	/etc/security/pscxpert/bin/chdefstanza Arguments: /etc/security/limits core_hard=0 default sapv1_corehardlimit
Resource limits recommendations	Resource Limits: Limit the system default of soft real memory usage in blocks (rss) to 65535.	/etc/security/pscxpert/bin/chdefstanza Arguments: /etc/security/limits rss=65535 default sapv1_rsslmit
Resource limits recommendations	Resource Limits: Limit the system default of hard real memory usage in blocks (rss_hard) to 65535.	/etc/security/pscxpert/bin/chdefstanza Arguments: /etc/security/limits rss_hard=65535 default sapv1_rsshhardlimit
Resource limits recommendations	Resource Limits: Limit the system default of soft stack segment size in blocks (stack) to 65535.	/etc/security/pscxpert/bin/chdefstanza Arguments: /etc/security/limits stack=65535 default sapv1_stacklimit
Resource limits recommendations	Resource Limits: Limit the system default of hard stack segment size in blocks (stack_hard) to 65535.	/etc/security/pscxpert/bin/chdefstanza Arguments: /etc/security/limits stack_hard=65535 default sapv1_stackhardlimit
Miscellaneous Rules	Password Integrity Check: Ensures that the user's password being set is not weak.	/etc/security/pscxpert/bin/chuserstanza Arguments: /etc/security/user dictionlist=/etc/security/aixpert/ dictionary/English default sapv1_pwdintchk

Table 13. SAP Compliance Profile rules for AIX (continued)

Group	Requirement	Location of the script that modifies the setting
Miscellaneous Rules	Object creation permissions: Specifies the root object creation permissions (umask) to 077.	/etc/security/pscxpert/bin/chuserstanza Arguments: /etc/security/user umask=77 root sapv1_rootumask
Miscellaneous Rules	Login restrictions: Set remote login (rlogin) for the user daemon to false.	/etc/security/pscxpert/bin/chuserstanza Arguments: /etc/security/user rlogin=false daemon sapv1_rlogindaemon
Miscellaneous Rules	Login restrictions: Set local login (login) for the user daemon to false.	/etc/security/pscxpert/bin/chuserstanza Arguments: /etc/security/user login=false daemon sapv1_logindaemon
Miscellaneous Rules	Set remote login (rlogin) for user sys to false.	/etc/security/pscxpert/bin/chuserstanza Arguments: /etc/security/user rlogin=false sys sapv1_rloginsys
Miscellaneous Rules	Set local login (login) for user sys to false.	/etc/security/pscxpert/bin/chuserstanza Arguments: /etc/security/user login=false sys sapv1_loginsys
Miscellaneous Rules	Set remote login (rlogin) for user bin to false.	/etc/security/pscxpert/bin/chuserstanza Arguments: /etc/security/user rlogin=false bin sapv1_rloginbin
Miscellaneous Rules	Set local login (login) for user bin to false.	/etc/security/pscxpert/bin/chuserstanza Arguments: /etc/security/user login=false bin sapv1_loginbin
Miscellaneous Rules	Set remote login (rlogin) for user adm to false.	/etc/security/pscxpert/bin/chuserstanza Arguments: /etc/security/user rlogin=false adm sapv1_rloginadm
Miscellaneous Rules	Set local login (login) for user adm to false.	/etc/security/pscxpert/bin/chuserstanza Arguments: /etc/security/user login=false adm sapv1_loginadm
Tune network options	Network option clean_partial_conns: Set the value of the network option clean_partial_conns to 1.	/etc/security/pscxpert/bin/ntwkopts Arguments: clean_partial_conns=1 s sapv1_clean_partial_conns
Tune network options	Network option ipsrcrouteforward: Set the value of the network option ipsrcrouteforward to 0.	/etc/security/pscxpert/bin/ntwkopts Arguments: ipsrcrouteforward=0 s sapv1_ipsrcrouteforward

Table 13. SAP Compliance Profile rules for AIX (continued)

Group	Requirement	Location of the script that modifies the setting
Tune network options	Network option ipsrcroutesend: Set the value of the network option ipsrcroutesend to 0.	/etc/security/psecexpert/bin/ntwkopts Arguments: ipsrcroutesend=0 s sapv1_ipsrcroutesend
Tune network options	Network option ipsrcrouterrecv: Set the value of the network option ipsrcrouterrecv to 0.	/etc/security/psecexpert/bin/ntwkopts Arguments: ipsrcrouterrecv=0 s sapv1_ipsrcrouterrecv
Tune network options	Network option nonlocsrcroute: Set the value of the network option nonlocsrcroute to 0.	/etc/security/psecexpert/bin/ntwkopts Arguments: nonlocsrcroute=0 s sapv1_nonlocsrcroute
Tune network options	Network option ip6srcrouteforward: Set the value of the network option ip6srcrouteforward to 0.	/etc/security/psecexpert/bin/ntwkopts Arguments: ip6srcrouteforward=0 s sapv1_ip6srcrouteforward
Tune network options	Network option ipsendredirects: Set the value of the network option ipsendredirects to 0.	/etc/security/psecexpert/bin/ntwkopts Arguments: ipsendredirects=0 s sapv1_ipsendredirects
Tune network options	Network option ipignoreredirects: Set the value of the network option ipignoreredirects to 1.	/etc/security/psecexpert/bin/ntwkopts Arguments: ipignoreredirects=1 s sapv1_ipignoreredirects
Tune network options	Network option ipforwarding: Set the value of the network option ipforwarding to 0.	/etc/security/psecexpert/bin/ntwkopts Arguments: ipforwarding=0 s sapv1_ipforwarding
Tune network options	Network option directed_broadcast: Set the value of the network option directed_broadcast to 0.	/etc/security/psecexpert/bin/ntwkopts Arguments: directed_broadcast=0 s sapv1_directed_broadcast
Tune network options	Network option icmpaddressmask: Set the value of the network option icmpaddressmask to 0.	/etc/security/psecexpert/bin/ntwkopts Arguments: icmpaddressmask=0 s sapv1_icmpaddressmask
Tune network options	Network option bcastping: Set the value of the network option bcastping to 0.	/etc/security/psecexpert/bin/ntwkopts Arguments: bcastping=0 s sapv1_bcastping
Tune network options	Network option tcp_pmtu_discover: Set the value of the network option tcp_pmtu_discover to 0.	/etc/security/psecexpert/bin/ntwkopts Arguments: tcp_pmtu_discover=0 s sapv1_tcp_pmtu_discover

Table 13. SAP Compliance Profile rules for AIX (continued)

Group	Requirement	Location of the script that modifies the setting
Tune network options	Network option udp_pmtu_discover: Set the value of the network option udp_pmtu_discover to 0.	/etc/security/pscxpert/bin/ntwkopts Arguments: udp_pmtu_discover=0 s sapv1_udp_pmtu_discover
Tune network options	Network option tcp_mssdflt: Set the value of the network option tcp_mssdflt to 1448.	/etc/security/pscxpert/bin/ntwkopts Arguments: tcp_mssdflt=1448 s sapv1_tcp_mssdflt
Tune network options	Network option tcp_tcpsecure: Set the value of the network option tcp_tcpsecure to 7.	/etc/security/pscxpert/bin/ntwkopts Arguments: tcp_tcpsecure=7 s sapv1_tcp_tcpsecure
Tune network options	Network option sockthresh: Set the value of the network option sockthresh to 60.	/etc/security/pscxpert/bin/ntwkopts Arguments: sockthresh=60 s sapv1_sockthresh
Miscellaneous Rules	The SSH daemon must be configured to use only the SSHv2 protocol.	/etc/security/pscxpert/bin/sshPCIconfig Arguments: Protocol 2 /etc/ssh/sshd_config
Miscellaneous Rules	The SSH daemon must use privilege separation.	/etc/security/pscxpert/bin/sshPCIconfig Arguments: UsePrivilegeSeparation yes /etc/ssh/sshd_config
Miscellaneous Rules	The SSH daemon must use a banner message for login.	/etc/security/pscxpert/bin/sshPCIconfig Arguments: Banner /etc/motd /etc/ssh/sshd_config
Miscellaneous Rules	The SSH daemon must perform strict mode checking of home directory configuration files.	/etc/security/pscxpert/bin/sshPCIconfig Arguments: StrictModes yes /etc/ssh/sshd_config
Miscellaneous Rules	The SSH daemon must ignore .rhosts and .shosts files.	/etc/security/pscxpert/bin/sshPCIconfig Arguments: IgnoreRhosts yes /etc/ssh/sshd_config
Miscellaneous Rules	The SSH daemon should not allow login for accounts with empty passwords.	/etc/security/pscxpert/bin/sshPCIconfig Arguments: PermitEmptyPasswords no /etc/ssh/sshd_config
Miscellaneous Rules	The SSH daemon must allow public key authentication.	/etc/security/pscxpert/bin/sshPCIconfig Arguments: PubkeyAuthentication yes /etc/ssh/sshd_config
Miscellaneous Rules	The SSH daemon should not allow password authentication.	/etc/security/pscxpert/bin/sshPCIconfig Arguments: PasswordAuthentication no /etc/ssh/sshd_config

Table 13. SAP Compliance Profile rules for AIX (continued)

Group	Requirement	Location of the script that modifies the setting
Miscellaneous Rules	The SSH daemon should not allow host-based authentication.	/etc/security/psccexpert/bin/sshPCIconfig Arguments: HostbasedAuthentication no /etc/ssh/sshd_config
Miscellaneous Rules	The SSH daemon syslog severity should be set to INFO.	/etc/security/psccexpert/bin/sshPCIconfig Arguments: LogLevel INFO /etc/ssh/sshd_config
Miscellaneous Rules	The SSH daemon should permit a maximum of 4 authentication attempts per connection.	/etc/security/psccexpert/bin/sshPCIconfig Arguments: MaxAuthTries 4 /etc/ssh/sshd_config
Miscellaneous Rules	The SSH daemon should permit a maximum of 300 client keep alive messages without answer before disconnecting the session.	/etc/security/psccexpert/bin/sshPCIconfig Arguments: ClientAliveCountMax 300 /etc/ssh/sshd_config
Miscellaneous Rules	The SSH daemon should disable sending of client alive messages.	/etc/security/psccexpert/bin/sshPCIconfig Arguments: ClientAliveInterval 0 /etc/ssh/sshd_config
Miscellaneous Rules	The SSH daemon should not allow user environment processing specified in ~/.ssh/environment and environment= options in ~/.ssh/authorized_keys.	/etc/security/psccexpert/bin/sshPCIconfig Arguments: PermitUserEnvironment no /etc/ssh/sshd_config
Miscellaneous Rules	The SSH daemon should allow TCP forwarding due to usage of VNC.	/etc/security/psccexpert/bin/sshPCIconfig Arguments: AllowTcpForwarding yes /etc/ssh/sshd_config
Miscellaneous Rules	The SSH daemon should not allow X11 forwarding.	/etc/security/psccexpert/bin/sshPCIconfig Arguments: X11Forwarding no /etc/ssh/sshd_config
Miscellaneous Rules	The SSH client must be configured to only use SSHv2 protocol.	/etc/security/psccexpert/bin/sshPCIconfig Arguments: Protocol 2 /etc/ssh/ssh_config
Miscellaneous Rules	Remove dot from root path: Removes the dot from the PATH environment variable in files .profile, .kshrc, .cshrc, and .login in the root home directory.	/etc/security/psccexpert/bin/rmdotfrmpathroot Arguments: sapv1_rmdotfrmpathroot

Table 13. SAP Compliance Profile rules for AIX (continued)

Group	Requirement	Location of the script that modifies the setting
/etc/inetd.conf Settings	Minimal Machine: Disable dtspc in /etc/inetd.conf. Comments the entry for dtspc daemon in /etc/inetd.conf when LFT is not configured and CDE is disabled in /etc/inittab, and kills all instances of dtspc daemon.	/etc/security/pscxpert/bin/cominetdconf Arguments: dtspc tcp d exceptfile:sapv1_service.exception sapv1_dtspc
/etc/inetd.conf Settings	Minimal Machine: Disable comsat in /etc/inetd.conf. Comments the entry for comsat daemon in /etc/inetd.conf and kills all instances of comsat.	/etc/security/pscxpert/bin/cominetdconf Arguments: comsat udp d exceptfile:sapv1_service.exception sapv1_comsat
/etc/inetd.conf Settings	Minimal Machine: Disable uucp in /etc/inetd.conf. Comments the entry for uucp daemon in /etc/inetd.conf and kills all instances of uucpd.	/etc/security/pscxpert/bin/cominetdconf Arguments: uucp tcp d exceptfile:sapv1_service.exception sapv1_uucp
/etc/inetd.conf Settings	Minimal Machine: Disable bootps in /etc/inetd.conf. Comments the entry for bootps daemon in /etc/inetd.conf and kills all instances of bootpd.	/etc/security/pscxpert/bin/cominetdconf Arguments: bootps udp d exceptfile:sapv1_service.exception sapv1_bootps
/etc/inetd.conf Settings	Minimal Machine: Disable finger in /etc/inetd.conf. Comments the entry for finger daemon in /etc/inetd.conf and kills all instances of fingerd.	/etc/security/pscxpert/bin/cominetdconf Arguments: finger tcp d exceptfile:sapv1_service.exception sapv1_fingerd
/etc/inetd.conf Settings	Minimal Machine: Disable systat in /etc/inetd.conf. Comments the entry for systat daemon in /etc/inetd.conf and kills all instances of systat.	/etc/security/pscxpert/bin/cominetdconf Arguments: systat tcp d exceptfile:sapv1_service.exception sapv1_systat
/etc/inetd.conf Settings	Minimal Machine: Disable netstat in /etc/inetd.conf. Comments the entry for netstat daemon in /etc/inetd.conf and kills all instances of netstat.	/etc/security/pscxpert/bin/cominetdconf Arguments: netstat tcp d exceptfile:sapv1_service.exception sapv1_netstat

Table 13. SAP Compliance Profile rules for AIX (continued)

Group	Requirement	Location of the script that modifies the setting
/etc/inetd.conf Settings	Minimal Machine: Disable tftp in /etc/inetd.conf. Comments the entry for tftp daemon in /etc/inetd.conf and kills all instances of tftpd.	/etc/security/psccexpert/bin/cominetdconf Arguments: tftp udp d exceptfile:sapv1_service.exception sapv1_tftp
/etc/inetd.conf Settings	Minimal Machine: Disable ftp in /etc/inetd.conf. Comments the entry for ftp daemon in /etc/inetd.conf and kills all instances of ftpd.	/etc/security/psccexpert/bin/cominetdconf Arguments: ftp tcp d exceptfile:sapv1_service.exception sapv1_ftp
/etc/inetd.conf Settings	Minimal Machine: Disable telnet in /etc/inetd.conf. Comments the entry for telnet daemon in /etc/inetd.conf and kills all instances of telnetd.	/etc/security/psccexpert/bin/cominetdconf Arguments: telnet tcp d exceptfile:sapv1_service.exception sapv1_telnet
/etc/inetd.conf Settings	Minimal Machine: Disable shell in /etc/inetd.conf. Comments the entry for shell daemon in /etc/inetd.conf and kills all instances of rshd.	/etc/security/psccexpert/bin/cominetdconf Arguments: shell tcp d exceptfile:sapv1_service.exception sapv1_shell
/etc/inetd.conf Settings	Minimal Machine: Disable kshell in /etc/inetd.conf. Comments the entry for kshell daemon in /etc/inetd.conf and kills all instances of krshd.	/etc/security/psccexpert/bin/cominetdconf Arguments: kshell tcp d exceptfile:sapv1_service.exception sapv1_kshell
/etc/inetd.conf Settings	Minimal Machine: Disable login in /etc/inetd.conf. Comments the entry for login daemon in /etc/inetd.conf and kills all instances of rlogind.	/etc/security/psccexpert/bin/cominetdconf Arguments: login tcp d exceptfile:sapv1_service.exception sapv1_rlogin
/etc/inetd.conf Settings	Minimal Machine: Disable klogin in /etc/inetd.conf. Comments the entry for klogin daemon in /etc/inetd.conf and kills all instances of krlogind.	/etc/security/psccexpert/bin/cominetdconf Arguments: klogin tcp d exceptfile:sapv1_service.exception sapv1_krlogin
/etc/inetd.conf Settings	Minimal Machine: Disable exec in /etc/inetd.conf. Comments the entry for exec daemon in /etc/inetd.conf and kills all instances of rexecd.	/etc/security/psccexpert/bin/cominetdconf Arguments: exec tcp d exceptfile:sapv1_service.exception sapv1_rexecd

Table 13. SAP Compliance Profile rules for AIX (continued)

Group	Requirement	Location of the script that modifies the setting
/etc/inetd.conf Settings	Minimal Machine: Disable instsrv in /etc/inetd.conf. Comments the entry for instsrv daemon in /etc/inetd.conf and kills all instances of instsrv.	/etc/security/pscxpert/bin/cominetdconf Arguments: instsrv tcp d exceptfile:sapv1_service.exception sapv1_instsrv
/etc/inetd.conf Settings	Minimal Machine: Disable talk in /etc/inetd.conf. Comments the entry for talk daemon in /etc/inetd.conf and kills all instances of talkd.	/etc/security/pscxpert/bin/cominetdconf Arguments: talk udp d exceptfile:sapv1_service.exception sapv1_talk
/etc/inetd.conf Settings	Minimal Machine: Disable ntalk in /etc/inetd.conf. Comments the entry for ntalk daemon in /etc/inetd.conf and kills all instances of ntalkd.	/etc/security/pscxpert/bin/cominetdconf Arguments: ntalk udp d exceptfile:sapv1_service.exception sapv1_ntalk
/etc/inetd.conf Settings	Minimal Machine: Disable rquotad in /etc/inetd.conf. Comments the entry for rquotad daemon in /etc/inetd.conf and kills all instances of rquotad.	/etc/security/pscxpert/bin/cominetdconf Arguments: rquotad udp d exceptfile:sapv1_service.exception sapv1_rquotad
/etc/inetd.conf Settings	Minimal Machine: Disable rexd in /etc/inetd.conf. Comments the entry for rexd daemon in /etc/inetd.conf and kills all instances of rexd.	/etc/security/pscxpert/bin/cominetdconf Arguments: rexd tcp d exceptfile:sapv1_service.exception sapv1_rexd
/etc/inetd.conf Settings	Minimal Machine: Disable rstatd in /etc/inetd.conf. Comments the entry for rstatd daemon in /etc/inetd.conf and kills all instances of rstatd.	/etc/security/pscxpert/bin/cominetdconf Arguments: rstatd udp d exceptfile:sapv1_service.exception sapv1_rstatd
/etc/inetd.conf Settings	Minimal Machine: Disable rusersd in /etc/inetd.conf. Comments the entry for rusersd daemon in /etc/inetd.conf and kills all instances of rusersd.	/etc/security/pscxpert/bin/cominetdconf Arguments: rusersd udp d exceptfile:sapv1_service.exception sapv1_rusersd
/etc/inetd.conf Settings	Minimal Machine: Disable rwalld in /etc/inetd.conf. Comments the entry for rwalld daemon in /etc/inetd.conf and kills all instances of rwalld.	/etc/security/pscxpert/bin/cominetdconf Arguments: rwalld udp d exceptfile:sapv1_service.exception sapv1_rwalld

Table 13. SAP Compliance Profile rules for AIX (continued)

Group	Requirement	Location of the script that modifies the setting
/etc/inetd.conf Settings	Minimal Machine: Disable sprayd in /etc/inetd.conf. Comments the entry for sprayd daemon in /etc/inetd.conf and kills all instances of sprayd.	/etc/security/pscxpert/bin/cominetdconf Arguments: sprayd udp d exceptfile:sapv1_service.exception sapv1_sprayd
/etc/inetd.conf Settings	Minimal Machine: Disable pcnfsd in /etc/inetd.conf. Comments the entry for pcnfsd daemon in /etc/inetd.conf and kills all instances of pcnfsd.	/etc/security/pscxpert/bin/cominetdconf Arguments: pcnfsd udp d exceptfile:sapv1_service.exception sapv1_pcnfsd
/etc/inetd.conf Settings	Minimal Machine: Disable TCP echo service in /etc/inetd.conf. Comments the entry for TCP echo service in /etc/inetd.conf and kills all instances of echo(tcp).	/etc/security/pscxpert/bin/cominetdconf Arguments: echo tcp d exceptfile:sapv1_service.exception sapv1_tcpecho
/etc/inetd.conf Settings	Minimal Machine: Disable UDP echo service in /etc/inetd.conf. Comments the entry for UDP echo service in /etc/inetd.conf and kills all instances of echo(udp).	/etc/security/pscxpert/bin/cominetdconf Arguments: echo udp d exceptfile:sapv1_service.exception sapv1_udpecho
/etc/inetd.conf Settings	Minimal Machine: Disable TCP discard service in /etc/inetd.conf. Comments the entry for TCP discard service in /etc/inetd.conf and kills all instances of discard(tcp).	/etc/security/pscxpert/bin/cominetdconf Arguments: discard tcp d exceptfile:sapv1_service.exception sapv1_tcpdiscard
/etc/inetd.conf Settings	Minimal Machine: Disable UDP discard service in /etc/inetd.conf. Comments the entry for UDP discard service in /etc/inetd.conf and kills all instances of discard(udp).	/etc/security/pscxpert/bin/cominetdconf Arguments: discard udp d exceptfile:sapv1_service.exception sapv1_udpdiscard
/etc/inetd.conf Settings	Minimal Machine: Disable TCP chargen service in /etc/inetd.conf. Comments the entry for TCP chargen service in /etc/inetd.conf and kills all instances of chargen(tcp).	/etc/security/pscxpert/bin/cominetdconf Arguments: chargen tcp d exceptfile:sapv1_service.exception sapv1_tcpchargen

Table 13. SAP Compliance Profile rules for AIX (continued)

Group	Requirement	Location of the script that modifies the setting
/etc/inetd.conf Settings	Minimal Machine: Disable UDP chargen service in /etc/inetd.conf. Comments the entry for UDP chargen service in /etc/inetd.conf and kills all instances of chargen(udp).	/etc/security/pscxpert/bin/cominetdconf Arguments: chargen udp d exceptfile:sapv1_service.exception sapv1_udpchargen
/etc/inetd.conf Settings	Minimal Machine: Disable TCP daytime service in /etc/inetd.conf. Comments the entry for TCP daytime service in /etc/inetd.conf and kills all instances of daytime(tcp).	/etc/security/pscxpert/bin/cominetdconf Arguments: daytime tcp d exceptfile:sapv1_service.exception sapv1_tcpdaytime
/etc/inetd.conf Settings	Minimal Machine: Disable UDP daytime service in /etc/inetd.conf. Comments the entry for UDP daytime service in /etc/inetd.conf and kills all instances of daytime(udp).	/etc/security/pscxpert/bin/cominetdconf Arguments: daytime udp d exceptfile:sapv1_service.exception sapv1_udpdaytime
/etc/inetd.conf Settings	Minimal Machine: Disable TCP time service in /etc/inetd.conf. Comments the entry for TCP time service in /etc/inetd.conf and kills all instances of time(tcp).	/etc/security/pscxpert/bin/cominetdconf Arguments: time tcp d exceptfile:sapv1_service.exception sapv1_tcptime
/etc/inetd.conf Settings	Minimal Machine: Disable TCP time service in /etc/inetd.conf. Comments the entry for TCP time service in /etc/inetd.conf and kills all instances of time(udp).	/etc/security/pscxpert/bin/cominetdconf Arguments: time udp d exceptfile:sapv1_service.exception sapv1_udptime
/etc/inetd.conf Settings	Minimal Machine: Disable imapd in /etc/inetd.conf. Comments the entry for imapd daemon in /etc/inetd.conf and kills all instances of imapd.	/etc/security/pscxpert/bin/cominetdconf Arguments: imap2 tcp d exceptfile:sapv1_service.exception sapv1_imapd
/etc/inetd.conf Settings	Minimal Machine: Disable pop3d in /etc/inetd.conf. Comments the entry for pop3d daemon in /etc/inetd.conf and kills all instances of pop3d.	/etc/security/pscxpert/bin/cominetdconf Arguments: pop3d tcp d exceptfile:sapv1_service.exception sapv1_pop3d

Table 13. SAP Compliance Profile rules for AIX (continued)

Group	Requirement	Location of the script that modifies the setting
/etc/inetd.conf Settings	Minimal Machine: Disable cmsd in /etc/inetd.conf. Comments the entry for cmsd service in /etc/inetd.conf and kills all instances of cmsd.	/etc/security/pscxpert/bin/cominetdconf Arguments: cmsd udp d exceptfile:sapv1_service.exception sapv1_cmsd
/etc/inetd.conf Settings	Minimal Machine: Disable ttldbserver in /etc/inetd.conf. Comments the entry for ttldbserver service in /etc/inetd.conf and kills all instances of ttldbserver.	/etc/security/pscxpert/bin/cominetdconf Arguments: ttldbserver tcp d exceptfile:sapv1_service.exception sapv1_ttldbserver
/etc/rc.tcpip Settings	Minimal Machine: Disable SNMP daemon: Stops SNMP daemon and comments its entry in /etc/rc.tcpip.	/etc/security/pscxpert/bin/rctcpip Arguments: snmpd d exceptfile:sapv1_service.exception sapv1_disnmpdmn
/etc/rc.tcpip Settings	Minimal Machine: Disable AIXMIBD daemon: Stops AIXMIBD daemon and comments its entry in /etc/rc.tcpip.	/etc/security/pscxpert/bin/rctcpip Arguments: aixmibd d exceptfile:sapv1_service.exception sapv1_disaixmibddmn
/etc/rc.tcpip Settings	Minimal Machine: Disable HOSTMIBD daemon: Stops HOSTMIBD daemon and comments its entry in /etc/rc.tcpip.	/etc/security/pscxpert/bin/rctcpip Arguments: hostmibd d exceptfile:sapv1_service.exception sapv1_dishostmibddmn
/etc/rc.tcpip Settings	Minimal Machine: Disable SNMPMIBD daemon: Stops SNMPMIBD daemon and comments its entry in /etc/rc.tcpip.	/etc/security/pscxpert/bin/rctcpip Arguments: snmpmibd d exceptfile:sapv1_service.exception sapv1_disnmpmibddmn
/etc/rc.tcpip Settings	Minimal Machine: Disable DPID2 daemon: Stops DPID2 daemon and comments its entry in /etc/rc.tcpip.	/etc/security/pscxpert/bin/rctcpip Arguments: dpid2 d exceptfile:sapv1_service.exception sapv1_disdpid2dmn
/etc/rc.tcpip Settings	Minimal Machine: Disable SENDMAIL daemon: Stops SENDMAIL daemon and comments its entry in /etc/rc.tcpip.	/etc/security/pscxpert/bin/rctcpip Arguments: sendmail d exceptfile:sapv1_service.exception sapv1_dissendmaildmn
/etc/rc.tcpip Settings	Minimal Machine: Disable DHCPD daemon: Stops DHCPD daemon and comments its entry in /etc/rc.tcpip.	/etc/security/pscxpert/bin/rctcpip Arguments: dhcpd d exceptfile:sapv1_service.exception sapv1_disdhcpddmn

Table 13. SAP Compliance Profile rules for AIX (continued)

Group	Requirement	Location of the script that modifies the setting
/etc/rc.tcpip Settings	Minimal Machine: Disable DHCPD daemon: Stops DHCPD daemon and comments its entry in /etc/rc.tcpip.	/etc/security/pscxpert/bin/rctcpip Arguments: dhcpd d exceptfile:sapv1_service.exception sapv1_disdhcpddmn
/etc/rc.tcpip Settings	Minimal Machine: Disable DHCPD daemon: Stops DHCPD daemon and comments its entry in /etc/rc.tcpip.	/etc/security/pscxpert/bin/rctcpip Arguments: dhcpd d exceptfile:sapv1_service.exception sapv1_disdhcpddmn
/etc/rc.tcpip Settings	Minimal Machine: Disable AUTOCONF6 daemon: Stops AUTOCONF6 daemon and comments its entry in /etc/rc.tcpip.	/etc/security/pscxpert/bin/rctcpip Arguments: autoconf6 d exceptfile:sapv1_service.exception sapv1_disautoconf6dmn
/etc/rc.tcpip Settings	Minimal Machine: Disable GATED daemon: Stops GATED daemon and comments its entry in /etc/rc.tcpip.	/etc/security/pscxpert/bin/rctcpip Arguments: gated d exceptfile:sapv1_service.exception sapv1_disgateddmn
/etc/rc.tcpip Settings	Minimal Machine: Disable MROUTED daemon: Stops MROUTED daemon and comments its entry in /etc/rc.tcpip.	/etc/security/pscxpert/bin/rctcpip Arguments: mouted d exceptfile:sapv1_service.exception sapv1_dismouteddmn
/etc/rc.tcpip Settings	Minimal Machine: Disable NAMED daemon: Stops NAMED daemon and comments its entry in /etc/rc.tcpip.	/etc/security/pscxpert/bin/rctcpip Arguments: named d exceptfile:sapv1_service.exception sapv1_disnameddmn
/etc/rc.tcpip Settings	Minimal Machine: Disable ROUTED daemon: Stops ROUTED daemon and comments its entry in /etc/rc.tcpip.	/etc/security/pscxpert/bin/rctcpip Arguments: routed d exceptfile:sapv1_service.exception sapv1_disrouteddmn
/etc/rc.tcpip Settings	Minimal Machine: Disable RWHOD daemon: Stops RWHOD daemon and comments its entry in /etc/rc.tcpip.	/etc/security/pscxpert/bin/rctcpip Arguments: rwhod d exceptfile:sapv1_service.exception sapv1_disrwhoddmn
/etc/rc.tcpip Settings	Minimal Machine: Disable TIMED daemon: Stops TIMED daemon and comments its entry in /etc/rc.tcpip.	/etc/security/pscxpert/bin/rctcpip Arguments: timed d exceptfile:sapv1_service.exception sapv1_distimeddmn

Table 13. SAP Compliance Profile rules for AIX (continued)

Group	Requirement	Location of the script that modifies the setting
/etc/rc.tcpip Settings	Minimal Machine: Disable NDPD-HOST daemon: Stops NDPD-HOST daemon and comments its entry in /etc/rc.tcpip.	/etc/security/psccexpert/bin/rctcpip Arguments: ndpd-host d exceptfile:sapv1_service.exception sapv1_disndpdhostdmn
/etc/rc.tcpip Settings	Minimal Machine: Disable NDPD-ROUTER daemon: Stops NDPD-ROUTER daemon and comments its entry in /etc/rc.tcpip.	/etc/security/psccexpert/bin/rctcpip Arguments: ndpd-router d exceptfile:sapv1_service.exception sapv1_disndpdrouterdmn
Rules for /etc/inittab	Minimal Machine: Disable qdaemon: Stops qdaemon and comments its entry in /etc/inittab .	/etc/security/psccexpert/bin/comntrows Arguments: qdaemon: /etc/inittab : d exceptfile:sapv1_service.exception sapv1_disqdaemon
Rules for /etc/inittab	Minimal Machine: Disable rcnfs: Stops rcnfs and comments its entry in /etc/inittab.	/etc/security/psccexpert/bin/comntrows Arguments: rcnfs: /etc/inittab : d exceptfile:sapv1_service.exception sapv1_disrcnfs
Rules for /etc/inittab	Minimal Machine: Disable dt: Stops dt and comments its entry in /etc/inittab.	/etc/security/psccexpert/bin/comntrows Arguments: dt: /etc/inittab : d exceptfile:sapv1_service.exception sapv1_disdt
Rules for /etc/inittab	Minimal Machine: Disable lpd daemon: Stops lpd daemon and comments its entry in /etc/inittab.	/etc/security/psccexpert/bin/comntrows Arguments: lpd: /etc/inittab : d exceptfile:sapv1_service.exception sapv1_dislpd
Rules for /etc/inittab	Minimal Machine: Disable piobe daemon: Stops piobe daemon and comments its entry in /etc/inittab.	/etc/security/psccexpert/bin/comntrows Arguments: piobe: /etc/inittab : d exceptfile:sapv1_service.exception sapv1_dispiobe
Password policy rules	Local Accounts: Maximum age for password: Specifies the maximum number of weeks (24 weeks) that a password is valid.	/etc/security/psccexpert/bin/chusrattr Arguments: maxage=24 ALL exceptfile:sapv1_account.exception sapv1_maxage
Password policy rules	Local Accounts: Minimum age for password: Specifies the minimum number of weeks to 1 week, before a password can be changed.	/etc/security/psccexpert/bin/chusrattr Arguments: minage=1 ALL exceptfile:sapv1_account.exception sapv1_minage
Password policy rules	Local Accounts: Minimum length for password: Specifies the minimum length of a password to 10 characters.	/etc/security/psccexpert/bin/chusrattr Arguments: minlen=10 ALL exceptfile:sapv1_account.exception sapv1_minlen

Table 13. SAP Compliance Profile rules for AIX (continued)

Group	Requirement	Location of the script that modifies the setting
Password policy rules	Local Accounts: Minimum number of alphabetic characters: Specifies the minimum number of alphabetic characters in a password to 4.	/etc/security/pscxpert/bin/chusrattr Arguments: minalpha=4 ALL exceptfile:sapv1_account.exception sapv1_minalpha
Password policy rules	Local Accounts: Minimum number of lowercase alphabetic characters: Specifies the minimum number of lowercase alphabetic characters in a password to 1.	/etc/security/pscxpert/bin/chusrattr Arguments: minloweralpha=1 ALL exceptfile:sapv1_account.exception sapv1_minloweralpha
Password policy rules	Local Accounts: Minimum number of uppercase alphabetic characters: Specifies the minimum number of uppercase alphabetic characters in a password to 1.	/etc/security/pscxpert/bin/chusrattr Arguments: minupperalpha=1 ALL exceptfile:sapv1_account.exception sapv1_minupperalpha
Password policy rules	Local Accounts: Minimum number of digits: Specifies the minimum number of digits in a password to 1.	/etc/security/pscxpert/bin/chusrattr Arguments: mindigit=1 ALL exceptfile:sapv1_account.exception sapv1_mindigit
Password policy rules	Local Accounts: Minimum number of special characters: Specifies the minimum number of special characters in a password to 1.	/etc/security/pscxpert/bin/chusrattr Arguments: minspecialchar=1 ALL exceptfile:sapv1_account.exception sapv1_minspecialchar
Password policy rules	Local Accounts: Minimum number of non-alphabetic characters: Specifies the minimum number of non-alphabetic characters in a password to 4.	/etc/security/pscxpert/bin/chusrattr Arguments: minother=4 ALL exceptfile:sapv1_account.exception sapv1_minother
Password policy rules	Local Accounts: Minimum number of characters: Specifies the minimum number of characters that were present in the previous password that cannot be used in the new password to 4.	/etc/security/pscxpert/bin/chusrattr Arguments: mindiff=4 ALL exceptfile:sapv1_account.exception sapv1_mindiff

Table 13. SAP Compliance Profile rules for AIX (continued)

Group	Requirement	Location of the script that modifies the setting
Password policy rules	Local Accounts: Maximum times a character can appear in a password: Specifies the maximum number of times a character can appear in a password to 3.	/etc/security/pscxpert/bin/chusrattr Arguments: maxrepeats=3 ALL exceptfile:sapv1_account.exception sapv1_maxrepeats
Password policy rules	Local Accounts: Password reuse: Specifies the number of weeks before a password can be reused to 24.	/etc/security/pscxpert/bin/chusrattr Arguments: histexpire=24 ALL exceptfile:sapv1_account.exception sapv1_histexpire
Password policy rules	Local Accounts: Password reuse limit: Specifies the number of previous passwords a user cannot reuse to 24.	/etc/security/pscxpert/bin/chusrattr Arguments: histsize=24 ALL exceptfile:sapv1_account.exception sapv1_histsize
Password policy rules	Local Accounts: Time to change password after the expiration: Specifies the maximum time (in weeks) beyond the maxage value that a user can change an expired password to 3.	/etc/security/pscxpert/bin/chusrattr Arguments: maxexpired=3 ALL exceptfile:sapv1_account.exception sapv1_maxexpired
Password policy rules	Local Accounts: Password expiration warning time: Specifies the number of days to 20 days, before the system issues a warning that a password change is required.	/etc/security/pscxpert/bin/chusrattr Arguments: pwdwarntime=20 ALL exceptfile:sapv1_account.exception sapv1_pwdwarntime
Password policy rules	Local Accounts: Number of login attempts before locking the account: Specifies the number of consecutive unsuccessful login attempts to 3, for each non-root user account before the account is disabled.	/etc/security/pscxpert/bin/chusrattr Arguments: loginretries=3 NONROOT exceptfile:sapv1_account.exception sapv1_loginretries

Managing Security and Compliance Automation

Learn about the process of planning and deploying PowerSC Security and Compliance Automation profiles on a group of systems in accordance with the accepted IT governance and compliance procedures.

As part of compliance and IT governance, systems running similar workload and security classes of data must be managed and configured consistently. To plan and deploy compliance on systems, complete the following tasks:

Identifying the work groups of the system

The compliance and IT governance guidelines state that the systems running on similar workload and security classes of data must be managed and configured consistently. Therefore, you must identify all systems in a similar workgroup.

Using a nonproduction test system for the initial setup

Apply the appropriate PowerSC compliance profile to the test system.

Consider the following examples for applying compliance profiles to the AIX operating system.

Example 1: Applying NERCv5.xml

```
% pscxpert -f /etc/security/aixpert/custom/NERCv5.xml
Processedrules=49 Passedrules=49 PrereqFailedrules=0 Failedrules=0 Level=NERCv5
Input file=/etc/security/aixpert/custom/NERCv5.xml
```

Input file=/etc/security/aixpert/custom/DoDv2.xml

In this example, there are no failed rules, that is, Failedrules=0. This means that all rules are successfully applied, and the test phase can be started. If there are failures, detailed output is generated.

Updating the failed rule

When applying a PowerSC security and compliance profile, you can detect errors.

The system can have missing installation prerequisites or other issues that require attention from the administrator. After determining the underlying command of the failed rule, examine the system to understand the configuration command that is failing. The system might have a security issue. It might also be the case that a particular rule is not applicable to the environment of the system. Then, a custom security profile must be created.

Creating custom security configuration profile

If a rule is not applicable to the specific environment of the system, most compliance organizations permit documented exceptions.

To remove a rule and to create a custom security policy and configuration file, complete the following steps:

1. Copy the contents of the following files into a single file named /etc/security/aixpert/custom/<my_security_policy>.xml:

```
/etc/security/aixpert/custom/[PCIv3.xml|DoDv2.xml|SOX-COBIT.xml]
```

2. Edit the <my_security_policy>.xml file by removing the rule that is not applicable from the opening XML tag <AIXPertEntry name... to the ending XML tag </AIXPertEntry.

You can insert additional configuration rules for security. Insert the additional rules to the XML AIXPertSecurityHardening schema. You cannot change the PowerSC profiles directly, but you can customize the profiles.

For most environments, you must create a custom XML policy. To distribute a customer profile to other systems, you must securely copy the customized XML policy to the system that requires the same configuration. A secure protocol, such as secure file transfer protocol (SFTP), is used to distribute a custom XML policy to other systems, and the profile is stored in a secure location /etc/security/aixpert/custom/<my_security_policy.xml>

Log on to the system where a custom profile must be created, and run the following command:

```
pscxpert -f /etc/security/aixpert/custom/<my_security_policy>.xml
```


Configuring PowerSC Security and Compliance Automation

Learn the procedure to configure PowerSC for Security and Compliance Automation from the command line.

Configuring PowerSC compliance options settings

Learn the basics of PowerSC Security and Compliance Automation feature, test the configuration on nonproduction test systems, and plan and deploy the settings. When you apply a compliance configuration, the settings change numerous configuration settings on the operating system.

Note: Some compliance standards and profiles disable Telnet, because Telnet uses clear text passwords. Therefore, you must have Open SSH installed, configured, and working. You can use any other secure means of communication with the system being configured. These compliance standards require the root login to be disabled. Configure one or more non-root users before you continue applying the configuration changes. This configuration does not disable root, and you can log in as a non-root user and run the **su** command to root. Test if you can establish the SSH connection to the system, log in as the non-root user, and run command to root.

To access configuration profiles use the following directories:

- The DoD, PCI, SOX-COBIT, NERC, GDPR, SAP, and Database profiles for AIX operating systems are placed in the `/etc/security/aixpert/custom` directory.
- The PCI and GDPR profiles for Linux operating systems are placed in the `/etc/security/pscxpert/custom` directory.
- The profiles in Virtual I/O Server (VIOS) are placed in the `/etc/security/aixpert/core` directory.

Configuring PowerSC compliance from the command line

Implement or check the compliance profile by using the **pscxpert** command on the AIX system, and the **viosecure** command on the Virtual I/O Server (VIOS).

To apply the PowerSC compliance profiles on an AIX system, enter one of the following commands, which depends on the level of security compliance you want to apply.

Table 14. PowerSC commands for AIX	
Command	Compliance standard
% pscxpert -f /etc/security/aixpert/custom/DoDv2.xml	US Department of Defense UNIX security technical implementation guide
% pscxpert -f /etc/security/aixpert/custom/GDPRv1.xml	General Data Protection Regulation (GDPR)
% pscxpert -f /etc/security/aixpert/custom/Hipaa.xml	Heath Insurance Portability and Accountability Act
% pscxpert -f /etc/security/aixpert/custom/NERCv5.xml	North American Electric Reliability Corporation
% pscxpert -f /etc/security/aixpert/custom/PCIv3.xml	Payment card industry-Data security standard
% pscxpert -f /etc/security/aixpert/custom/SOX-COBIT.xml	Sarbanes-Oxley Act of 2002 – COBIT IT Governance
% pscxpert -f /etc/security/aixpert/custom/SAPv1.xml	Hardening profile for SAP systems

Table 15. PowerSC commands for Linux	
Command	Compliance standard
% pscexpert -f /etc/security/pscexpert/custom/PCIV3.xml	Payment card industry-Data security standard
% pscexpert -f /etc/security/pscexpert/custom/GDPRv1.xml	General Data Protection Regulation (GDPR)

To apply the PowerSC compliance profiles on a VIOS system, enter one of the following commands for the level of security compliance you want to apply.

Table 16. PowerSC commands for the Virtual I/O Server	
Command	Compliance Standard
% viosecure -file /etc/security/aixpert/custom/DoDv2.xml	US Department of Defense UNIX security technical implementation guide
% viosecure -file /etc/security/aixpert/custom/Hipaa.xml	Heath Insurance Portability and Accountability Act
% viosecure -file /etc/security/aixpert/custom/PCIV3.xml	Payment card industry-Data security standard
% viosecure -file /etc/security/aixpert/custom/SOX-COBIT.xml	Sarbanes-Oxley Act of 2002 – COBIT IT Governance

The **pscexpert** command on the AIX system and the **viosecure** command in VIOS can take time to run because they are checking or setting the entire system, and making security-related configuration changes. The output is similar to the following example:

```
Processedrules=38      Passedrules=38  Failedrules=0    Level=AllRules
```

However, some rules fail depending on the AIX environment, installation set, and the previous configuration.

For example, a prerequisite rule can fail because the system does not have the required installation files. It is necessary to understand each failure and resolve it before deploying the compliance profiles throughout the data center.

Related concepts

Managing Security and Compliance Automation

Learn about the process of planning and deploying PowerSC Security and Compliance Automation profiles on a group of systems in accordance with the accepted IT governance and compliance procedures.

PowerSC Real Time Compliance

The PowerSC Real Time Compliance feature continuously monitors enabled AIX systems to ensure that they are configured consistently and securely.

The PowerSC Real Time Compliance feature works with the PowerSC Compliance Automation and AIX Security Expert policies to provide notification when compliance violations occur or when a monitored file is changed. When the security configuration policy of a system is violated, the PowerSC Real Time Compliance feature sends an email or a text message to alert the system administrator.

The PowerSC Real Time Compliance feature is a passive security feature that supports predefined or changed compliance profiles that include the Department of Defense Security Technical Implementation Guide, the Payment Card Industry Data Security Standard, the Sarbanes-Oxley Act, and COBIT compliance. It provides a default list of files to monitor for changes, but you can add files to the list.

Installing PowerSC Real Time Compliance

The PowerSC Real Time Compliance feature is installed with the PowerSC Standard Edition version 1.1.4, or later, and it is not part of the base AIX operating system.

To install PowerSC Standard Edition, complete the following steps:

1. Ensure that you are running one of the following AIX operating systems on the system where you are installing the PowerSC Standard Edition feature:
 - IBM AIX 6 with Technology Level 7, or later, with AIX Event Infrastructure for AIX and AIX Clusters (bos.ahafs 6.1.7.0), or later
 - IBM AIX 7 with Technology Level 1, or later, with AIX Event Infrastructure for AIX and AIX Clusters (bos.ahafs 7.1.1.0), or later
 - AIX Version 7.2, or later, with AIX Event Infrastructure for AIX and AIX Clusters (bos.ahafs 7.2.0.0), or later
2. To update or install the PowerSC Standard Edition feature fileset, install the `powerscStd.rtc` fileset from the installation package for PowerSC Standard Edition version 1.1.4, or later.

Configuring PowerSC Real Time Compliance

You can configure PowerSC Real Time Compliance to send alerts when violations of a compliance profile or changes to a monitored file occur. Some examples of the profiles include the Department of Defense Security Technical Implementation Guide, the Payment Card Industry Data Security Standard, the Sarbanes-Oxley Act, and COBIT.

You can configure PowerSC Real Time Compliance by using one of the following methods:

- Enter the **mkrtc** command.
- Run the SMIT tool by entering the following command:

```
smit RTC
```

Important: Run the **mkrtc** command before you start the PowerSC GUI agent.

If the PowerSC GUI agent is already running before the **mkrtc** command completes, the `rtcd.conf` file may not yet exist. Because the PowerSC GUI agent checks for the existence of `rtcd.conf` only at agent startup, the PowerSC GUI agent does not configure the `rtcd` daemon to write to `rtcd.log`.

The result is that writing to `rtcd.log` is disabled and the PowerSC GUI agent is not able to monitor RTC events from the log. The user is notified of events by email only, if email is configured.

Identifying files monitored by the PowerSC Real Time Compliance feature

The PowerSC Real Time Compliance feature monitors a default list of files from the high-level security settings for changes, which can be customized by adding or removing files from the list of files in the `/etc/security/rtc/rtcd_policy.conf` file.

You use the **pscexpert** command to identify the compliance template that is applied on a system.

When the compliance profile is identified, you can add additional files to the list of files to monitor by including the additional files in the `/etc/security/rtc/rtcd_policy.conf` file. After the file is saved, the new list is immediately used as a baseline and monitored for changes without restarting the system.

Setting alerts for PowerSC Real Time Compliance

You must configure the notification of the PowerSC Real Time Compliance feature by indicating the type of alerts and the recipients of the alerts.

The `rtcd` daemon, which is the main component of the PowerSC Real Time Compliance feature, obtains its information about the types of alerts and recipients from the `/etc/security/rtc/rtcd.conf` configuration file. You can edit this file to update the information by using a text editor.

PowerSC Real Time Compliance log file

PowerSC Real Time Compliance writes to a log file to capture events and provide input to the PowerSC GUI server. The log file is also used for audit purposes.

PowerSC Real Time Compliance logs to the following file:

- `/hislog/rtc/rtc.log`

Trusted Boot

The Trusted Boot feature uses the Virtual Trusted Platform Module (VTPM), which is a virtual instance of the Trusted Computing Group's TPM. The VTPM is used to securely store measurements of the system boot for future verification.

Trusted Boot concepts

It is important to understand the integrity of the boot process and how to classify the boot as a trusted boot or a nontrusted boot.

You can configure a maximum of 60 VTPM-enabled logical partitions (LPAR) for each physical system by using the Hardware Management Console (HMC). When configured, the VTPM is unique to each LPAR. When used with the AIX Trusted Execution technology, the VTPM provides security and assurance to the following partitions:

- The boot image on the disk
- The entire operating system
- The application layers

An administrator can view trusted and nontrusted systems from a central console that is installed with the **openpts** verifier that is available on the AIX expansion pack. The **openpts** console manages one or more Power Systems servers, and monitors or attests the trusted state of AIX Profile Manager systems throughout the data center. Attestation is the process where the verifier determines (or attests) if a collector has performed a trusted boot.

Trusted boot status

A partition is said to be trusted if the verifier successfully attests the integrity of the collector. The verifier is the remote partition that determines if a collector has performed a trusted boot. The collector is the AIX partition that has a Virtual Trusted Platform Module (VTPM) attached and the Trusted Software Stack (TSS) installed. It indicates that the measurements that are recorded within the VTPM match a reference set held by the verifier. A trusted boot state indicates whether the partition booted in a trusted manner. This statement is about the integrity of the system boot process and does not indicate the current or ongoing level of the security of the system.

Nontrusted boot status

A partition enters a nontrusted state if the verifier cannot successfully attest the integrity of the boot process. The nontrusted state indicates that some aspect of the boot process is inconsistent with the reference information held by the verifier. The possible causes for a failed attestation include booting from a different boot device, booting a different kernel image, and changing the existing boot image.

Related concepts

[Troubleshooting Trusted Boot](#)

There are some of the common scenarios and remedial steps that are required to help identify the reason for attestation failure when using Trusted Boot.

Planning for Trusted Boot

Learn about the hardware and software configurations that are required to install Trusted Boot.

Trusted Boot prerequisites

The installation of Trusted Boot involves configuring the collector and the verifier.

When you prepare to reinstall the AIX operating system on a system with Trusted Boot already installed, you must copy the `/var/tss/lib/tpm/system.data` file and use it to overwrite the file in the same location after the reinstallation completes. If you do not copy this file, you must remove the virtualized Trusted Platform Module from the management console and reinstall it on the partition.

Collector

The configuration requirements to install a collector involves the following prerequisites:

- POWER7 hardware that is running on a 740 firmware release.
- Install IBM AIX 6 with Technology Level 7 or install IBM AIX 7 with Technology Level 1.
- Install Hardware Management Console (HMC) version 7.4 or later.
- Configure the partition with the VTPM and a minimum of 1 GB memory.
- Install Secure Shell (SSH), specifically OpenSSH or equivalent.

Verifier

The **openpts** verifier can be accessed from the command-line interface and the graphical user interface that is designed to run on a range of platforms. The AIX version of the OpenPTS verifier is available on the AIX expansion pack. The versions of OpenPTS verifier for Linux and other platforms are available through a web download. The configuration requirements include the following prerequisites:

- Install SSH, specifically OpenSSH or equivalent.
- Establish network connectivity (through SSH) to the collector.
- Install Java™ 1.6 or later to access the **openpts** console from the graphical interface.

Preparing for remediation

The Trusted Boot information that is described here serves as a guide to identifying situations that might require remediation. It does not affect the boot process.

There are many circumstances that can cause an attestation to fail, and it is difficult to predict the circumstance you might encounter. You must decide on the appropriate action depending on the circumstance. However, it is good practice to prepare for some of the severe scenarios and have a policy or a workflow to help you to handle such incidents. Remediation is the corrective action that must be taken when attestation reports one or more collectors are not trusted.

For example, if an attestation failure occurred due to the boot image differing from the verifier's reference, consider having answers to the following questions:

- How can you verify that the threat is credible?
- Was there any planned maintenance that was carried out, an AIX upgrade, or new hardware that was recently installed?
- Can you contact the administrator who has access to this information?
- When was the system last booted in a trusted state?
- If the security threat looks legitimate, what action must you take? (Suggestions include collecting audit logs, disconnecting the system from the network, powering the system off, and alerting users).

- Were there any other systems compromised that must be checked?

Related concepts

[Troubleshooting Trusted Boot](#)

There are some of the common scenarios and remedial steps that are required to help identify the reason for attestation failure when using Trusted Boot.

Migration considerations

Consider these prerequisites before you migrate a partition that is enabled for virtual trusted platform module (VTPM).

An advantage of a VTPM over a physical TPM is that it allows the partition to move between systems while retaining the VTPM. To securely migrate the logical partition, the firmware encrypts the VTPM data before transmission. To ensure a secure migration, the following security measures must be implemented before migration:

- Enable IPSEC between the Virtual I/O Server (VIOS) that is performing the migration.
- Set the trusted system key through the Hardware Management Console (HMC) to control the managed systems that are capable of decrypting the VTPM data after migration. The migration destination system must have the same key as that of the source system to successfully migrate the data.

Related information

[Using HMC](#)

[VIOS migration](#)

Installing Trusted Boot

There are some required hardware and software configurations that are required to install Trusted Boot.

Related information

[Installing PowerSC Standard Edition](#)

Installing the collector

You must install the collector by using the fileset from the AIX base CD.

To install the collector, install the `powerscStd.vtpm` and `openpts.collector` packages which are on the base CD, by using the **smit** or **installp** command.

Installing the verifier

The OpenPTS verifier component runs on the AIX operating system and on other platforms.

The AIX version of the verifier can be installed from the fileset by using the AIX expansion pack. To install the verifier on the AIX operating system, install the `openpts.verifier` package from the AIX expansion pack by using the **smit** or **installp** command. This installs both the command line and graphical interface versions of the verifier.

The OpenPTS verifier for other operating systems can be downloaded from [Download Linux OpenPTS Verifier For Use With AIX Trusted Boot](#).

Related information

[Download Linux OpenPTS Verifier For Use With AIX Trusted Boot](#)

Configuring Trusted Boot

Learn the procedure to enroll a system and to attest a system for Trusted Boot.

Enrolling a system

Learn the procedure to enroll a system with the verifier.

Enrolling a system is the process of providing an initial set of measurements to the verifier, which forms the basis for subsequent attestation requests. To enroll a system from the command line, use the following command from the verifier:

```
openpts -i <hostname>
```

Information about the enrolled partition is located in the \$HOME/.openpts directory. Each new partition is assigned with a unique identifier during the enrollment process and information related to the enrolled partitions is stored in the directory corresponding to the unique ID.

To enroll a system from the graphical interface, complete the following steps:

1. Launch the graphical interface by using **/opt/ibm/openpts_gui/openpts_GUI.sh** command.
2. Select **Enroll** from the navigation menu.
3. Enter the host name and the SSH credentials of the system.
4. Click **Enroll**.

Related concepts

Attesting a system

Learn the procedure to attest a system from the command-line and by using the graphical interface.

Attesting a system

Learn the procedure to attest a system from the command-line and by using the graphical interface.

To query the integrity of a system boot, use the following command from the verifier:

```
openpts <hostname>
```

To attest a system from the graphical interface, complete the following steps:

1. Select a category from the navigation menu.
2. Select one or more systems to attest.
3. Click **Attest**.

Enrolling and attesting a system without a password

The attestation request is sent through the Secure Shell (SSH). Install the verifier's certificate on the collector to permit SSH connections without a password.

To set up the verifier's certificate on the collector's system, complete the following steps :

- On the verifier, run the following commands:

```
ssh-keygen # No passphrase  
scp ~/.ssh/id_rsa.pub <collector>:/tmp
```

- On the collector, run the following command:

```
cat /tmp/id_rsa.pub >> ~/.ssh/authorized_keys
```


Managing Trusted Boot

Learn the procedure to manage the attestation results of Trusted Boot.

Interpreting attestation results

Learn the procedure to view and understand the attestation results.

An attestation can result in one of following states:

1. Attestation request failed: The attestation request did not complete successfully. See the [Troubleshooting](#) section to understand the possible causes for the failure.
2. System integrity valid: The attestation completed successfully, and the system boot matches the reference information that is held by the verifier. This indicates a successful Trusted Boot.
3. System integrity invalid: The attestation request completed, but a discrepancy was detected between the information that is collected during system boot and the reference information that is held by the verifier. This indicates a nontrusted boot.

The attestation also reports whether an update was applied to the collector by using the following message:

System update available: This message indicates that an update was applied on the collector and a set of updated reference information is available that is effective for the next boot. The user is prompted on the verifier to accept or reject the updates. For example, the user can choose to accept these updates if the user is aware of the maintenance occurring on the collector.

To investigate an attestation failure by using the graphical interface, complete the following steps:

1. Select a category from the navigation menu.
2. Select a system to investigate.
3. Double-click the entry corresponding to the system. A properties window is displayed. This window contains log information about the failed attestation.

Deleting systems

Learn the procedure to delete a system from the verifier's database.

To remove a system from the database of the verifier, run the following command:

```
openpts -i <hostname>
```

Troubleshooting Trusted Boot

There are some of the common scenarios and remedial steps that are required to help identify the reason for attestation failure when using Trusted Boot.

The **openpts** command declares a system as invalid if the current boot state of the system does not match the reference information that is held on the verifier. The **openpts** command determines the possible reason for the integrity to be invalid. There are several variables in a full AIX boot, and a failed attestation requires analysis to determine the cause of the failure.

The following table lists some of the common scenarios and remedial steps to identify the reason for the failure:

Table 17. Troubleshooting some of the common scenarios for failure

Reason for failure	Possible causes of failure	Suggested remediation
Attestation did not complete.	<ul style="list-style-type: none"> • Incorrect host name. • No network route between the source and destination. • Incorrect security credentials. 	<p>Check the Secure Shell (SSH) connection using the following command:</p> <pre>ssh ptsc@hostname</pre> <p>If the SSH connection is successful, then check for the following reasons for attestation failure:</p> <ul style="list-style-type: none"> • The system that is being attested is not running the tcscd daemon. • The system that is being attested was not initialized by the ptsc command. This process should occur automatically during the system startup but check for the presence of a <code>/var/ptsc/</code> directory on the collector. If the <code>/var/ptsc/</code> directory does not exist, run the following command on the collector: <pre>ptsc -i</pre>
The CEC firmware was changed.	<ul style="list-style-type: none"> • A firmware upgrade was applied. • The LPAR was migrated to a system that was running a different version of the firmware. 	Check the firmware level of the system that is hosting the LPAR.
The resources allocated to the LPAR changed.	The CPU or memory allocated to the LPAR changed.	Check the partition profile in the HMC.
The firmware changed for the adapters that are available in the LPAR.	A hardware device was added or removed from the LPAR.	Check the partition profile in the HMC.
The list of devices attached to the LPAR was changed.	A hardware device was added or removed from the LPAR.	Check the partition profile in the HMC.
The boot image changed, which includes the operating system kernel.	<ul style="list-style-type: none"> • An AIX update was applied and the verifier was unaware of the update. • The bosboot command was run. 	<ul style="list-style-type: none"> • Confirm with the administrator of the collector whether any maintenance was performed before the latest reboot operation. • Check the logs on the collector for maintenance activity.

Table 17. Troubleshooting some of the common scenarios for failure (continued)

Reason for failure	Possible causes of failure	Suggested remediation
The LPAR is booted from a different device.	<ul style="list-style-type: none"> Enrollment was carried out immediately after network installation. The system is booted from a maintenance device. 	The boot device and flags can be checked by using the bootinfo command. If enrollment was carried out immediately after Network Installation Management (NIM) installation and before the reboot operation, the enrolled details pertain to the network installation and not to the next disk boot. This enrollment can be repaired by removing the enrollment and re-enrolling the logical partition.
The interactive System Management Services (SMS) boot menu was called.		The boot process must run uninterrupted without user interaction for a system to be trusted. Entering the SMS boot menu causes the boot to be invalid.
The trusted execution (TE) database was altered.	<ul style="list-style-type: none"> Binary files were added or removed from the TE database. Binary files in the database were updated. 	Run the trustchk command to verify the database.

Related concepts

[Preparing for remediation](#)

The Trusted Boot information that is described here serves as a guide to identifying situations that might require remediation. It does not affect the boot process.

[Trusted Boot concepts](#)

It is important to understand the integrity of the boot process and how to classify the boot as a trusted boot or a nontrusted boot.

Related information

[Using HMC](#)

Trusted Firewall

The Trusted Firewall feature provides virtualization-layer security that improves performance and resource efficiency when communicating between different virtual LAN (VLAN) security zones on the same Power Systems server. Trusted Firewall decreases the load on the external network by moving the filtering capability of firewall packets meeting specified rules to the virtualization layer. This filtering capability is controlled by easily defined network filter rules, which allow trusted network traffic to cross between VLAN security zones without leaving the virtual environment. Trusted Firewall protects and routes internal network traffic between the AIX, IBM i, and Linux operating systems.

Trusted Firewall concepts

There are some basic concepts to understand when using Trusted Firewall.

Power Systems hardware can be configured with multiple virtual LAN (VLAN) security zones. A user-configured policy, created as a Trusted Firewall filter rule, permits some trusted network traffic to cross VLAN security zones and remain internal to the virtualization layer. This is similar to introducing a network-attached physical firewall into the virtualized environment, which provides a more performance-efficient method of implementing firewall capabilities for virtualized data centers.

With Trusted Firewall, you can configure rules to allow certain types of traffic to transfer directly from one VLAN on a Virtual I/O Server (VIOS) to another VLAN on the same VIOS, while still maintaining a high level of security by limiting other types of traffic. It is a configurable firewall within the virtualization layer of Power Systems servers.

Using the example in [Figure 1 on page 198](#), the goal is to be able to transfer information securely and efficiently from LPAR1 on VLAN 200 and from LPAR2 on VLAN 100. Without Trusted Firewall, information targeted for LPAR2 from LPAR1 is sent out of the internal network to the router, which routes the information back to LPAR2.

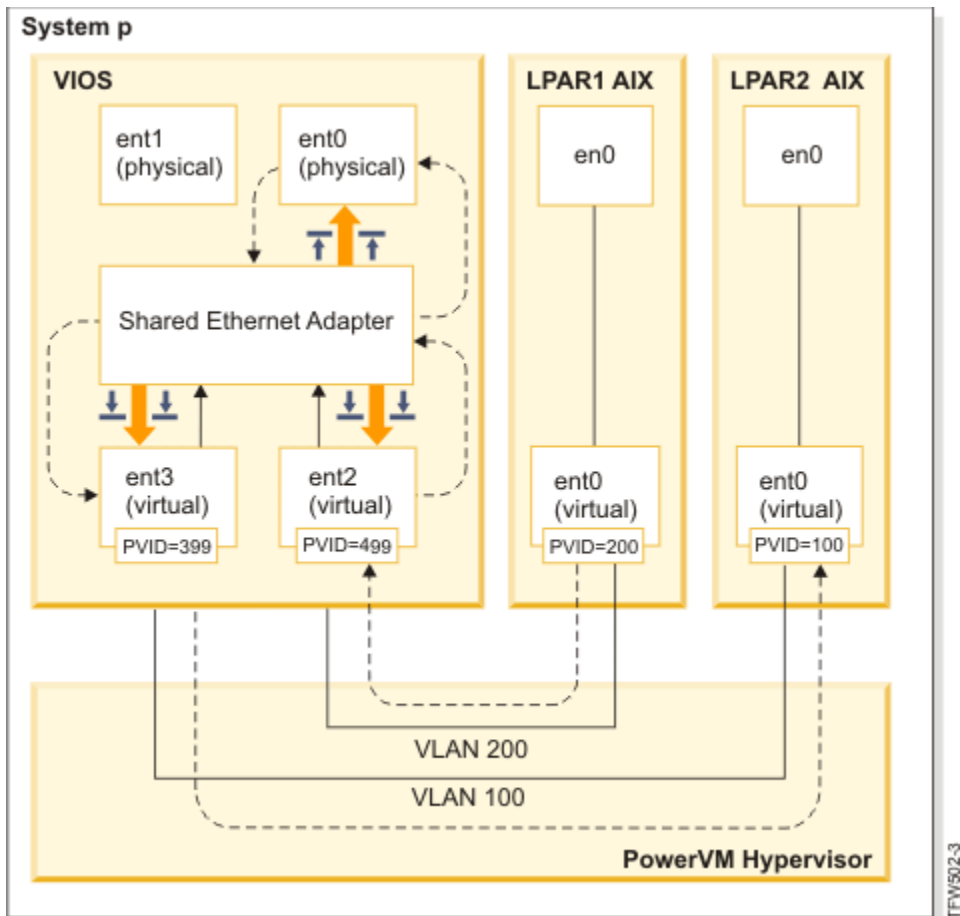


Figure 1. Example of cross-VLAN information transfer without Trusted Firewall

Using Trusted Firewall, you can configure rules to allow the information to pass from LPAR1 to LPAR2 without leaving the internal network. This path is shown in [Figure 2 on page 199](#).

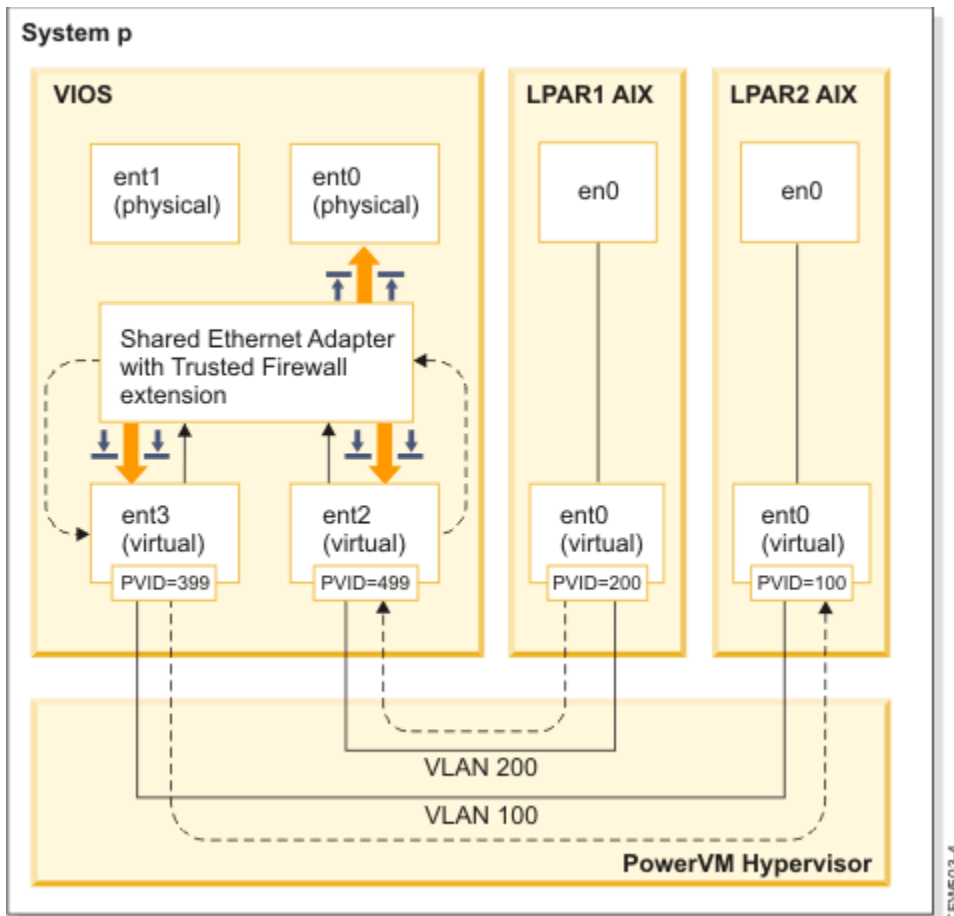


Figure 2. Example of cross-VLAN information transfer with Trusted Firewall

Configuration rules that allow certain information to pass securely across VLANs shorten the path to its destination. The Trusted Firewall uses the Shared Ethernet Adapter (SEA) and the Security Virtual Machine (SVM) kernel extension to enable the communication.

Shared Ethernet Adapter

The SEA is where the routing begins and ends. When the SVM is registered, the SEA receives the packets and forwards them to the SVM. If the SVM determines that the packet is for an LPAR on the same Power Systems server, it updates the packet's layer 2 header. The packet is returned to the SEA for forwarding to the final destination either within the system or on the external network.

Security Virtual Machine

The SVM is where the filtering rules are applied. The filtering rules are necessary to maintain security on the internal network. After registering the SVM with the SEA, the packets are forwarded to the SVM before being sent to the external network. Based on the active filter rules, the SVM determines whether a packet stays in the internal network or moves to the external network.

Installing Trusted Firewall

Installing the PowerSC Trusted Firewall is similar to installing other PowerSC features.

Prerequisites:

- PowerSC versions prior to 1.1.1.0 did not have the required files to install Trusted Firewall. Ensure that you have the PowerSC installation CD for version 1.1.1.0, or later.
- To take advantage of Trusted Firewall, you must have already used the Hardware Management Console (HMC) or Virtual I/O Server (VIOS) to configure your Virtual LANs (VLANs).

Trusted Firewall is provided as an additional fileset on the PowerSC Standard Edition installation CD. The file name is `powerscStd.svm.rte`. You can add the Trusted Firewall to an existing instance of PowerSC Version 1.1.0.0, or later, or install it as part of a new installation of PowerSC Version 1.1.1.0, or later.

To add the Trusted Firewall function to an existing PowerSC instance:

1. Ensure that you are running VIOS Version 2.2.1.4, or later.
2. Insert the PowerSC installation CD for version 1.1.1.0 or download the image of the installation CD.
3. Use the **`oem_setup_env`** command for root access.
4. Use the **`installp`** command or the SMIT tool to install the `PowerscStd.svm.rte` fileset.

Related information

[Installing PowerSC Standard Edition](#)

Configuring Trusted Firewall

Additional configuration settings are required for the Trusted Firewall feature after it is installed.

Trusted Firewall Advisor

Trusted Firewall Advisor analyzes system traffic from different logical partitions (LPARs) to provide information for determining whether running Trusted Firewall improves system performance.

If the Trusted Firewall Advisor function records a significant amount of traffic from different virtual LANs (VLANs) that are on the same central electronics complex, enabling Trusted Firewall should benefit your system.

To enable Trusted Firewall Advisor, enter the following command:

```
vlantfw -m
```

To display the results of Trusted Firewall Advisor, enter the following command:

```
vlantfw -D
```

To disable Trusted Firewall Advisor, enter the following command:

```
vlantfw -M
```

Trusted Firewall logging

Trusted Firewall logging compiles a list of network traffic paths within the central electronics complex. The list shows the filters that Trusted Firewall uses to route traffic.

When Trusted Firewall Advisor determines that routing the traffic internally improves efficiency, Trusted Firewall logging maintains a list of paths in the `svm.log` file. The size of the `svm.log` file is limited to 16 MB. If the entries exceed the 16 MB limit, the oldest entries are removed from the log file.

To start Trusted Firewall logging, enter the following command:

```
vlantfw -l
```

To stop Trusted Firewall logging, enter the following command:

```
vlantfw -L
```

You can view the log file at the following location: `/home/padmin/svm/svm.log`.

Note: You can run the commands to start and stop Trusted Firewall logging only when you are authenticated as a root user.

Multiple Shared Ethernet Adapters

You can configure Trusted Firewall on systems that use multiple Shared Ethernet Adapters.

Some configurations use multiple Shared Ethernet Adapters (SEAs) on the same Virtual I/O Server (VIOS). Multiple SEAs can provide benefits of failover protection and resource leveling. Trusted Firewall supports routing across multiple SEAs, provided they are on the same VIOS.

Figure 3 on page 201 shows an environment using multiple SEAs.

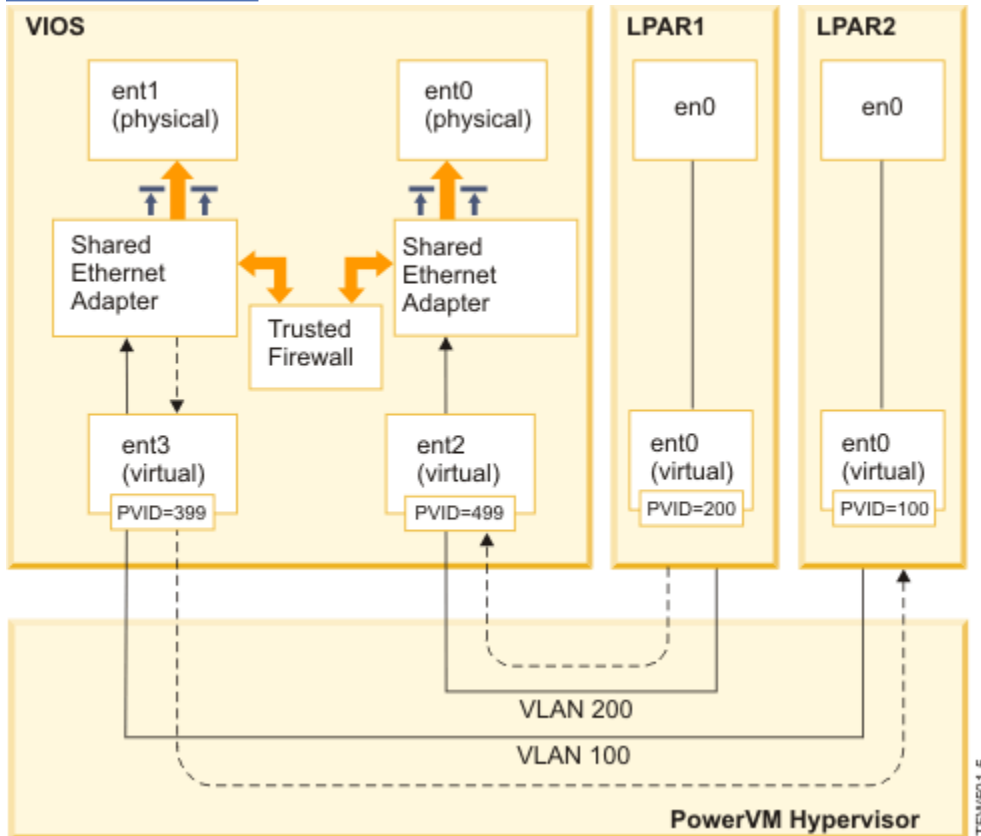


Figure 3. Configuration using multiple Shared Ethernet Adapters on a single VIOS

The following are examples of multiple SEA configurations that are supported by Trusted Firewall:

- The SEAs are configured with trunk adapters on the same Power® hypervisor virtual switch. This configuration is supported because each SEA receives network traffic with different VLAN IDs.
- The SEAs are configured with trunk adapters on different Power hypervisor virtual switches, and each trunk adapter is on a different VLAN ID. In this configuration, each SEA still receives network traffic by using different VLAN IDs.
- The SEAs are configured with trunk adapters on different Power hypervisor virtual switches, and the same VLAN IDs are reused on the virtual switches. In this case, the traffic for both SEAs has the same VLAN IDs.

An example of this configuration is having LPAR2 on VLAN200 with virtual switch 10 and LPAR3 on VLAN200 with virtual switch 20. Because both LPARs and their corresponding SEAs use the same VLAN ID (VLAN200), both of the SEAs have access to the packets with that VLAN ID.

You cannot enable bridging on more than one VIOS. For this reason, the following multiple SEA configurations are not supported by Trusted Firewall:

- Multiple VIOS and multiple SEA drivers.
- Redundant SEA load sharing: Trunk adapters that are configured for inter-VLAN routing cannot be split between VIOS servers.

Removing Shared Ethernet Adapters

The steps to remove Shared Ethernet Adapter devices from the system must be performed in a specific order.

To remove a Shared Ethernet Adapter (SEA) from your system, complete the following steps:

1. Remove the Security Virtual Machine that is associated with the SEA by entering the following command:

```
rmdev -dev svm
```

2. Remove the SEA by entering the following command:

```
rmdev -dev shared ethernet adapter ID
```

Note: Removing the SEA before removing the SVM can result in system failure.

Creating rules

You can create rules to enable Trusted Firewall cross-VLAN routing.

To enable the routing features of Trusted Firewall, you must create rules specifying which communications are allowed. For enhanced security, there is no single rule that allows communication between all of the VLANs on the system. Each allowed connection requires its own rule, though each rule that is activated allows communication in both directions for its specified endpoints.

Because the rule creation is created in the Virtual I/O Server (VIOS) interface, additional information about the commands is available in the VIOS topic collection in the Power Systems Hardware Information Center.

To create a rule, complete the following steps:

1. Open the VIOS command-line interface.
2. Initialize the SVM driver by entering the following command:

```
mksvm
```

3. Start Trusted Firewall by entering the start command:

```
vlantfw -s
```

4. To display all known LPAR IP and MAC addresses, enter the following command:

```
vlantfw -d
```

You will need the IP and MAC addresses of the logical partitions (LPARs) for which you are creating rules.

5. Create the filter rule to allow communication between the two LPARs (LPAR1 and LPAR2) by entering one of the following commands (commands should be entered on one line):

```
genvfilt -v4 -a P -z [lpar1vlanid] -Z [lpar2vlanid] -s [lpar1ipaddress]  
-d [lpar2ipaddress]
```

```
genvfilt -v4 -a P -z [lpar1vlanid] -Z [lpar2vlanid] -s [lpar1ipaddress] -d  
[lpar2ipaddress] -o any -p 0 -O eq -P 23
```

Note: One filter rule allows communication in both directions by default, depending on port and protocol entries. For example, you can enable Telnet for LPAR1 to LPAR2 by running the following command:

```
genvfilt -v4 -a-P -z [lpar1vlanid] -Z [lpar2vlanid] -s [lpar1ipaddress] -d  
[lpar2ipaddress] -o any -p 0 -O eq -P 23
```

6. Activate all of the filter rules in the kernel by entering the following command:

```
mkvfilt -u
```

Note: This procedure activates this rule and any other filtering rules that exist on the system.

Additional examples

The following examples show some other filter rules that you can create by using Trusted Firewall.

- To allow Secure Shell communication from the LPAR on VLAN 100 to the LPAR on VLAN 200, enter the following command:

```
genvfilt -v4 -a P -z 100 -Z 200 -o any -p 0 -0 eq -P 22 -c tcp
```

- To allow traffic between all of the ports 0 - 499, enter the following command:

```
genvfilt -v4 -a P -z 100 -z 200 -o lt -p 500 -0 lt -P 500 -c tcp
```

- To allow all TCP traffic between the LPARs, enter the following command:

```
genvfilt -v4 -a P -z 100 -Z 200 -c tcp
```

If you do not specify any ports or port operations, the traffic can use all ports.

- To allow Internet Control Message Protocol messaging between LPARs, enter the following command:

```
genvfilt -v4 -a P -z 100 -Z 200 -c icmp
```

Related concepts

[Deactivating rules](#)

You can deactivate rules that enable cross-VLAN routing in the Trusted Firewall feature.

Related reference

[genvfilt command](#)

[mkvfilt command](#)

[vlantfw command](#)

Related information

[Virtual I/O Server \(VIOS\)](#)

Deactivating rules

You can deactivate rules that enable cross-VLAN routing in the Trusted Firewall feature.

Because the rules are deactivated in the Virtual I/O Server (VIOS) interface, additional information about the commands and process are available in the VIOS topic collection in the Power Systems Hardware Information Center.

To deactivate a rule, complete the following steps:

1. Open the VIOS command-line interface.
2. To display all active filter rules, enter the following command:

```
lsvfilt -a
```

You can omit the **-a** flag to display all of the filter rules stored in the Object Data Manager.

3. Note the identification number for the filter rule that you are deactivating. For this example, the identification number of the filter rule is 23.
4. Deactivate filter rule 23 when it is active in the kernel by entering the following command:

```
rmvfilt -n 23
```

To deactivate all of the filter rules in the kernel, enter the following command:

```
rmvfilt -n all
```

Related concepts[Creating rules](#)

You can create rules to enable Trusted Firewall cross-VLAN routing.

Related reference[lsvfilt command](#)[rmvfilt command](#)

Trusted Logging

PowerVM® Trusted Logging lets AIX logical partitions (LPARs) write to log files that are stored on an attached Virtual I/O Server (VIOS).

Data is transmitted to the VIOS directly through the hypervisor, and network connectivity is not required between the client LPAR and the VIOS.

Virtual logs

The Virtual I/O Server (VIOS) administrator creates and manages the log files, and they are presented to the AIX operating system as virtual log devices in the /dev directory, similar to the virtual disks or virtual optical media.

Storing log files as virtual logs increases the level of trust in the records because they cannot be changed by a user with root privileges on the client LPAR where they were generated. Multiple virtual log devices can be attached to the same client LPAR and each log is a different file in the /dev directory.

Trusted Logging lets log data from multiple client LPARs be consolidated into a single file system, which is accessible from the VIOS. Therefore, the VIOS provides a single location on the system for log analysis and archival. The client LPAR administrator can configure applications and the AIX operating system to write data to the virtual log devices, which is similar to writing data to the local files. The AIX Audit subsystem can be configured to direct the audit records to virtual logs, and other AIX services, such as syslog, work with their existing configuration to direct data to virtual logs.

To configure the virtual log, the VIOS administrator must specify a name for the virtual log, which has the following separate components:

- Client name
- Log name

The names of the two components can be set by the VIOS administrator to any value, but the client name is typically the same for all virtual logs that are attached to a given LPAR (for example, the host name of the LPAR). The log name is used to identify the purpose of the log (for example, audit or syslog).

On an AIX LPAR, each virtual log device is present as two functionally equivalent files in the /dev file system. The first file is named after the device, for example, /dev/vlog0, and the second file is named by concatenating a vl prefix with the log name and the device number. For example, if the virtual log device vlog0 has audit as the log name, it is present in the /dev file system as both vlog0 and vlaudit0.

Related information

[Creating virtual logs](#)

Detecting virtual log devices

After a VIOS administrator has created virtual log devices and attached them to a client LPAR, the client LPAR device configuration must be refreshed for the devices to be visible.

The client LPAR administrator refreshes the settings by using one of the following methods:

- Rebooting the client LPAR
- Running the **cfgmgr** command

Run the **lsdev** command to display the virtual log devices. The devices are prefixed with **vlog** by default. An example of the **lsdev** command output on an AIX LPAR on which two virtual logs devices are present is as follows:

```
lsdev
vlog0      Virtual Log Device
vlog1      Virtual Log Device
```

Inspect the properties of an individual virtual log device by using the **lsattr -El <device name>** command, which produces output that is similar to the following :

```
lsattr -El vlog0
PCM                      Path Control Module          False
client_name              dev-lpar-05             Client Name             False
device_name              vlsyslog0              Device Name             False
log_name                 syslog                 Log Name               False
max_log_size             4194304                Maximum Size of Log Data File False
max_state_size           2097152                Maximum Size of Log State File False
pvid                     none                   Physical Volume Identifier False
```

This output displays the client name, device name, and the amount of log data that VIOS can store.

The virtual log stores two types of log data, which are:

- Log data: The raw log data generated by applications on the AIX LPAR.
- State data: Information about when the devices were configured, opened, closed, and other operations that are used to analyze log activity.

The VIOS administrator specifies the amount of **log data** and **state data** that can be stored for each virtual log, and the amount is indicated by the **max_log_size**, and **max_state_size** attributes. When the amount of stored data exceeds the specified limit, the earliest log data is overwritten. The VIOS administrator must ensure that the log data is collected and archived frequently to preserve the logs.

Installing Trusted Logging

You can install the PowerSC Trusted Logging feature by using the command line interface or the SMIT tool.

The prerequisites for installing Trusted Logging are VIOS 2.2.1.0, or later, and IBM AIX 6 with Technology Level 7 or IBM AIX 7 with Technology Level 1.

The file name for installing the Trusted Logging feature is **powerscStd.vlog**, which is included on the PowerSC Standard Edition installation CD.

To install the Trusted Logging function:

1. Ensure that you are running VIOS Version 2.2.1.0, or later.
2. Insert the PowerSC installation CD or download the image of the installation CD.
3. Use the **installp** command or the SMIT tool to install the **powerscStd.vlog** fileset.

Related information

[Installing PowerSC Standard Edition](#)

Configuring Trusted Logging

Learn the procedure to configure Trusted Logging on the AIX Audit subsystem, and syslog.

Configuring the AIX Audit subsystem

The AIX Audit subsystem can be configured to write binary data to a virtual log device in addition to writing logs to the local file system.

Note: Before you configure the AIX Audit subsystem, you must complete the procedure in [“Detecting virtual log devices”](#) on page 205.

To configure the AIX Audit subsystem, complete the following steps:

1. Configure the AIX Audit subsystem to log data in binary (auditbin) mode.
2. Activate Trusted Logging for AIX auditing by editing the `/etc/security/audit/config` configuration file.
3. Add a `virtual_log = /dev/vlog0` parameter to `bin:` stanza.

Note: The instruction is valid if the LPAR administrator wants auditbin data to be written to the `/dev/vlog0`.

4. Restart the AIX Audit subsystem in the following sequence:

```
audit shutdown
audit start
```

The audit records are written to Virtual I/O Server (VIOS) through the specified virtual log device in addition to writing logs to the local file system. The logs are stored under control of the existing `bin1` and `bin2` parameters in the `bin:` stanza of the `/etc/security/audit/config` configuration file.

Related information

[Auditing subsystem](#)

Configuring syslog

Syslog can be configured to write messages to virtual logs by adding rules to the `/etc/syslog.conf` file.

Note: Before you configure the `/etc/syslog.conf` file, you must complete the procedure in [“Detecting virtual log devices”](#) on page 205.

You can edit the `/etc/syslog.conf` file to match the log messages, which are based on the following criteria:

- Facility
- Priority level

To use the virtual logs for syslog messages, the `/etc/syslog.conf` file must be configured with rules to write the desired messages to the appropriate virtual log in the `/dev` directory.

For example, to send debug-level messages that are generated by any facility to the `vlog0` virtual log, add the following line to the `/etc/syslog.conf` file:

```
*.debug    /dev/vlog0
```

Note: Do not use the log rotation facilities that are available in the `syslogd` daemon for any command that writes data to virtual logs. The files in the `/dev` file system are not regular files and they cannot be renamed and moved. The VIOS administrator must configure virtual log rotation within the VIOS.

The `syslogd` daemon must be restarted after the configuration by using the following command:

```
refresh -s syslogd
```

Related information

[syslogd Daemon](#)

Writing data to virtual log devices

Arbitrary data is written to a virtual log device by opening the appropriate file in the `/dev` directory and writing data to the file. A virtual log can be opened by one process at a time.

For example:

To write messages to the virtual log devices by using the **echo** command, enter the following command:

```
echo "Log Message" > /dev/vlog0
```

To store files to the virtual log devices by using the **cat** command, enter the following command:

```
cat /etc/passwd > /dev/vlog0
```

The maximum individual write size is limited to 32 KB, and programs that attempt to write more data in a single write operation receive an I/O (EIO) error. The command-line interface (CLI) utilities, such as the **cat** command, automatically break up the transfers into 32 KB write operations.

Trusted Network Connect (TNC)

Trusted Network Connect (TNC) is part of the trusted computing group (TCG) that provides specifications to verify endpoint integrity. TNC has defined open solution architecture that helps administrators enforce policies to effectively control access to the network infrastructure.

Trusted Network Connect (TNC) has four components:

- TNC server
- TNC Patch Management
- TNC client
- TNC IP referrer

Trusted Network Connect concepts

Learn about the components, configuring secure communication, and the patch management system of the Trusted Network Connect (TNC).

Trusted Network Connect components

Learn about the components of the Trusted Network Connect (TNC) framework.

The TNC model consists of the following components:

Trusted Network Connect (TNC) server

The Trusted Network Connect (TNC) server identifies the clients that are added to the network and initiates a verification on them.

The TNC client provides the required fileset level information to the server for verification. The server determines whether the client is at the level that is configured by the administrator. If the client is not compliant, the TNC server notifies the administrator about the remediation that is required.

The TNC server initiates verifications on the clients that are trying to access the network. The TNC server loads a set of integrity measurement verifiers (IMVs) that can request the integrity measurements from clients and verify them. AIX has a default IMV, which verifies the fileset and security patch level of the systems. The TNC server is a framework which loads and manages multiple IMV modules. For verifying a client, it relies on the IMVs to request information from clients and verifies the clients.

TNC Patch Management

The Trusted Network Connect (TNC) server integrates with the Service Update Management Assistant (SUMA) and cURL to provide a patch management solution.

The patch manager downloads the latest service packs and security fixes that are available in the IBM ECC and Fix Central websites. The TNC Patch Management daemon pushes the latest updated information to the TNC server, which serves as a baseline fileset to verify the clients.

The **tncpmd** daemon must be configured to manage SUMA downloads and to push fileset information to the TNC server. This daemon must be hosted on a system that is connected to the Internet to automatically download the updates. To use the TNC Patch Management server without connecting it to the Internet, you can register a user-defined fix repository with the TNC Patch Management server.

Note: The TNC server and the **tncpmd** daemon can be hosted on the same system.

TNC Patch Management is provided in one of the following methods:

- Using the command line interface (pmconf)
- Using the Daemon (tncpmd2)

Using the command line interface (pmconf) to provide patch management

SUMA and cURL are invoked when a Service Pack Level (SP Level) is downloaded using the **pmconf add** command.

When a Service Pack Level (SP Level) is downloaded using the **pmconf add** command, SUMA is invoked to download and register the SP Level with TNC. In addition, cURL is invoked to download any new or missing security fixes.

The following **pmconf get** command arguments provide additional control over managing security fixes:

- **display-only** allows the user to examine descriptions of vulnerabilities which are addressed by the security fixes that are applicable for the SP Level. The security fixes are not downloaded using this command.
- **download-only** allows the user to download, but not apply, security fixes to a user-supplied download directory. No fixes are applied.

Using the Daemon (tncpmd2) to provide patch management

The scheduler component of the Daemon can be configured to automatically check for updates that affect the security of TNC clients.

A download interval controls how often the scheduler checks for any new Service Pack Levels. If a new Service Pack Level is detected for a Technology Level (TL) that is currently registered with TNC, both the new Service Pack Level and any missing or new security fixes are downloaded and added to the repository. The download interval is set using the **pmconf init** or **pmconf modify** command. The recommended value is at least once per month (43,200 minutes).

An “ifix_download_interval” controls how often the scheduler checks for any new security interim fix that might be published. Any new security fixes are downloaded and added to the repository. The ifix download interval is set using the **pmconf init** or **pmconf modify** command. The recommended ifix download interval is once per day (1440 minutes).

Trusted Network Connect client

The Trusted Network Connect (TNC) client provides the information that is required by the TNC server for verification.

The server determines whether the client is at the level configured by the administrator. If the client is not compliant, the TNC server notifies the administrator about the updates that are required.

The TNC client loads the IMCs on startup and uses the IMCs to gather the required information.

Trusted Network Connect IP referrer

The Trusted Network Connect (TNC) server can automatically initiate the verification on clients that are part of the network. The IP referrer running on Virtual I/O Server (VIOS) partition detects the new clients that are serviced by the VIOS and sends their IP addresses to the TNC server. The TNC server verifies the client regarding the policy that is defined.

Trusted Network Connect secure communication

The Trusted Network Connect (TNC) daemons communicate over the encrypted channels that are enabled by Transport Layer Security (TLS) or Secure Sockets Layer (SSL).

The secure communication is to ensure that the data and commands that flow in the network are authenticated and secure. Each system must have its own key and certificate, which are generated when the initialization command for the components is run. This process is completely transparent to the administrator and requires less involvement from the administrator.

To verify a new client, the certificate of the client must be imported into the database of the server. The certificate is marked as untrusted initially, and then the administrator uses the **psconf** command to view and mark the certificates as trusted by entering the following command:

```
psconf certadd -i<ip> -t<TRUSTED|UNTRUSTED>
```

To use a different key and certificate, the **psconf** command provides the option to import the certificate.

To import the certificate from the server, enter the following command:

```
psconf import -S -k<key filename> -f<key filename>
```

To import the certificate from the client, enter the following command:

```
psconf import -C -k<key filename> -f<key filename>
```

Trusted Network Connect protocol

The Trusted Network Connect (TNC) protocol is used with the TNC framework to maintain network integrity.

TNC provides specifications to verify the end-point integrity. The end-points that request access are assessed based on the integrity measurements of critical components that can affect its operational environment. The TNC framework enables administrators to monitor the integrity of the systems in the network. The TNC is integrated with the AIX patch distribution infrastructure to build a complete patch management solution.

TNC specifications must satisfy the requirements of AIX and POWER® family system architecture. The components of TNC are designed to provide a complete patch management solution on the AIX operating system. This configuration enables administrators to efficiently manage the software configuration on AIX deployments. It provides tools to verify the patch levels of the systems and generate a report on the clients that are not compliant. Additionally, patch management simplifies the process of downloading the patches and installing them.

IMC and IMV modules

The Trusted Network Connect (TNC) server or client internally use the integrity measurement collector (IMC) and integrity measurement verifier (IMV) modules for server verification.

This framework allows loading of multiple IMC and IMV modules into the server and clients. The module that performs the operating system (OS) and fileset level verification is shipped with the AIX operating system by default. To access the modules that are shipped with the AIX operating system, use one of the following paths:

- `/usr/lib/security/tnc/libfileset_imc.a`: Collects the OS level and information about the fileset that is installed from the client system and sends it to the IMV (TNC server) for verification.
- `/usr/lib/security/tnc/libfileset_imv.a`: Requests the OS level and fileset information from the client and compares it with the baseline information. It also updates the status of the client into the database of the TNC server. To view the status, enter the following command:

```
psconf list -s<COMPLIANT|IGNORE|FAILED|ALL>-i<ip|ALL> [-c] [-q]
```

Related reference

[psconf command](#)

TNC requirements

To fully use all the features of each TNC component, you must verify that the minimum requirements are available in your environment.

TNC Patch Management

TNC Patch Manager Server requires AIX Release 7.2 or greater. Depending upon the TL, you may need to install SUMA/Java separately.

The TNCPM caching of interim fixes feature requires a minimum of 4.5GB of disk space in the TNCPM server Fix Repository. This value can vary depending on your environment and the activity of available interim fixes. Therefore, it is recommended that you monitor your repository and adjust disk space allocation accordingly.

Setting up the TNC components

Each of the Trusted Network Connect (TNC) components require some setup in order to run in your specific environment.

Each of the steps in the following procedure are required in order to set up the TNC components.

1. To run Trusted Network Connect, you must install the `poweriscStd.tnc_commands` fileset that is available on your IBM PowerSC Standard Edition DVD. Install the fileset on your AIX system by using the **installp** command. This fileset provides the function of the **psconf** and **pmconf** commands.
2. Identify the IP addresses of the systems where the TNC server, the TNC Patch Management (TNCPM) server, and the TNC IP referrer for the Virtual I/O Server (VIOS) will be setup.
3. Set up the network installation management (NIM) server. The system that is configured as a TNCPM server is the NIM master. The `sets:bos.sysmgt.nim.master` fileset must be installed on the this system.
4. You must enable Autonomic Health Advisor (AHA) for automatic notification of new Service Packs and Security Fixes to the TNC Server. If AHA is not enabled, TNC Scheduler will update the TNC server at scheduled intervals.

To enable AHA for automatic notification:

```
mkdir /aha
/usr/sbin/mount -v ahafs /aha /aha
```

5. To initialize the fix repositories for TNC Patch Management, enter the following command (enter command on a single line):

```
pmconf init -i <download interval> -l <TL list> [-A] [-P <download path>]
[-x <ifix interval>] [-K <ifix key>]
```

An example of the **pmconf** command follows:

```
pmconf init -i 1440 -l 6100-07,7100-01
```

The **init** command downloads the latest service pack for each technology level, and makes it available for the TNC server. The updated service packs enable the TNC server to run a baseline TNC client verification, and for the TNC Patch Management server to install the TNC client updates. Specify the **-A** flag to accept all license agreements when running the client updates. By default, the fix repositories that are downloaded by the TNC Patch Management server are in the `/var/tnc/tncpm/fix_repository` file. Use the **-P** flag to specify a different directory.

6. Set up the TNCPM server. The TNCPM server must be set up on a system that is configured as a NIM Master. The TNCPM server uses SUMA to download the patches from IBM Fix Central and ECC websites. The TNCPM server uses cURL to download ifixes from the IBM security site. To download the updates, the system must be connected to the Internet. Enter the following command to configure the TNCPM server:

```
pmconf mktncpm [pmpport=<port>] tncserver=<host:port>
```

For example:

```
pmconf mktncpm pmpport=20000 tncserver=1.1.1.1:10000
```

7. Configure the policies on the TNC server. To create the policies for verifying the clients, see [“Creating policies for the Trusted Network Connect client” on page 216](#)
8. Configure the clients by using the following command:

```
psconf mkclient tncport=<port> tncserver=<serverip>:<port>
```

For example:

```
psconf mkclient tncport=10000 tncserver=10.1.1.1:10000
```

9. Complete the setup of the TNC components by completing the optional steps for each component.

Related reference

[psconf command](#)

Related information

[Installing PowerSC Standard Edition](#)

[Installing with NIM](#)

[IBM Fix Central](#)

[Passport Advantage Online Help Center](#)

Configuring options for the TNC components

You can configure one or more options for each of the TNC components.

Configuring host names and ports

You can use the **pmconf** command to change the Trusted Network Connect Patch Management (TNCPM) server port and the TNC server host name and port.

The following **pmconf** commands change the Trusted Network Connect Patch Management (TNCPM) server port and the TNC server host name and port:

```
pmconf chtncpm pmport=<port>           # Change the TNCPM server port
pmconf chtncpm tncserver=<hostname>:<port> # Change TNC server host name and port
```

Configuring options for the Trusted Network Connect (TNC) server

Learn the steps to configure the TNC server.

To configure the TNC server, the `/etc/tncs.conf` file must have a value similar to the following:

```
component = SERVER
```

To configure a system as a server, enter the following command:

```
psconf mkserver tncport=<port> pmserver=<ip|hostname[,ip2|hostname2..]:port>
[recheck_interval=<time in mins>]
```

For example:

```
psconf mkserver tncport=10000 pmserver=2.2.2.2:20000 recheck_interval=20
```

Note: The `tncport` port and the `pmserver` port must be set to different values, and if the value of the `recheck_interval` parameter is not provided, a default value of 1440 minutes is used.

The default port value of 42830 is used for the `tncport` port, and the default value of 38240 is used for the `pmserver` port.

Related reference

[psconf command](#)

Configuring additional options for the Trusted Network Connect client

Learn the steps to configure the Trusted Network Connect (TNC) client and the configuration settings that are required for the setup.

To configure the TNC client, the `/etc/tncs.conf` file must have a value similar to the following :

```
component = CLIENT
```

To configure a system as a client, enter the following command:

```
psconf mkclient tncport=<port> tncserver=<ip:port>
```

For example:

```
psconf mkclient tncport=10000 tncserver=1.1.1.1:10000
```

Note: The value of the server port and the tncport, which is a client port must be the same.

Related reference

[psconf command](#)

Configuring options for the TNC Patch Management server

The Trusted Network Connect Patch Management (TNCPM) server integrates with the SUMA and cURL to provide a comprehensive patch management solution.

The TNCPM server must be configured on the Network Installation Management (NIM) server so the TNC clients can be updated.

To enable automatic IBM Security Advisory and interim fix downloads, you can specify an interim fix interval. This feature provides automatic notification of newly-published security interim fixes and associated Common Vulnerabilities and Exposures (CVE) identifiers. All security advisories and interim fixes are verified prior to registration with the TNC. The IBM AIX vulnerability public key, which is required to download interim fixes automatically, is available at the IBM AIX Security website. Automatic service pack and interim fix downloads are disabled by setting both the download interval and interim fix interval to 0.

You can also update service pack and interim fix registration manually. To manually register an IBM Security Advisory along with its corresponding interim fixes, enter the following command:

```
pmconf add -y <advisory file> -v <signature file> -e <ifix tar file>
```

To manually register a stand-alone interim fix, enter the following command:

```
pmconf add -p <SP> -e <ifix file>
```

To register a new technology level and to download its latest service pack, enter the following command:

```
pmconf add -l <TL list>
```

To download a service pack that is not the most current version, or to download a technology level to be used for verification and client updates, enter the following command:

```
pmconf add -l <TL list>  
pmconf add -s <SP List>
```

To register a service pack or technology level fix repository that exists on the system, enter the following command:

```
pmconf add -s <SP> -p <user_defined_fix_repository>  
pmconf add -l <TL> -p <user_defined_fix_repository>
```

To configure a system to serve as a patch management server, enter the following command:

```
pmconf mktncpm [pmport=<port>] tncserver=ip_list[:port]
```

An example of this command follows:

```
pmconf mktncpm pmport=20000 tncserver=1.1.1.1:100000
```

The TNC Patch Management server supports the management of security Authorized Problem Analysis Reports (APARs). Enter the following command to configure the TNC Patch Management to manage other types of APARs:

```
pmconf modify -t <APAR_type_list>
```

In the previous example, <APAR_type_list> is a comma-separated list that contains the following types of APARs:

- HIPER
- PE
- Enhancement

To manage the TNCMP Open Package Repositories enter one or more of the following commands:

```
pmconf add -o <package name> -V <version> -T [installp|rpm] -D <User defined path>
pmconf delete -o <package name> -V <version>
pmconf list -o <package name> -V <version>
pmconf list -O [-c] [-q]
```

Open Packages are added to this default directory:

`/var/tnc/tncpm/fix_repository/packages.`

User defined path = Package location on the system

To display descriptive information addressed by security fixes for a specific Service Pack Level, without downloading or applying the fixes to the repository, enter the following command:

```
pmconf get -L -p <SP>
```

For example:

```
pmconf get -L -p 7200-01-01
```

To download security fixes for a specific Service Pack Level, without applying the fixes to the repository, enter the following command:

```
pmconf get -p <SP> -D <download directory>
```

Note: The *download directory* must exist before executing this command.

For example:

```
pmconf get -p 7200-01-01 -D /tmp/ifixes_7200-01-01
```

The TNC Patch Management server supports the **syslog** command for logging the downloading of service packs and technology levels, and for client update events. The facility is `user` and severity level is `info`. An example of this is `user.info`.

The TNC Patch Management server also maintains a log with all of the client updates in the `/var/tnc/tncpm/log/update/<ip>/<timestamp>` directory.

Related reference

[psconf command](#)

Related information

[IBM AIX Security](#)

Configuring Trusted Network Connect server email notification

Learn the procedure to configure email notification for the Trusted Network Connect (TNC) server.

The TNC server views the patch level of the client and if the TNC server finds that the client is not compliant, it sends an email to the administrator with the result and the required remediation.

To configure the email address of the administrator, enter the following command:

```
psconf add -e <email_id>[ipgroup=[±]G1, G2 ..]
```

For example:

```
psconf add -e abc@ibm.com ipgroup=vayugrp1,vayugrp2
```

In the preceding example, the email for IP group *vayugrp1* and *vayugrp2* is sent to the abc@ibm.com email address.

To send an email to a global email address for the IP group that does not have an email address assigned to it, enter the following command:

```
psconf add -e <mailaddress>
```

For example:

```
psconf add -e abc@ibm.com
```

In the preceding example, if an IP group does not have an email address assigned to it, the mail is sent to the abc@ibm.com email address. It acts as a global email address.

Related reference

[psconf command](#)

Managing Trusted Network Connect (TNC) components

Learn how to manage Trusted Network Connect (TNC) to implement tasks, such as adding the clients, policies, logs, verification results, updating clients, and certificates related to TNC.

Viewing the Trusted Network Connect server logs

Learn how to view the logs of the Trusted Network Connect (TNC) server.

The TNC server logs the verification results of all the clients. To view the log, run the **psconf** command:

```
psconf list -H -i <ip |ALL>
```

Related reference

[psconf command](#)

Creating policies for the Trusted Network Connect client

Learn how to set up policies related to Trusted Network Connect (TNC) client.

The **psconf** console provides the interface that is required to manage the TNC policies. Each client or a group of clients can be associated with a policy.

The following policies can be created:

- An Internet Protocol (IP) group contains multiple client IP addresses.
- Each client IP can belong to only one group.
- The IP group is associated with a policy group.
- A policy group contains different kinds of policies. For example, the fileset policy that specifies what must be the client's operating system level (that is, release, technology level, and service pack). There can be multiple fileset policies in a policy group and the client that refers to this policy must be at the level specified by one of the fileset policies.

The following commands show how to create an IP group, policy group, and fileset policies.

To create an IP group, enter the following command:

```
psconf add -G <ipgrpname> ip=[±]<ip1,ip2,ip3 ...>
```

For example:

```
psconf add -G myipgrp ip=1.1.1.1,2.2.2.2
```

Note: For a group, at least one IP must be provided. Multiple IPs must be separated by a comma.

To create a fileset policy, enter the following command:

```
psconf add -F <fspolicyname> -r <rel00-TL-SP>
```

For example:

```
psconf add -F myfspol -r 6100-02-03 apargrp=IY0001,IY0002
```

Note: The build information must be in the <rel00-TL-sp> format.

To create a policy and to assign an IP group, enter the following command:

```
psconf add -P <policyname> ipgroup=[±] <ipgrp1, ipgrp2 ...>
```

For example:

```
psconf add -P mypol ipgroup=myipgrp,myipgrp1
```

To assign fileset policy to a policy, enter the following command:

```
psconf add -P <policyname> fspolicy=[±]<fspol1, fspol2 ...>
```

For example:

```
psconf add -P mypol fspolicy=myfspol,myfspol1
```

To add OpenPackage policy, enter the following command:

```
pconf add -O <openpkggrp> <openpkgname:version>
```

The following is an example of adding an OpenPackage policy:

```
psconf add -O.opengrp2.openssl:1.0.1.516
```

To assign OpenPackage policy to Fspolicy, enter the following command:

```
psconf add -O.opengrp2.fspolicy=fspolicy1
```

Note: If multiple fileset policies are provided, the system enforces the best matching policy on the client. For example, if the client is on 6100-02-01 and you mention the fileset policy as 7100-03-04 and 6100-02-03, then 6100-02-03 is enforced on the client.

Related reference

[psconf command](#)

Starting verification for the Trusted Network Connect client

Learn how to verify the Trusted Network Connect (TNC) client.

Use one of the following methods for client verification:

- The IP referrer daemon on the Virtual I/O Server (VIOS) forwards the client IP to the TNC server: The client LPAR acquires the IP and tries to access the network. The IP referrer daemon on VIOS detects the new IP address and forwards it to the TNC server: The TNC server initiates verification on receiving the new IP address.

- The TNC server verifies the client periodically: The administrator can add the client IPs that are to be verified in the TNC policy database. The TNC server verifies the clients that are in the database. The reverification happens automatically at regular intervals with reference to the `recheck_interval` attribute value that is specified in the `/etc/tncs.conf` configuration file.
- The administrator initiates the client verification manually: The administrator can initiate the verification manually to verify whether a client is added to the network by running the following command:

```
pconf verify -i <ip>
```

Note: For resources that are not connected to a VIOS, the clients can be verified and updated when they are added manually to the TNC server.

Related reference

[psconf command](#)

Viewing the verification results of the Trusted Network Connect

Learn the procedure to view the verification results of the Trusted Network Connect (TNC) client.

To view the verification results of the clients in the network, enter the following command:

```
psconf list -s ALL -i ALL
```

This command displays all clients that have a **IGNORED**, **COMPLIANT**, or **FAILED** status.

- **IGNORED:** The client IP is ignored in the IP list (that is, the client can be exempt from verification).
- **COMPLIANT:** The client passed the verification (that is, the client is compliant with the policy).
- **FAILED:** The client failed verification (that is, the client is not compliant with the policy and administration action is required).

To determine the reason for the failure, run the **psconf** command with the client IP that has failed:

```
psconf list -s ALL -i <ip>
```

Related reference

[psconf command](#)

Updating the Trusted Network Connect client

The Trusted Network Connect (TNC) server verifies a client and updates the database with the status of the client and the result of verification. The administrator can view the results and take action to update the client.

To update a client that is at a previous level, enter the following command:

```
psconf update -i <ip> -r <buildinfo> [-a apar1,apar2...]
```

For example:

```
psconf update -i 4.4.4.4 -r 6100-02-03 -a IY0004
```

The **psconf** command updates the client with the build and the APAR installations if they are not installed.

To update the client with Open Packages:

```
psconf update -i <ip> -O.opengrp2
```

Related reference

[psconf command](#)

Managing patch management policies

The **pmconf** command is used to configure the patch management policies.

The patch management policies provide information, such as the TNC server IP address and the time interval to initiate a SUMA update.

To manage the patch management policy, enter the following command:

```
pmconf mktncpm [pmpport=<port>] tncserver=<host:port>
```

For example:

```
pmconf mktncpm pmpport=2000 tncserver=10.1.1.1:1000
```

Note: The `pmpport` and the `tncserver` ports must be different.

Related reference

[pmconf command](#)

Importing Trusted Network Connect certificates

Learn the procedure to import a certificate and to securely transmit data in the network.

The Trusted Network Connect (TNC) daemons communicate over the encrypted channels enabled by using the Transport Layer Security (TLS) or Secure Sockets Layer (SSL) protocol. This daemon ensures that the data and commands that are transported on the network are authenticated and secure. Each system has its own key and certificate, which are generated when the initialization command for the components is run. This process is transparent to the administrator and requires less involvement from the administrator. When a client is being verified for the first time, its certificate is imported into the database of the server. The certificate is marked as untrusted initially, and the administrator uses the **psconf** command to view and to mark the certificates as trusted by entering the following command:

```
psconf certadd -i <ip> -t <TRUSTED|UNTRUSTED>
```

If the administrator wants to use a different key and certificate, the **psconf** command provides the feature to import the key and certificate.

To import the certificate from a server, enter the following command:

```
psconf import -S -k <key filename> -f <filename>
```

To import the certificate from a client, enter the following command:

```
psconf import -C -k <key filename> -f <filename>
```

Related reference

[psconf command](#)

Replicating the Patch Management (TNCPM) server

The **pmconf replicate** command allows you to replicate the Trusted Network Connect Patch Management (TNCPM) server. In this model, one patch manager host downloads relevant data from the Internet and then distributes this data to one or more additional patch manager hosts on the local network.

In PowerSC Standard Edition without replication, the patch manager downloads the latest service packs, open packs, and security fixes that are available in the IBM ECC and Fix Central websites. The TNC Patch Management daemon pushes the latest updated information to the TNC server, which serves as a baseline fileset to verify the clients.

This approach is maintained with patch manager replication. When replication is configured, downloading service packs, open packs, and security fixes occurs only from one TNCPM host known as the *Primary TNCPM host*. Replication is then performed to one or more secondary TNCPM hosts.

Consider the following benefits to using replication in an environment where there is more than one TNCPM server:

- Because only one TNCPM host needs to be exposed to the Internet, the bandwidth requirements are reduced.
- Populating the additional TNCPM hosts is typically much faster than if each had to separately download the same data from the Internet.
- There is improved security because all other TNCPM hosts participating in replication do not need Internet access.

Understanding the replication flow

Replication occurs after the **pmconf** operation (**add**, **delete**) has completed on the primary TNCPM host. In the following **add** example there are 3 steps:

1. Download the latest service packs and register with TNC.
2. Apply any required ifixes for this service pack.
3. Replicate the service packs and ifixes to the secondary TNCPM hosts.

The secondary TNCPM hosts are named *host1*, *host2*, and *host3* in this example:

```
Done applying ifix(es).

Preparing Primary for Replication. This may take several minutes...
Starting DOWNLOAD replication...
Testing connectivity to host1...Success
Replicating onto host1

Starting DOWNLOAD replication...
Testing connectivity to host2...Success
Replicating onto host2

Starting DOWNLOAD replication...
Testing connectivity to host3...Success
Replicating onto host3
```

Similarly, consider the following replication **delete** example:

```
# pmconf delete -p 7200-02-02

Starting REMOVE replication...
Testing connectivity to host1...Success
Replicating onto host1

Starting REMOVE replication...
Testing connectivity to host2...Success
Replicating onto host2

Starting REMOVE replication...
Testing connectivity to host3...Success
Replicating onto host3
```

Configuring primary and secondary TNCPM hosts

You can define only one TNCPM host as the primary. This host must have access to the Internet, either directly or via a proxy. Secondary TNCPM hosts do not need to be connected to the Internet.

Note: You can connect secondary TNCPM hosts to the Internet if needed for other site-specific purposes. However, secondary TNCPM hosts cannot perform **pmconf** operations such as downloading service packs and security fixes.

1. Enter the following command on the system you want to use as the TNCMP primary host. It is recommended that the primary TNCMP host not contain an existing fix repository prior to entering this command.

```
pmconf replicate mode primary
```

2. Enter the following command on the systems you want to use as TNCMP secondary hosts.

```
pmconf replicate mode secondary
```

Note: This command purges any existing secondary TNCMP fix repositories.

Establishing trust between hosts

To establish trust, the primary TNCMP host requires the public certificate of each secondary TNCMP host to be in its truststore. Each secondary TNCMP host requires the public certificate of the primary TNCMP host to be in its truststore.

Note: TNCMP replication uses **scp** to replicate the primary TNCMP host. **scp** uses **ssh** for data transfer. Public key authorization for **scp** must already be enabled on the primary and secondary TNCMP hosts, including any site-specific required modifications to the `/etc/ssh/sshd_config` file.

To establish trust between TNCMP hosts, enter the following commands as root:

1. If you already have a public key for your primary TNCMP host, proceed to Step “3” on page 221. If you do not already have a public key for the primary TNCMP host, enter the following command to generate a private/public key pair.

```
$ ssh-keygen -t rsa
Generating public/private rsa key pair.
Enter file in which to save the key (~/ssh/id_rsa):
~/ssh/primary_cert
Enter passphrase (empty for no passphrase):
Enter same passphrase again:
```

2. Change the file protections on the certificates as root:

```
chmod 600 ~/ssh/primary_cert
chmod 644 ~/ssh/primary_cert.pub
```

3. Copy the public key you generated to each of the secondary TNCMP hosts:

```
scp ~/ssh/primary_cert.pub root@secondary_host
```

4. On each secondary TNCMP host, if the `~/ssh` directory in the location of your choice does not already exist, create it as the root user:

```
mkdir -p ~/ssh
```

5. Change the file protections on the `ssh` directory as root:

```
chmod 700 ~/ssh
```

6. On each secondary TNCMP host, if the `authorized_keys` file does not already exist, create it as the root user:

```
touch ~/ssh/authorized_keys
```

7. Change the file protections on `authorized_keys` as root:

```
chmod 600 ~/ssh/authorized_keys
```

8. On each secondary TNCMP host, add the primary TNCMP host public certificate to the `authorized_keys` file:

```
cat primary_public_cert.pub >> ~/ssh/authorized_keys
```

9. If you already have public keys for your secondary TNCMP hosts, proceed to Step “11” on page 222. If you do not already have a public key for the secondary TNCMP hosts, enter the following command as root on each secondary TNCMP host to generate a private/public key pair:

```
$ ssh-keygen -t rsa
Generating public/private rsa key pair.
Enter file in which to save the key (~/ssh/id_rsa):
~/ssh/secondaryhostname_cert
Enter passphrase (empty for no passphrase):
Enter same passphrase again:
```

10. Change the file protections on the certificates as root:

```
chmod 600 ~/ssh/secondaryhostname_cert
chmod 644 ~/ssh/secondaryhostname_cert.pub
```

11. Copy the public keys you generated to the primary TNCMP host:

```
scp secondaryhost_public_cert.pub root@primary_host
```

12. On the primary TNCMP host, add each secondary TNCMP host public certificate to the `authorized_keys` file:

```
cat secondaryhostname_cert.pub >> ~/.ssh/authorized_keys
```

13. On the primary TNCMP host, test the connectivity to each secondary TNCMP host and correct any connectivity issues before proceeding.

```
pmconf replicate test host1,host2,host3
Testing connectivity to host1...Success
Testing connectivity to host2...Success
Testing connectivity to host3...Failed
```

Adding secondary TNCMP hosts

Use the **pmconf replicate add** command to add secondary TNCMP hosts to the list of secondary hosts known to the primary TNCMP host.

Use the **pmconf replicate add** command to configure the primary TNCMP host with each secondary to which it will replicate. The secondary TNCMP hosts are stored in the primary TNCMP host's `/etc/tncpm_secondaries.conf` file.

1. Enter the following command to enter the secondary hosts one at a time.

```
pmconf replicate add secondary hostname
```

2. Enter the following command to enter the secondary hosts in a comma-separated list.

```
pmconf replicate add comma-separated-list
```

Displaying replication settings

Use the **pmconf replicate display** command to display the current replication settings.

1. The following example shows that replication has not been configured on this host.

```
# pmconf replicate display
Current Replication settings:
-----
replicate_mode : none
```

2. The following example shows that this host is configured as a secondary TNCMP host.

```
# pmconf replicate display
Current Replication settings:
-----
replicate_mode : secondary
```

3. The following example shows that this host is configured as a primary TNCMP host. Additional information is displayed for the primary TNCMP host, including:
 - The name of each host in the primary TNCMP host's `/etc/tncpm_secondaries.conf` file.
 - The mode of the TNCMP host.
 - The remaining available disk space on the filesystem where that host's repository resides.

```
# pmconf replicate display
Current Replication settings:
-----
replicate_mode : primary
List of Secondary TNCMPs:
Secondary          Mode      Repo Avail (GB)
-----
host1               secondary 18.10
host2               secondary 12.94
host3               secondary 11.21
```

Removing secondary TNCMP hosts

Use the **pmconf replicate delete** command to remove a secondary TNCMP host from the list of secondary hosts to which the primary TNCMP hosts will replicate. The secondary TNCMP host is removed from the primary TNCMP host's `/etc/tncpm_secondaries.conf` file.

1. Enter the following command to remove the secondary hosts one at a time:

```
pmconf replicate delete secondary hostname
```

2. Enter the following command to delete the secondary hosts in a comma-separated list:

```
pmconf replicate delete comma separated list of secondary hostnames
```

Stopping replication to a secondary TNCMP host

There are two methods of stopping replication to a secondary TNCMP host.

The two methods of stopping replication to a secondary TNCMP host are as follows:

- Setting the mode on the secondary to none. You might want to use this method to temporarily stop replication to a secondary host for system maintenance or other reason.
- Removing the secondary from the primary's list, as described in [“Removing secondary TNCMP hosts” on page 223](#). The secondary TNCMP host is removed from the primary TNCMP host's `/etc/tncpm_secondaries.conf` file.

1. Enter the following command from the secondary TNCMP host to set the replication mode to none and disable replication:

```
pmconf replicate mode none
```

2. Enter the following command from the secondary TNCMP host to set the replication mode to secondary and re-enable replication:

```
pmconf replicate mode secondary
```

Syncing replication hosts

If replication to one or more secondary TNCPM hosts does not succeed for some reason, perhaps because the host is offline or there is insufficient disk space, the secondary TNCPM host is out of sync. After you correct the problem, you can initiate a sync.

1. Enter the **pmconf list -s** command on the primary TNCPM host and each secondary TNCPM host to list the managed service packs. Note that in this hypothetical example, *service pack 7200-01-05* is present on the primary TNCPM host, but not on the secondary TNCPM hosts.

```
PRIMARY
pmconf list -s
fix_repository_path : /var/tnc/tncpm/fix_repositories
Latest_SP_List : 7200-02-03,7200-03-02,7200-01-05
SP_List : 7200-02-01,7200-03-01

user_defined_SP_List :

HOST1:
pmconf list -s
fix_repository_path : /var/tnc/tncpm/fix_repositories
Latest_SP_List : 7200-03-02,7200-02-03
SP_List : 7200-02-01,7200-03-01

user_defined_SP_List :

HOST2:
pmconf list -s
fix_repository_path : /var/tnc/tncpm/fix_repositories
Latest_SP_List : 7200-03-02,7200-02-03
SP_List : 7200-02-01,7200-03-01

user_defined_SP_List :

HOST3:
pmconf list -s
fix_repository_path : /var/tnc/tncpm/fix_repositories
Latest_SP_List : 7200-03-02,7200-02-03
SP_List : 7200-02-01,7200-03-01

user_defined_SP_List :
```

2. Enter the following command from the primary TNCPM host to initiate a sync:

```
pmconf replicate sync
Starting Sync...

Checking host [host1]
Preparing Primary for Replication. This may take several minutes...

Starting DOWNLOAD replication...
Testing connectivity to host1...Success
Replicating onto host1

Checking host [host2]
Preparing Primary for Replication. This may take several minutes...

Starting DOWNLOAD replication...
Testing connectivity to host2...Success
Replicating onto host2

Checking host [host3]
Preparing Primary for Replication. This may take several minutes...

Starting DOWNLOAD replication...
Testing connectivity to host3...Success
Replicating onto host3

Done.
```


3. Enter the **pmconf list -s** command on the primary TNCPM host and each secondary TNCPM host to list the managed service packs. Note that in this hypothetical example, *service pack 7200-01-05* is present on the secondary TNCPM hosts.

```
pmconf list -s
PRIMARY:
# pmconf list -s
fix_repository_path : /var/tnc/tncpm/fix_repositories
Latest_SP_List : 7200-02-03,7200-03-02,7200-01-05
SP_List : 7200-02-01,7200-03-01

HOST1:
pmconf list -s
fix_repository_path : /var/tnc/tncpm/fix_repositories
Latest_SP_List : 7200-02-03,7200-03-02,7200-01-05
SP_List : 7200-02-01,7200-03-01

user_defined_SP_List :

HOST2:
pmconf list -s
fix_repository_path : /var/tnc/tncpm/fix_repositories
Latest_SP_List : 7200-02-03,7200-03-02,7200-01-05
SP_List : 7200-02-01,7200-03-01

user_defined_SP_List :

HOST3:
pmconf list -s
fix_repository_path : /var/tnc/tncpm/fix_repositories
Latest_SP_List : 7200-02-03,7200-03-02,7200-01-05
SP_List : 7200-02-01,7200-03-01

user_defined_SP_List :
```

TNC server reporting

The Trusted Network Connect (TNC) server supports both the comma-separated values (CSV) format and the text output format for its common vulnerabilities and exposures (CVE), IBM Security Advisory, TNC server policies, TNC client security fix, and registered service packs and interim fix reports.

The CVE report displays all of the common exposures and vulnerabilities for the registered service packs. To display the results of this report, enter the following command:

```
psconf report -v {CVEid|ALL} -o {TEXT|CSV}
```

The IBM Security Advisory report displays the known security vulnerabilities on the installed IBM software. To display the results of this report, enter the following command:

```
psconf report -A <advisoryname>
```

The TNC server policies report displays the security policies that are enforced on the TNC server. To display the results of this report, enter the following command:

```
psconf report -P {policyname|ALL} -o {TEXT|CSV}
```

The TNC client fix report displays the installed and missing interim fixes for the TNC client. To display the results of this report, enter the following command:

```
psconf report -i {ip|ALL} -o {TEXT|CSV}
```

You can also run a report that generates a list of registered service packs and the related authorized program analysis reports (APARs) and interim fixes. To display the results of this report, enter the following command:

```
psconf report -B {buildinfo|ALL} -o {TEXT|CSV}
```

To display a list of registered open source packages, enter the following report command:

```
psconf report -O ALL -o TEXT
```

Related reference

[psconf command](#)

Troubleshooting Trusted Network Connect Patch Management

Learn the possible causes for failure and the steps to troubleshoot the TNC Patch Management system.

To troubleshoot the TNC Patch Management system, verify the configuration settings that are listed in the following table.

Table 18. Troubleshooting the configuration settings for the TNC Patch Management systems	
Problem	Solution
TNC server is not starting or responding	<p>Complete the following procedure:</p> <ol style="list-style-type: none">1. Determine whether the TNC server daemon is running by entering the command: <pre>ps -eaf grep tnccd</pre>2. Restart the server. <p>If that does not solve the problem, check the TNC server configuration file <code>/etc/tnccs.conf</code> to verify that the component parameter is set to SERVER.</p>
The TNC Patch Management server is not starting or responding	<ul style="list-style-type: none">• Determine whether the TNC Patch Management server daemon is running by entering the following command: <pre>ps -eaf grep tnccpm</pre>• Check the <code>/etc/tnccs.conf</code> configuration file for the <code>component = TNCPM</code> entry on the TNC Patch Management server.
TNC client is not starting or responding	<ul style="list-style-type: none">• Determine whether the TNC client daemon is running by entering the following command: <pre>ps -eaf grep tnccd</pre>• Check the <code>/etc/tnccs.conf</code> configuration file for the <code>component = CLIENT</code> entry on the TNC client.
TNC IP referrer is not running on Virtual I/O Server (VIOS)	<ul style="list-style-type: none">• Determine whether the TNC IP referrer daemon is running by entering the following command: <pre>ps -eaf grep tnccsd</pre>• Check the <code>/etc/tnccs.conf</code> configuration file for the <code>component = IPREF</code> entry on VIOS.
Unable to configure a system as both a TNC server and client	The TNC server and client cannot run simultaneously on the same system.

Table 18. Troubleshooting the configuration settings for the TNC Patch Management systems (continued)

Problem	Solution
Daemons are running but verification does not happen	Enable the log messages for the daemons. Set the level=info log in the /etc/tncs.conf file. You can analyze the log messages.

PowerSC graphical user interface (GUI)

This section describes the IBM PowerSC graphical user interface (GUI) including information about how to install, maintain, and use the interface.

The IBM PowerSC GUI improves the usability of the PowerSC Standard Edition product by providing an alternative to command-line and log-file interaction. The PowerSC GUI provides a centralized management console for visualization of endpoints and their status; applying, undoing, or checking compliance levels; grouping systems for the application of compliance level actions; and viewing and customizing compliance configuration profiles.

The PowerSC GUI also includes File Integrity Monitoring (FIM). FIM includes Real Time Compliance (RTC) and Trusted Execution (TE). By using the PowerSC GUI, you can configure RTC and TE, and view real-time events. The PowerSC GUI also provides extensive profile editing and reporting capabilities.

PowerSC GUI concepts

Before using the PowerSC GUI, you should understand the general concepts regarding security and endpoint discovery.

PowerSC GUI security

The PowerSC GUI provides security by using bidirectional HTTPS communication between the PowerSC GUI server and the PowerSC GUI agents on each of the AIX or Linux endpoints.

The TLS handshaking process uses certificates that are available on both the PowerSC GUI server and PowerSC GUI agents.

The TLS handshaking process supports single authentication in both directions because either the PowerSC GUI agent or the PowerSC GUI server might initiate communication.

The agent creates a nonce, which is a random number, that is sent to the PowerSC GUI server during the first connection. The PowerSC GUI server then includes this nonce with every command that is sent to that agent. This nonce provides another layer of confirmation to the endpoint agent that it is running a command that originated from the authentic PowerSC GUI server. The endpoint must ensure that the source of the web service call is trusted. The initial handshake and the nonce ensures the trust.

All communication between the PowerSC GUI agents and the PowerSC GUI server is encrypted by using protocols and cipher suites that are consistent with the security requirements of the protected systems.

Currently, the protocol level is TLS 1.2. The PowerSC GUI server interacts with all the PowerSC GUI agents and with all the PowerSC GUI users. Therefore, the PowerSC GUI server must have a certificate that is trusted by all connections from the user's web browsers. For example, certificates from a well-known authority such as Verisign or from an internally trusted certificate authority.

During installation, the PowerSC GUI server creates a self-signed certificate for its own use. This certificate can be used indefinitely, but it is intended for temporary use and can be replaced by a user-provided, widely recognized certificate. (See “[Creating additional security certificates](#)” on [page 233](#) for a description of `import_well_known_certificate_uiServer.sh`.) The PowerSC GUI server installation also creates a signing certificate that is used to sign all endpoint certificates.

The installation process automatically creates a truststore file for each endpoint. The truststore file is the same for every endpoint and must be copied from the PowerSC GUI server to each endpoint. This combination of certificates on both the PowerSC GUI server and endpoints provides a high level of communication security.

More security control is provided by using UNIX Groups. Any user, such as an LDAP user or a local user who is defined by the operating system, must be a member of a specified UNIX group to log in to the PowerSC GUI. The administrator can set or change group membership by using the `pscuiserverctl` command.

After you are logged in, you might still be restricted to view-only mode. You can use the user authority function to perform actions against endpoints that are controlled by UNIX group membership. To perform any actions, you must be a member of a UNIX group that has permission to manage the endpoint. For more information, see the [Specifying which groups have access](#) topic.

By default, any user who is a member of the security group can manage every endpoint that is visible in the PowerSC GUI. The PowerSC administrator can restrict user access to the individual endpoint level by using the **pscuiserverctl** with the **setgroup** parameter. For example **pscuiserverctl setgroup <group name> <comma- or space-separated list of host names>**.

Note: You can separate host name entries with either a space or comma. However, if a comma is used then there cannot be a space before or after the comma because it is interpreted as a null host name. Consider the following examples:

```
CORRECT:
# pscuiserverctl setgroup g1 h1 h2 h3 h4
g1=h1,h2,h3,h4
# pscuiserverctl setgroup g1 h1,h2,h3,h4
g1=h1,h2,h3,h4
# pscuiserverctl setgroup g1 h1,h2 h3 h4
g1=h1,h2,h3,h4

INCORRECT:
# pscuiserverctl setgroup g1 h1, h2, h3, h4
g1=h1,,h2,,h3,,h4
```

There are a variety of configuration commands that can only be performed by an administrative user. Examples include the ability to change global email settings or to create a new profile. Administrative user authority is set by using UNIX groups and it can be configured by using the **pscuiserverctl** command.

Populating the endpoint content in the compliance page

The PowerSC GUI server and PowerSC GUI agent communicate with the endpoint to discover the compliance level.

Upon startup, and intermittently until successful, the agent attempts to initiate contact with the PowerSC GUI server. When contact is established, a one-time agent-server security handshake is performed. After the agent-to-server security handshake is successfully negotiated the first time, the server creates a domain element with a Unique Identifier (UID) for internal representation of the endpoint, and passes the UID back to the endpoint. The UID is then included with all communication from the agent to the server. This action completes the discovery process. The PowerSC GUI server and the endpoint can communicate securely in either direction.

After completion of the initial discovery handshake, or after the PowerSC GUI agent is restarted, the PowerSC GUI agent attempts to determine the current compliance status information for its endpoint and updates the PowerSC GUI server. The existence of the endpoint and the current compliance information is used to populate the compliance status page of the PowerSC GUI. If no compliance status information can be determined, the entry is not available in the compliance status page.

The PowerSC GUI server contains a representation of all known endpoints, which are automatically created as a result of the initial agent-server connection and communication. As the endpoint agents track changes in the compliance status of the endpoint, the changes are passed to the server and retained. All user interaction from the PowerSC GUI with an endpoint is performed through the PowerSC GUI server. The user interface does not interact directly with any endpoint or endpoint agent.

Backing up and restoring the PowerSC GUI server

You can set up a scheduled backup of the PowerSC GUI server. If necessary you can then restore the PowerSC GUI by manually running a restore script.

By using the **pscuiserverctl** command you can schedule the backup of the PowerSC GUI server. You can use the **pscuiserverctl** command options to define the frequency and the specific time the backup operation occurs. One backup file is maintained in a default directory by the backup process. You

can manually manage multiple copies of the backup file. You can run the **pscuiserverbackup.sh** command with the **-r** option to restore the server.

Another option to backup the PowerSC GUI server is to use the REST API. The REST API method allows you to schedule the backup and to manually manage multiple copies of the backup. In addition, the REST API method allows you to specify a unique destination folder. If you create the backup file by using this method, you must still run the **pscuiserverbackup.sh** command with the **-r** option to restore the server. For more information about the REST API, see [“Accessing the REST API” on page 232](#).

If you create your backup file by using either the REST API or the **pscuiserverctl** command, the PowerSC GUI server is switched to a QUIESCENT state until the backup script completes or fails. If the PowerSC GUI server is in a QUIESCENT state, it responds to queries with the message that the server is not ready.

1. Set up the **pscuiserverctl** command using one or more of the following options:

- **backupType** - Specifies whether the backup is performed hourly, daily, weekly, monthly, or at the end of every month.
- **backupDayOffset** - If you specify a weekly backup, this option specifies the day of the week on which the backup occurs. If you specify a monthly backup, this option specifies the day of the month on which the backup occurs. This option does not apply to hourly, daily and end of the month backup operations.
- **backupHour** - Specifies the hour when the backup occurs.
- **backupMinute** - Specifies the minute of the hour that the backup operation occurs.

Note: For more information and an example of the **pscuiserverctl** command and the backup options, see [“pscuiserverctl command” on page 289](#).

2. Run the command. After running the command your backup information is saved. Based on the schedule that you specified, the **pscuiserverbackup.sh** script runs creating the latest backup of the PowerSC GUI server.

3. Before the backup operation starts, the status of the PowerSC GUI server is checked. If the PowerSC GUI server is running, it is stopped before performing the backup operation.

The PowerSC GUI server responds to all requests from an agent or the GUI that it is not ready. The agent will automatically try the request again after some time. When the backup operation is complete, the PowerSC GUI server is restarted.

4. When needed, you run the **pscuiserverbackup.sh** command with the **-r** option to restore the server.

Using the SOCKS proxy server with the PowerSC GUI

PowerSC supports communication between all PowerSC GUI agents and the PowerSC GUI server through a single channel by using a SOCKS proxy server. Communication by using a SOCKS proxy server makes it easier to control your security configuration.

All communication from every endpoint monitored by PowerSC can go through the SOCKS proxy server. However, all communication from the PowerSC GUI server must go directly to the PowerSC GUI agent on each endpoint bypassing the SOCKS proxy server.

After you install and configure your SOCKS proxy server, you can configure PowerSC GUI to work with your SOCKS proxy server by using the **socksProxyHost** and the **socksProxyPort** configuration options of the **pscuiaagentctl** command. For more information see [“pscuiaagentctl command” on page 286](#).

Note:

- All endpoints connected through the proxy have the same IP address. Users must manually generate and copy certificates to each endpoint.
- PowerSC only supports a SOCKS proxy server. PowerSC does not support HTTP proxy servers.
- The firewall from the PowerSC GUI server side must allow server connection directly to all endpoints.

Accessing the REST API

You can access a description of the REST API using your browser.

1. From the main page, right-click on the home icon, the **Compliance** tab, the **Security** tab, the **reports** tab, or the **Profile** tab. Select **Open link in new tab**.
2. Enter the following URL in your browser:

```
powerscservername/ws/powerscui
```

3. The main page for the PowerSC API opens.
4. Select one of the following commands:
 - `/ws/powerscui/usage/session` - To perform session management and authentication functions.
 - `/ws/powerscui/groups` - To perform group management functions.
 - `/ws/powerscui/systems` - To perform system list management functions.
 - `/ws/powerscui/profiles/<profileLibrary>` - To perform profile management functions.
 - `/ws/powerscui/backup` - To perform server backup functions.
 - `/ws/powerscui/command` - To view a list of all the API commands.

Distributing the truststore security certificate to endpoints

System administrators must deploy the truststore security certificate on all endpoints.

During installation, a truststore file is created and it can be used by all endpoints. The name of the file is `endpointTruststore.jks`. The file is placed in the `/etc/security/powersc/uiServer/` directory.

After installation, you must place the `endpointtruststore.jks` file on each endpoint for the PowerSC GUI agent on that endpoint to make contact with the PowerSC GUI server and to initiate the process that results in the creation of the keystore on the endpoint.

You can distribute the truststore file in one of the following ways:

- Manually copy the `endpointTruststore.jks` file to each endpoint.
- If PowerVC (or another virtualization manager) is used in your environment, the `endpointTruststore.jks` file can be put onto the PowerVC image. When the PowerVC image is deployed to an endpoint, both the PowerSC GUI agent and the truststore file are included.

After the `endpointTruststore.jks` is deployed by using one of the methods, and when an endpoint starts running, the PowerSC GUI agent uses the truststore file to determine the location where the PowerSC GUI server is running. The PowerSC GUI agent then sends a message to the PowerSC GUI server with a request to join the list of available and monitored endpoints.

Copying the truststore file to endpoints manually

System administrators must manually copy the truststore file to each existing endpoint in their environment.

The truststore file must also be copied to each new endpoint that is added.

Note: If you have a data virtualization manager such as PowerVC, you can copy the truststore file to a new endpoint by creating an image that contains both the PowerSC GUI agent and the truststore file. See [“Copying the truststore file to endpoints using a virtualization manager” on page 233](#).

1. To copy the endpoint truststore `/etc/security/powersc/uiServer/endpointTruststore.jks` file to the `/etc/security/powersc/uiAgent/endpointTruststore.jks` file on each endpoint, run the following **scp** command:

```
# scp endpointTruststore.jks user@endpoint-host-name:  
/etc/security/powersc/uiAgent
```


2. To restart the endpoint agents after installing the security certificate, run one of the following commands based on the operating system of the endpoint:

- For AIX endpoints:

```
stopsrc -s pscuiagent
startsrc -s pscuiagent
```

- For Linux endpoints:

```
systemctl stop powersc-uiServer.service
systemctl start powersc-uiServer.service
```

3. To restart the endpoint agents after installing the security certificate, run the following commands on the endpoint:

```
stopsrc -s pscuiagent
startsrc -s pscuiagent
```

4. Repeat steps “1” on page 232 and “3” on page 233 for each existing endpoint and for every new endpoint (if you do not have a data virtualization manager).

Copying the truststore file to endpoints using a virtualization manager

System administrators can use a virtualization manager such as PowerVC to copy the truststore file onto each new endpoint by using an image that contains the PowerSC agent and the truststore file.

1. Copy the endpoint truststore `/etc/security/powersc/uiServer/endpointTruststore.jks` file to the PowerVC image.
2. Deploy the PowerVC image to each new endpoint that is added to your system.

Creating additional security certificates

After you install the PowerSC GUI agent on the endpoints and after you install the PowerSC GUI, several shell scripts are provided in the `/opt/powersc/uiServer/bin/` directory for creating or importing security certificates.

The following stores are required and are created by one or more of the shell scripts that are run during installation or by the PowerSC administrator:

- endpointKeystore.jks
- endpointTruststore.jks
- serverKeystore.jks
- serverTruststore.jks
- signingKeystore.jks

The following table describes each certificate-related shell script that is provided in `/opt/powersc/uiServer/bin/` directory and whether it is run automatically as part of the installation or whether it must be run by the system administrator after installation is complete.

Table 19. Group shell scripts

Shell script	Run by	Description
generate_server_keystore_uiServer.sh	Runs automatically during installation.	This script creates the endpoint truststore, the GUI server truststore, and GUI server keystore. The endpoint truststore contains a self-signed security certificate that references the GUI server. <ul style="list-style-type: none"> • serverKeystore.jks • serverTruststore.jks
generate_signing_keystore_uiServer.sh	Runs automatically during installation.	This script generates a certificate that is used to sign messages. <ul style="list-style-type: none"> • signingKeystore.jks
generate_endpoint_keystore_uiServer.sh	Runs automatically during installation.	Run this script to generate the endpoint keystore. <ul style="list-style-type: none"> • endpointKeystore.jks
import_well_known_certificate_uiServer.sh	Run this script only if you are providing your own well-known certificate.	If you already have a certificate .pem file from a well-known certificate authority, you can run this script to create the endpoint truststore, import that certificate, create the GUI server truststore, and create the truststore, and create the GUI server keystore.
convertProfileToBean.sh	Run this script only if you converting profiles so that they can be used with PowerSC.	Converts profiles that are in XML format and not created using PowerSC to PowerSC format.

Setting up user accounts

By default, LDAP users or local users who are defined by the AIX or Linux operating system, must be a member of the security group in order to log in to the PowerSC GUI.

The administrator can change this required group membership by using the **pscuiserverctl** command. After logging in to the PowerSC GUI, a user can only view the status of endpoints if their user account is a member of a UNIX (AIX or Linux) group that is allowed to manage the endpoint. The administrator can change the user account settings for the individual endpoint level by using the **pscuiserverctl setGroups <group name> <comma separated list of host names>** command.

Consider the following points:

- A many-to-many relationship exists between endpoints and groups:
 - One UNIX group can be associated with many endpoints.
 - One endpoint can be associated with many UNIX groups.

- After a user is logged in to the PowerSC GUI, group associations are used to determine whether a user is allowed to run commands to specific endpoints, or whether the user is allowed only to view endpoint status.
 - To run commands against a specific endpoint by using the PowerSC GUI, the user must be associated with one of the groups that is associated with the endpoint.
 - The user's group membership is compared with the set of groups that are associated with each endpoint. If the user's group membership matches groups that are associated with each endpoint, the user is allowed to run commands such as **Apply profiles**, **Undo**, and **Check** against that endpoint. If the user's group membership does not match any groups that are associated with each endpoint, the user can view only the status for that endpoint.

The following commands can be used to set up endpoint access to groups:

Note: The following examples are displayed in two lines but should be a single line.

Table 20. Group shell scripts	
Shell script	Description
<code>pscuiserverctl set logonGroupList unixpscgrp1,unixpscgrp2</code>	Specifies a UNIX group to which a user must be a member to log in to the PowerSC GUI. The user needs only to be a member of one of the groups.
<code>pscuiserverctl setGroup unixgrp1,unixgrp2</code>	Specifies one or more UNIX groups to which a user must be a member to run commands on specific endpoints.
<code>pscuiserverctl set administratorGroupList unixadmgrp1,unixadmgrp2</code>	Specifies one or more UNIX groups that will have full administrative privileges.

Running the group setup command

System administrators must run the **pscuiserverctl** command with the **setGroup** parameter to specify which UNIX (AIX or Linux) groups are allowed to log in to the PowerSC GUI, perform administrator functions, and execute commands on specific endpoints.

1. On the PowerSC GUI server, change the directory to `/opt/powersc/uiServer/bin/`.
2. Run the **pscuiserverctl** command to specify one or more UNIX groups in which a user must be a member to log in to the PowerSC GUI. The groups that you specify are written to the `/etc/security/powersc/uiServer/uiServer.conf.properties` file. The following example command specifies *group1* and *group2* as the UNIX groups:

```
pscuiserverctl set logonGroupList group1,group2
```

Tip: Before you run the command, you can use the **groups username** command to view the groups in which the user is a member.

3. Run the **pscuiserverctl** command to specify the UNIX groups that are allowed to perform administrator functions by using the PowerSC GUI.

The following example command specifies *unixgrpadmin1* and *unixgrpadmin2* as the UNIX groups allowed to perform administrative functions:

```
pscuiserverctl set administratorGroupList unixgrpadmin1,unixgrpadmin2
```

4. Run the following command to specify the UNIX groups in which a user must be a member to run commands on specific endpoints. You must provide fully qualified host names of the endpoints. The groups that you specify are written to the `/etc/security/powersc/uiServer/groups.txt` file.

```
pscuiserverctl setGroup groupname comma separated list of endpoint host names
```

Note: Limited wildcard characters are supported when you are searching for endpoints. For example, the following specifications are valid to specify all endpoints that have a name starting with "Boston_" or ending with ".rs.com":

- `pscuiserverctl setGroup admingroupname "Boston_*`
- `pscuiserverctl setGroup usergroup1 "*.rs.com"`

Tip: An asterisk (*) is the only supported wildcard character for this command. It may only be used at the beginning or at the end of a string.

Configuring encrypted email

Emails generated by the PowerSC GUI server can have optional encryption.

- Outgoing email can be encrypted if the email certificate storage has a certificate with the public key of the recipient.
- The `email_keystore.sh` script can be used to manage the email certificate storage. The script can be used to add, remove and list certificates.
- If configured, all outgoing emails are signed with the server private key (same key that is used for HTTPS communication).

Note: All log information related to sent email (encrypted or not) is written to a logging destination folder in the `/opt/powerSC/uiServer/actionHistory/*` directory. The log entries in this folder do not contain the email content. In general, these log files show errors and stack traces. If a customer had email-related problems with PowerSC GUI, the log files can be used for problem analysis.

Generating syslog entries for integration with external systems

The PowerSC GUI server sends messages to syslog by using the standard syslog port (UDP 514).

The information in the syslog messages can then be used by external software products such as IBM QRadar.

Administrators can control whether syslog messages are generated by using the **uiServer.conf.properties** configuration file. The control operations include turning on and off syslog messaging, and choosing a preferred method of forwarding messages.

The SYSLOG messages generated by the PowerSC GUI server that are relevant to external software products have a Facility value of user; a Severity value of warning; and begin with `PowerSCUI`. The following example shows format:

```
PowerSCUI: ${event.type} ${event.message}
```

The PowerSC GUI server writes a message to SYSLOG when one of the following events occurs:

- A user logs into the PowerSC GUI.
- A user logs out of the PowerSC GUI.
- A user initiates an Apply or Undo operation on an endpoint.
- An Apply or Undo operation completes on an endpoint.
- A Real Time Compliance (RTC) alert is received
- A Trusted Execution (TE) alert is received

Using the PowerSC GUI

You can use the PowerSC GUI to view the endpoints that are discovered on your system, create customized groups, create customized profiles, copy custom profiles to endpoints, and apply profiles. You

can also verify communication between the endpoints and the PowerSC GUI server and stop communication between an endpoint and the PowerSC GUI server.

The main page of the PowerSC GUI contains the following sections:

- The **Groups With Compliance Failures** section lists the groups defined for your environment that have compliance failures. The **Groups with FIM Events** lists the groups defined for your environment that have experienced File Integrity Monitoring (FIM) events. Groups are collections of endpoints that are grouped based on a commonality. You can create groups using the Group Editor that is accessible from the **Compliance** and **Security** pages. The **All systems** group is created automatically when the endpoints in your environment are discovered. You can create customized groups. For example, you can create a group of endpoints whose commonality is HIPAA.
- The **Compliance** section of the main page displays overview information on the number of system passes and failures, the number of rules checked on all systems, the number of specific rules that failed, the number of applied profiles, and the number of groups with failed rules. The **Compliance** page contains the following sections:
 - Access to the Group Editor is available in the left side pane.
 - The top pane displays statistical information on the group you selected from the **Groups** tray. The statistical information displays the results of the last compliance levels that were applied to the endpoints in the selected group. For the selected group, you can view the percentage of system passes and failures, the total number of rules that were checked, and the specific rules that failed.
 - The center pane is a taskbar that can be used to perform actions on one or more endpoints. You can apply, undo, simulate, or check a compliance level.
 - The bottom pane displays a table that includes all the endpoints or endpoint groups that are available in your environment. The table includes the following information for each:
 - System name
 - Compliance rule type
 - Time and date that the compliance level was applied to the endpoint
 - Time and date that the compliance level was checked on the endpoint
 - Compliance level status
 - Number of rules on the endpoint that have failed
 - Number of rules on the endpoint that have passed successfully during compliance level checking
 - The operating system on the endpoint (AIX or Linux)
- The **Security** section of the main page displays overview information about the File Integrity Monitoring (FIM) events that have occurred on the endpoints. The **Security** page contains the following sections:
 - Access to the Group Editor is available in the navigation pane.
 - The content pane displays overview information about File Integrity Monitoring (FIM) events including the number of endpoints that have no associated events, the number of endpoints with Real time Compliance (RTC) events, the number of endpoints with Auditd events (if applicable), and the number of endpoints with Trusted Execution (TE) events. This pane also displays the real time security information about the group of endpoints that you selected from the **Groups** tray. For the selected group, you can view the total number of RTC events, the total number of TE events, the percentage of endpoints that are up-to-date with TNC patches, the percentage of endpoints that have Trusted Boot (TB) installed, the number of endpoints that have Trusted Firewall (TF) installed, and the percentage of endpoints that have Trusted Logging(TL) installed. For Linux endpoints, you can view Auditd information. You can choose to display or hide these statistics based on whether you use these sub-products in your environment.
 - The center pane is a taskbar that can be used to refresh the information in the table. In addition from this task bar you can specify filtering criteria that can limit the endpoints listed in the table.
 - The lower pane displays a table that includes the system endpoints in the group. The table includes the following information for each endpoint:
 - Name of the system endpoint

- RTC events
- Auditd events
- TE events
- TB events
- TF events
- TL events
- Operating system of the endpoint
- **Reports** page includes two sections:
 - The left pane lists all the available compliance, file integrity, and timeline reports.
 - The right pane displays the selected report.
- **Profile Editor** page includes three sections:
 - The top pane has a drop-down menu that lists the available built-in and custom profiles.
 - The center pane is a taskbar that can be used to edit profiles, delete profiles, create new profiles, and copy profiles to endpoints that are part of a group. From this task bar you can also specify filtering criteria that can limit the profiles listed in the table.
 - The bottom pane displays a table that includes all the rules that are included in the selected profile. For each rule the following information is displayed:
 - Compliance rule name
 - Compliance rule type
 - Description of the rule

Opening the PowerSC GUI

You can open the PowerSC GUI in any web browser.

1. Open your web browser.
2. Enter the name of the server where you installed the PowerSC GUI server. For example:

```
https://powerscservername
```

3. Press Enter. The PowerSC GUI home page is displayed.
4. Log in with your username and password.

Specifying the PowerSC GUI language

The PowerSC GUI can be rendered in different languages.

To select the language for the PowerSC GUI, click the **Languages and Settings** icon in the menu bar of the main page. The current language used to render the interface is displayed in the menu. To change the language, click the associated icon. Select the language for your session from the list of available languages.

Navigating the PowerSC GUI

From the PowerSC GUI you can setup and administer endpoint and server communication; organize and group endpoints; monitor and apply built in and custom compliance levels and profiles; monitor and configure endpoint security; and generate and distribute reports on a scheduled basis.

1. Open the PowerSC GUI by entering the name of the PowerSC GUI server in your web browser. The PowerSC GUI home page is displayed.
2. To administer endpoint and server communication, click the **Languages and Settings** icon in the menu bar of the main page. Click the **Endpoint Admin** icon to verify or stop communication between the endpoints and the PowerSC GUI server. For more information, see [“Administering endpoint and server communication” on page 242.](#)

3. To create custom compliance profiles and to copy profiles to endpoints, click the **Profile Editor** tab. For more information, see [“Working with compliance profiles”](#) on page 246.
4. Open the **Compliance** or **Security** pages and click the horizontal line ellipse in the navigation pane to open the Group Editor. Using the Group Editor you can create custom groups of endpoints. For more information, see [“Creating custom groups”](#) on page 244.
5. To monitor and apply built-in and custom compliance levels and profiles, click the **Compliance** tab. For more information, see [Applying compliance levels and profiles](#).
6. To monitor and configure endpoint security, click the **Security** tab. For more information, see [Monitoring endpoint security](#).
7. To generate and distribute reports on demand or on a scheduled basis, click the **Reports** tab. For more information, see [Working with reports](#).

Using IBM PowerSC MFA authentication (optional)

If you have purchased and implemented the IBM PowerSC Multi-Factor Authentication solution in your environment, you can optionally use the out-of-band authentication type to authenticate to the PowerSC GUI server.

Important: In this release, PowerSC GUI supports IBM PowerSC MFA in the following way:

- Password fallback is not supported.
- All IBM PowerSC MFA out-of-band authentication methods except certificate authentication are supported.

You enter your policy name, which you must already know. Each policy defines the factors that you must provide. When you specify a valid authentication policy, a list of factors required to use the policy is displayed.

All configured authentication factors must succeed. For example, if an account is configured for both IBM PowerSC MFA with SecurID and RADIUS authentication methods, both methods must succeed.

Important: After you configure the PowerSC GUI server for IBM PowerSC MFA authentication, IBM PowerSC MFA authentication is enabled for all users. To authenticate without using IBM PowerSC MFA authentication, you must disable it.

Installing IBM PowerSC MFA

The IBM PowerSC MFA components are installed separately, and have no dependencies on any other product.

IBM PowerSC MFA is installed from the `installp` file sets.

Installing IBM PowerSC MFA PAM modules on an AIX PowerSC GUI server

You install the IBM PowerSC MFA PAM modules on the PowerSC GUI server.

Change directory (**cd**) to the *images-directory* directory and run the following **installp** command as root to install the IBM PowerSC MFA PAM modules:

```
installp -agXYd . powerscMFA.license powerscMFA.pam.base powerscMFA.pam.fallback
```

Installing IBM PowerSC MFA PAM modules on an Red Hat Enterprise Linux Server PowerSC GUI server

You install the IBM PowerSC MFA PAM modules on the PowerSC GUI server.

Note: A Java Virtual Machine (JVM) is required to install the IBM PowerSC MFA features.

Change directory (**cd**) to the *images-directory/rhel* directory and run the following commands as root to install the IBM PowerSC MFA PAM modules:

```
bash pmfa-pambase-1.2.0.latest-time-stamp.rhel7.ppc64le.sh
bash pmfa-pamfallback-1.2.0.latest-time-stamp.ppc64le.sh
```

If you re-run the installation for any reason, the existing `/etc/security/pamfa/pam_pmfa.conf` file from the previous installation is not overwritten. The `pam_pmfa.conf` from the rpm package is saved as `/etc/security/pamfa/pam_pmfa.conf.rpmnew`.

Installing IBM PowerSC MFA PAM modules on an SUSE Linux Enterprise Server PowerSC GUI server

You install the IBM PowerSC MFA PAM modules on the PowerSC GUI server.

Note: A Java Virtual Machine (JVM) is required to install the IBM PowerSC MFA features.

Change directory (**cd**) to the `images-directory/sles` directory and run the following commands as root to install the IBM PowerSC MFA PAM modules:

```
bash pmfa-pambase-1.2.0.latest-time-stamp.sles12.ppc64le.sh
bash pmfa-pamfallback-1.2.0.latest-time-stamp.sles12.ppc64le.sh
```

If you re-run the installation for any reason, the existing `/etc/security/pamfa/pam_pmfa.conf` file from the previous installation is not overwritten. The `pam_pmfa.conf` from the rpm package is saved as `/etc/security/pamfa/pam_pmfa.conf.rpmnew`.

Creating the client truststore

The client truststore is a single file in the location of your choice that contains the IBM PowerSC MFA server certificate authority (CA) public certificate. You must create this truststore so that the PowerSC GUI server trusts the IBM PowerSC MFA server.

The certificate authority (CA) root public certificate must be in the Privacy Enhanced Mail (PEM) format.

To create the truststore, complete the following steps on the PowerSC GUI server:

1. Obtain the certificate authority (CA) root public certificate in PEM format from the IBM PowerSC MFA administrator.
2. Copy the certificate file to the location of your choice on the PowerSC GUI server system.
3. This PEM file is the truststore. You must specify its location when you edit the IBM PowerSC MFA PAM module as described in [“Editing the IBM PowerSC MFA PAM modules” on page 240](#).

Creating the server properties file

Create the server properties file to recognize IBM PowerSC MFA authentication.

To create the server properties file to recognize IBM PowerSC MFA authentication, complete the following steps:

1. Create (**touch**) the file `/opt/powersc/uiServer/rocket.kbm.server.properties`.
2. Edit `/opt/powersc/uiServer/rocket.kbm.server.properties` and add the following entry:

```
com.rocketsoft.nm.vertical.powersc.auth.serviceName=powerscui
```

3. Save the changes.
4. Restart the PowerSC GUI server.

Editing the IBM PowerSC MFA PAM modules

The IBM PowerSC MFA PAM modules are the IBM PowerSC MFA authentication mechanism. You must configure these modules.

To edit the configuration file for the IBM PowerSC MFA PAM modules, complete the following steps:

Note: Do not add preceding or trailing spaces to an entry. They can result in an **Error processing MFA request** error.

1. Use an editor of choice to edit the `/etc/security/pamfa/pam_pmfa.conf` file on the PowerSC GUI server system.

The `pam_pmfa.conf` file has the following format:

```
# IBM PowerSC Multi-Factor Authentication - pam_pmfa configuration file
```



```
# The TRUSTEDCAS directive is required. It specifies the fully-qualified
# path to file containing a concatenation of PEM-format X.509 certificates.
TRUSTEDCAS = /etc/security/pamfa/certificates/server_ca.pem

# The MFA-URL directive is required. It specifies the URL of the
# PowerSC MFA server. Optionally, MFA-URL2 and MFA-URL3 can be used to
# specify fallback servers.
MFA-URL = https://pmfa.example.com:6793/policyAuth/
#MFA-URL2 = https://pmfa2.example.com:6793/policyAuth/
#MFA-URL3 = https://pmfa3.example.com:6793/policyAuth/

# When enabled, CTC-PROMPT-ONLY instructs the PAM module to only support CTC
# credentials, and disables support for policy based in-band authentication.
CTC-PROMPT-ONLY = Y
```

2. In the *TRUSTEDCAS* field, specify the location of the client truststore you configured in [“Creating the client truststore”](#) on page 240.
3. Specify the fully-qualified host name (or IP address) and port number of the IBM PowerSC MFA server in the **MFA-URL** field. If you want to replicate IBM PowerSC MFA, contact IBM support.
4. Accept the **CTC-PROMPT-ONLY** default of Y. Do not change this value.
5. Save the changes.

Editing the `pam.conf` file on AIX

The pluggable authentication module (PAM) `pam.conf` configuration file controls the PAM stacks for PAM-enabled services. Edit `powerscui` in the `auth` module section of the `pam.conf` configuration file to use the IBM PowerSC MFA PAM module.

To edit the `pam.conf` file, complete the following steps:

1. Edit the `/etc/pam.conf` file on the IBM PowerSC MFA client system.
2. For `powerscui`, change the Authentication section to use the IBM PowerSC MFA PAM module `pam_pmfa`.

Mark the `pam_pmfa` module **sufficient**.

For example, the entry might be as follows:

```
powerscui auth required pam_ckfile
powerscui auth required pam_permission file=/etc/security/access.conf found=allow
powerscui auth sufficient pam_pmfa /etc/security/pamfa/pam_pmfa.conf
powerscui auth required pam_aix
```

3. Add the following entry to the Account Management section.

```
#
# Account Management
#
powerscui account required pam_aix
```

4. Save the changes.
5. A user who attempts to log in to PowerSC GUI server must be provisioned for IBM PowerSC MFA, as described in *IBM PowerSC MFA Installation and Configuration*.

Important: After you configure the PowerSC GUI for IBM PowerSC MFA authentication, IBM PowerSC MFA authentication is always enabled.

If you must disable IBM PowerSC MFA because you cannot successfully authenticate or IBM PowerSC MFA is unavailable, comment out the `pam_pmfa` entry.

Editing the `/etc/pam.d` files on Red Hat Enterprise Linux Server

This section describes how to edit `powerscui` in the `/etc/pam.d` directory to use the IBM PowerSC MFA PAM module. You can also use the **authconfig** tool to configure PAM instead of manually editing the PAM configuration files, as described in the Red Hat Enterprise Linux Server documentation.

To use the IBM PowerSC MFA PAM module, complete the following steps:

1. Create (**touch**) the file `/etc/pam.d/powerscui`.

2. Edit `/etc/pam.d/powerscui` and add the following entry:

```
##PAM-1.0
auth sufficient pam_pmfa /etc/security/pam_pmfa.conf
auth required pam_sepermit.so
auth substack password-auth
auth include postlogin
account required pam_nologin.so
account include system-auth
```

3. Save the changes.
4. A user who attempts to log in to PowerSC GUI server must be provisioned for IBM PowerSC MFA, as described in *IBM PowerSC MFA Installation and Configuration*.

Important: After you configure the PowerSC GUI for IBM PowerSC MFA authentication, IBM PowerSC MFA authentication is always enabled.

If you must disable IBM PowerSC MFA because you cannot successfully authenticate or IBM PowerSC MFA is unavailable, comment out the `pam_pmfa` entry.

Editing the `/etc/pam.d` files on SUSE Linux Enterprise Server

This section describes how to edit `powerscui` in the `/etc/pam.d` directory to use the IBM PowerSC MFA PAM module. You can also use the **pam-config** tool to configure PAM instead of manually editing the PAM configuration files, as described in the SUSE Linux Enterprise Server documentation

To use the IBM PowerSC MFA PAM module, complete the following steps:

1. Create (**touch**) the file `/etc/pam.d/powerscui`.
2. Edit `/etc/pam.d/powerscui` and add an entry similar to the following:

```
##PAM-1.0
auth sufficient /usr/lib64/security/pam_pmfa.so /etc/security/pam_pmfa.conf
auth required pam_nologin.so
auth include common-auth
account include common-account
password include common-password
```

3. Save the changes.
4. A user who attempts to log in to PowerSC GUI server must be provisioned for IBM PowerSC MFA, as described in *IBM PowerSC MFA Installation and Configuration*.

Important: After you configure the PowerSC GUI for IBM PowerSC MFA authentication, IBM PowerSC MFA authentication is always enabled.

If you must disable IBM PowerSC MFA because you cannot successfully authenticate or IBM PowerSC MFA is unavailable, comment out the `pam_pmfa.so` entry.

Administering endpoint and server communication

From the **Endpoint Admin** page, you can verify or stop communication between the endpoints and the PowerSC GUI server. You can also verify and generate keystore requests.

Note: PowerSC does not automatically refresh the information in the **Endpoints - All systems** page. To ensure that you have the latest endpoint information, click **Refresh Table**.

Verifying endpoint and server communication

You can verify communication between discovered endpoints and the PowerSC GUI server.

1. Click the **Languages and Settings** icon in the menu bar of the main page. Click **Endpoint Admin**. The Endpoint administration page opens.
2. From the **Groups** tray, select the group that includes the endpoints that you want to verify. The endpoints for that group are listed in the endpoint table.

3. All the system endpoints for a selected group are displayed in the compliance table. You can filter the endpoints that are displayed by using the **Filtering by text** field. Enter the text that you want to filter by in the field and press Enter. The list of endpoints from the selected group is dynamically filtered to show only rows that contain your text.
4. To refresh the displayed status information, click **Refresh Table**.
5. Select the associated check box for each endpoint that you want to verify.
6. Click the **Verify** icon.
7. A message confirming the valid connection is displayed in the **Verified Timestamp** and **Connectivity Diagnosis** columns.

Removing endpoints from PowerSC GUI monitoring

Once an endpoint is discovered, it is continually monitored. If the endpoint is removed from your environment, you must also remove it from the PowerSC GUI server.

To remove endpoints from being monitored in the PowerSC GUI, complete the following steps:

1. Click the **Languages and Settings** icon in the menu bar of the main page. Click **Endpoint Admin**. The Endpoint administration page opens.
2. From the **Groups** tray, select the group that includes the endpoints that you want to remove. The endpoints for that group are listed in the endpoint table.
3. All the system endpoints for a selected group are displayed in the compliance table. You can filter the endpoints that are displayed by using the **Filtering by text** field. Enter the text that you want to filter by in the field and press Enter. The list of endpoints from the selected group is dynamically filtered to show only rows that contain your text.
4. To refresh the displayed status information, click **Refresh Table**.
5. Select the associated check box for each endpoint that you want to stop monitoring.
6. Click the **Delete** icon.
7. A message confirming the deletion of the endpoint is displayed in the **Verified Timestamp** and **Connectivity Diagnosis** columns.

Verifying and generating keystore requests

For each endpoint you must verify that a keystore request is valid and, if valid, you can generate a keystore for the endpoint.

The first time an endpoint starts running, the PowerSC GUI agent uses the truststore file to determine where the PowerSC GUI server is running. The PowerSC GUI agent then sends a message to the PowerSC GUI server with a request to join the list of available, monitored endpoints.

Using the **Endpoint Administrator Keystore Requests** page you can verify that a keystore request is valid and if valid you can generate a keystore for the endpoint.

1. Click the **Languages and Settings** icon in the menu bar of the main page. Click **Endpoint Admin**. The **Endpoint - All Systems** administration page opens.
2. Each known endpoint is listed in the **System Name** column. Click **Keystore Requests** to verify if any keystore requests are pending. The **Endpoint Admin Keystore Requests** page opens.
3. The keystore requests for all new or added servers are listed in the **Hostname** column. After confirming that you want to extend a keystore to the endpoint, select the check box for the endpoint and click **Verify**.
4. Verification is performed by PowerVC. Specify your user ID and password in the **PowerVC Credentials required** window. Click **OK**. If you do not have PowerVC, skip this and the next step.

Note: Verification is the process of using Openstack APIs to check if PowerVC is aware of the newly declared endpoint. If PowerVC is not present in the user environment or if `powervcKeystoneUrl` has not been properly configured (using `pscuiserverctl`) then PowerSC will not be able to verify the endpoint.

5. After verification, a message is displayed as hover text in the **Hostname** column. The message confirms whether PowerVC recognizes the new endpoint. Based on the information in the message, you can choose to generate the keystore.
6. To generate the keystore, click **Generate Keystore**. The endpoint row in the table flashes while the keystore is generated. After completion, the value in the **Keystore generated** column changes from **no** to **yes**.

Note: If you have not verified the endpoint using PowerVC, a message asking whether to proceed with the verification is displayed. Click **Proceed** if you recognize the endpoint and if you want to generate the keystore.

It may take a few minutes for the PowerSC agent to discover that the keystore has been generated. After the agent installs the keystore, the new endpoint is listed as a fully managed endpoint in the **Endpoint Admin - all systems, Compliance, Security, and Reports** pages of the PowerSC GUI.

7. If you do not want to generate a keystore for the endpoint, you can remove the request. Select the check box for the endpoint that you want to remove and click the **Delete** icon.
8. All endpoints waiting for keystore verification are displayed in the endpoint table. You can filter the endpoints that are displayed by using the **Filtering by text** field. Enter the text that you want to filter by in the field and press **Enter**. The list of endpoints is dynamically filtered to show only rows that contain your text.
9. To refresh the endpoint table information, click **Refresh Table**.

Viewing security certificate expiration dates

Using the Endpoint Administrator you can view the date that a security keystore certificate for an endpoint will expire.

1. Click the **Languages and Settings** icon in the menu bar of the main page. Click **Endpoint Admin**. The **Endpoint - endpointgroupname** administration page opens.
2. The date the security certificate expires is displayed in the **Key Expiration Timestamp** column. After the expiration date, PowerSC automatically generates a request for a new security certificate. Using the **Endpoint Administrator Keystore Requests** page, you can verify that the generated keystore request is valid and if valid you can generate a keystore for the endpoint.
3. Before the expiration date is reached, you can preemptively delete the current certificate for the endpoint and restart the PowerSC GUI agent on that endpoint. By deleting the certificate for the endpoint, when PowerSC GUI agent is restarted it appears that the endpoint is new, and as such, PowerSC automatically generates a request for a new security certificate. Using the **Endpoint Administrator Keystore Requests** page, you can verify that the generated keystore request is valid and if valid you can generate a keystore for the endpoint.

Organizing and grouping endpoints

System administrators can organize and group endpoints based on some common property. Custom groups can be defined and can contain an explicitly selected set of endpoints that are managed by using the PowerSC GUI.

For example, if you have 3 - 4 environments, you might want to create groups that contain production endpoints, test endpoints, and quality assurance endpoints.

A default group that is called **All Systems** is created during installation. This group contains all the endpoints that were discovered in your environment.

Creating custom groups

You can create a custom group with an explicitly selected, enumerated list of endpoints.

1. The Group Editor is available from either the **Compliance** or **Security** pages. Click either the **Compliance** or **Security** tab.

2. To restart the endpoint agents after installing the security certificate, run one of the following commands based on the operating system of the endpoint:
 - For AIX endpoints:
 - stopsrc -s pscuiagent
 - startsrc -s pscuiagent
 - For Linux endpoints:
 - systemctl stop powersc-uiServer.service
 - systemctl start powersc-uiServer.service
3. From the **Groups** tray select **Create New Group**. The **Creating New Group** tray opens.
If the **Groups** tray is not expanded, click the horizontal line ellipse in the left pane of the page..
4. Enter a unique name for the new group and press Enter. The new group is added to the **Groups** tray.
Note: Group names can be up to 128 characters in English. The maximum number of characters varies for other languages based on the one-to-one character relationship to characters in the other language. For example, 128 characters in English, 21 characters in Russian, 14 characters in Japanese, and 21 to 128 characters in Czech.
5. Add the systems that you want included in this group. From the **All Systems** list of available endpoint systems, select the systems that you want to include in the group. Click the right arrow to move all selected systems to the new group. To remove endpoint systems from the group, highlight the endpoint in the new group list and click the left arrow.
6. After adding or removing group members, save your changes by clicking the **Save group changes** icon in the menu bar of the contents pane.
7. Click the horizontal line ellipse to return to the **Groups** tray. The new group is listed.

Adding or removing systems assigned to an existing group

You can add or remove endpoints that are assigned to an existing group.

1. The Group Editor is available from either the **Security** or **Compliance** pages. Click either the **Security** or **Compliance** tab.
2. From the **Groups** tray click the ellipse to the right of the group to which you want to add or from which you want to remove an endpoint system.
If the **Groups** tray is not expanded, click the horizontal line ellipse in the left pane of the page.
3. Click **Edit Group**.
4. To add an endpoint system to the group, select the system from the **All Systems** list and click the right arrow. The system is added to the **GroupName** list.
5. To remove an endpoint from the group, select the system from the **GroupName** list and click the left arrow. The system is removed from the **GroupName** list.
6. Click the **Save group changes** icon to save your changes.
7. To cancel the changes to the group, click the **Cancel group changes** icon
8. Click the **Groups** ellipse to return to the **Groups** tray.

Deleting a group

You can delete groups that are no longer applicable.

1. The Group Editor is available from either the **Security** or **Compliance** pages. Click either the **Security** or **Compliance** tab.
2. From the **Groups** tray, click the ellipse to the right of the group that you want to delete.
If the **Groups** tray is not expanded, click the horizontal line ellipse in the navigation pane of the page.
3. Click **Delete Group**. The group is deleted and removed from the list of groups in the **Groups** tray.

Renaming a group

You can rename a group of endpoints.

1. The Group Editor is available from either the **Security** or **Compliance** pages. Click either the **Security** or **Compliance** tab.
2. From the **Groups** tray, click the ellipse to the right of the group that you want to rename.
If the **Groups** tray is not expanded, click the horizontal line ellipse in the navigation pane of the page.
3. Click **Rename Group**. Specify the new name for the group in the **Group name** field.

Note: Group names can be up to 128 characters in English. The maximum number of characters varies for other languages based on the one-to-one character relationship to characters in the other language. For example, 128 characters in English, 21 characters in Russian, 14 characters in Japanese, and 21 to 128 characters in Czech.

4. Press **Enter**.

Cloning a group

You can clone a group to create a duplicate with the same endpoints and a new name.

1. The Group Editor is available from either the **Security** or **Compliance** pages. Click either the **Security** or **Compliance** tab.
2. From the **Groups** tray, click the ellipse to the right of the group that you want to delete.
If the **Groups** tray is not expanded, click the horizontal line ellipse in the navigation pane of the page.
3. Click **Clone Group**. The group is copied and assigned a new name.

Working with compliance profiles

Using the PowerSC GUI Profile Editor, you can view the built-in compliance profiles, create custom profiles, and copy profiles to system endpoints.

The PowerSC Standard Edition product is delivered with a set of built-in profiles that can be used to configure your system endpoints so that each endpoint meets the following security standards:

- Payment Card Industry - Data Security Standard compliance (PCI)
- Payment Card Industry - Data Security Standard compliance (PCI) for Linux
- Sarbanes-Oxley Act and COBIT compliance (SOX-COBIT)
- US Department of Defense STIG compliance (DoD)
- Health Insurance Portability and Accountability Act (HIPAA)
- North American Electric Reliability Corporation compliance (NERC)
- General Data Protection Regulation (GDPR) compliance
- General Data Protection Regulation (GDPR) compliance for Linux
- SAP compliance profiles for AIX

For more information about the built-in profiles, see the [“Security and Compliance Automation concepts” on page 17](#) topic.

Each of the built-in profiles includes rules that must be applied to an endpoint to meet security requirements. When you need to apply only a subset or a different combination of these rules; or customize compliance levels, you can create a custom profile.

In most environments, administrators frequently edit compliance files to remove problem rules. After compatibility checks are complete, the compliance rule files are considered stable and are deployed onto production servers.

The PowerSC GUI can be used to create custom profiles by combining rules from built-in (or other custom) profiles.

Viewing compliance profiles

You can view the rules that are included in each of the built-in and custom profiles.

1. From the main page, select the **Profile Editor** tab.
The **Profile Editor** page opens.
2. Click the downward arrow to open the list of profiles. The drop-down menu lists the **Built-in Profiles** and **Custom Profiles** that are available.
3. Select the profile that you want to view. Each rule included in the profile is displayed with its name, type, and a description. For more information about the rules, see the [“Security and Compliance Automation concepts” on page 17](#) topic.
4. All the rules for the selected profile are displayed in the profiles table. You can filter the profiles that are displayed by using the **Filtering by text** box. Enter the text that you want to filter by in the text box. The list of rules in the selected profile is refreshed.

Viewing profile rules

You can view details for each rule that is included in built-in profiles and custom profiles.

1. From the main page, select the **Profile Editor** tab.
The **Profile Editor** page opens.
2. Click the downward arrow to open the list of profiles. The drop-down menu lists the **Built-in Profiles** and **Custom Profiles** that are available.
3. Expand the list of profiles to navigate to the profile for which you want to view the rules.
4. Click the wrench icon associated with the profile. The **Edit rule arguments** window opens.
5. The following information for the rule is displayed:

Name

Specifies the name of the rule.

Description

Specifies a description of the rule.

Script

Specifies the name of the script that applies the rule.

Arguments

Specifies the arguments that are included in the rule. Each argument is separated by a space.

6. Click **Close**.

Creating a custom profile

You can create a new profile that is based on an existing profile and then customize the new profile to include only a specific set of rules.

1. From the main page, select the **Profile Editor** tab.
The **Profile Editor** page opens.
2. Click the downward arrow to open the list of profiles. The drop-down menu lists the **Built-in Profiles** and **Custom Profiles** that are available.
3. Select the profile on which you want to base your new profile.
4. Click the **Create New Profile** icon. The New Profile Name and Type window opens.
5. Enter the name for your new profile in the **Profile Name** field.
6. Enter the type in the **Profile Type** field. The type you enter usually identifies the type of built-in policy upon which the new profile is based plus a unique identifier. For example PCIXx, SOX-COBITxy, DoDxyz, HIPAAwxyz, or NERCabc.
7. Click **Confirm**.
8. To add a rule to the custom profile, select the rule from the original profile upon which you are basing the custom profile, and click the right arrow. The rule is added to the new custom profile. Repeat for each rule that you want to include.

9. To remove a rule from the custom profile, select the rule from the custom profile and click the left arrow. The rule is removed from the new custom profile. Repeat for each rule that you want to remove.
10. Click **Save** when you have finished adding the rules.
11. The next step is to copy the custom profile to one or more endpoints. After the custom profile is copied to the endpoint, it is available for application to the endpoint. It is also available for checking to verify whether it can be applied to the endpoint without errors.

Editing a custom profile

You can edit an existing custom profile to add and remove rules.

1. From the main page, select the **Profile Editor** tab.
The **Profile Editor** page opens.
2. Click the downward arrow to open the list of profiles. The drop-down menu lists the **Built-in Profiles** and **Custom Profiles** that are available.
3. Expand the **Custom Profiles** list.
4. Select the profile that you want to edit.
5. Click the **Edit Profile** icon. The custom profile opens in edit mode.
6. To add a rule to the custom profile, select the rule from the original profile upon which you are basing the custom profile, and click the right arrow. The rule is added to the new custom profile. Repeat for each rule that you want to add.
7. To remove a rule from the custom profile, select the rule from the custom profile and click the left arrow. The rule is removed from the custom profile. Repeat for each rule that you want to remove.
8. Click **Save** when you have finished adding the rules.

Editing rule arguments for custom profiles

For custom profiles, you can view the details of a rule and change one or more of the rule arguments.

1. From the main page, select the **Profile Editor** tab.
The **Profile Editor** page opens.
2. Click the down arrow button to open the list of profiles. The drop-down menu lists the available **Built-in Profiles** and **Custom Profiles**.
3. Expand the **Custom Profiles** list.
4. Select the custom profile that you want to edit and click **Edit Profile**. The custom profile opens in edit mode.
5. Click the wrench icon associated with the custom profile for which you want to view or edit the rules. The Edit rule arguments window opens.
6. You can edit the following fields for the rule:

Name

Specifies the name of the rule.

Description

Specifies a description of the rule.

Script

Specifies the name of the script that applies the rule.

Arguments

Specifies the arguments that are included in the rule. Each argument is separated by a space.



Warning: You can change rule arguments only if you are familiar with the script. Specifying incorrect values will prevent the rule from working properly. Carefully examine the script before making any changes.

7. Click **Confirm**. To cancel, click **DISCARD CHANGES**.

Copying a custom profile to a group of endpoints

You can copy custom profiles to a group of endpoints. After the custom profile is copied to the endpoint, it is available for application to the endpoint. It is also available for checking to verify whether it can be applied to the endpoint without errors.

Note: If you edit a custom profile that has been copied to multiple endpoints you must perform the copy again after you make the updates.

1. From the main page, select the **Profile Editor** tab.
The **Profile Editor** page opens.
2. Click the downward arrow to open the list of profiles. The drop-down menu lists the **Built-in Profiles** and **Custom Profiles** that are available.
3. Select the profile that you want to copy to the members of a group.
4. Click the **Copy Profile to Group Members** icon. The **Copy profilename to** window opens.
5. Each group that you have created for your organization is listed with an associated check box. Select the check box for each group where you want to copy the selected profile.
6. Click **Copy**.
7. To apply or check the profile, return to the **Compliance** page by selecting the **Compliance** tab.

Deleting a custom profile

You can delete custom profiles.

1. From the main page, select the **Profile Editor** tab.
The **Profile Editor** page opens.
2. Click the downward arrow to open the list of profiles. The drop-down menu lists the **Built-in Profiles** and **Custom Profiles** that are available.
3. Expand the **Custom Profiles** list.
4. Select the profile that you want to delete.
5. Click the **Delete Profile** icon. The Custom Profile that you selected is deleted.

Importing custom profiles not created with PowerSC

You can import a custom profile that you created using a product other than PowerSC. The assumption is that the custom profile is in XML format.

1. Use the **convertProfileToBean.sh script** that is located in the directory `/opt/powersc/uiServer/bin/` to create a PowerSC GUI version of your custom profile XML file. For example:

```
convertProfileToBean.sh <input file absolute path>
```

2. The converted file is saved in the original directory, with the original name of the file and an additional `.xml` appended. For example:

```
PCIv3_PowerSC_Demo.xml.xml
```

3. Move the “*.xml.xml” file into the `/opt/powersc/uiServer/knowledge/site/powerscui/aixpertProfiles/` directory on the PowerSC GUI server.
4. Restart the server using the following commands depending on the operating system. After restarting, the profile is visible in the PowerSC GUI Profile Editor.

- For AIX endpoints:

```
stopsrc -s pscuiserver  
startsrc -s pscuiserver
```

- For Linux endpoints:

```
systemctl stop powersc-uiServer  
systemctl start powersc-uiServer
```

Administering compliance levels and profiles

System administrators can apply, check, or undo built-in and custom compliance levels and profiles on multiple endpoints.

The following table lists the pre-defined profiles and compliance levels that are supported by PowerSC Standard Edition.

Table 21. Predefined profiles and compliance levels for AIX supported by PowerSC Standard Edition	
Profiles for AIX	Levels
Database	low
DoDv2	medium
DoDv2_to_AIXDefault	high
HIPAA	default
NERC	SOX-COBIT
NERC_to_AIXDefault	
NERCv5	
NERCv5_to_AIXDefault	
PCIV3	
PCIV3_to_AIXDefault	
SOX-COBIT	
GDPRv1	
SAPv1.xml	

Table 22. Predefined profiles and compliance levels for Linux supported by PowerSC Standard Edition	
Profiles for Linux	
Linux_PCIV3	
Linux_GDPRv1	

From the **Compliance** page in the PowerSC GUI, you can perform the following tasks:

- Select and apply a defined profile or level to one or multiple endpoints.
- Trigger an undo operation on one or multiple endpoints.
- Check a defined profile or level against the current state for one or multiple endpoints. The check operation does not result in any changes to the endpoint, but sets the **Checked Timestamp** value to indicate when the last check was performed.

Applying compliance levels and profiles

You can apply a compliance level or profile to one or more endpoints in a selected group.

1. From the main page, select the **Compliance** tab. The **Compliance** page opens.
2. From the **Groups** tray, select the group that includes the endpoints to which you want to apply compliance levels and profiles.

3. All the system endpoints for a selected group are displayed in the compliance table. You can filter the endpoints that are displayed by using the **Filtering by text** text box. Enter the text that you want to filter by in the text box and press Enter. The list of endpoints from the selected group is dynamically filtered to show only rows that contain your text.
4. To refresh the displayed status information, click **Refresh Table**. To set how frequently the display is automatically refreshed, click **Refresh Interval**.
5. From the **Last applied type** column, you can view the stack of levels and profiles that were applied to the selected endpoint. Click the down arrow in the column to view the stack of profiles. The profiles are listed in the order each was applied to the endpoint. The time that the latest profile was applied to the endpoint is displayed in the **Applied Timestamp** column.
6. To apply a profile, select the check box associated with the endpoint to which you want to apply the profile. To apply a profile to all of members of the group, select the **Check All** check box
7. Click **Apply profiles**. The **Select profile to apply on 1 endpoint** window opens.
8. The levels and profiles that can be applied to the endpoint are listed. Select the level or profile that you want to apply. Click **OK**.
9. You can apply profiles to multiple endpoints in a single step. Select the check box associated with each endpoint that you want to update. Click **Apply profiles**. The **Select profile to apply on X endpoints** window opens where X is the number of endpoints that you have selected. The levels and profiles that can be applied to all the endpoints are listed. Profiles that cannot be applied to all the selected endpoints are displayed with a gray color. Select the levels or profiles. Click **OK**.
10. The selected compliance levels and profiles are applied to each of the selected endpoints. If one or more rules cannot be applied, it is considered that they failed. If one or more rules fail, the endpoint is flagged with a red bar; and the text **Failed** is displayed in the **#Failed Rules** column.
11. From the **#Failed Rules** column for each flagged endpoint you can see why the rule failed. You can adjust the rules that are applied by creating a custom profile or by editing a custom profile.

Undoing compliance levels

You can undo the last compliance level or profile that has been applied to one or more endpoints in a selected group.

To undo compliance levels, complete the following steps:

1. From the main page, select the **Compliance** tab. The **Compliance** page opens.
2. From the **Groups** tray, select the group that includes the endpoints for which you want to undo the compliance levels and profiles.
3. All the endpoints for a selected group are displayed in the compliance table. You can filter the endpoints that are displayed by using the **Filtering by text** text box. Enter the text that you want to filter by in the text box and press Enter. The list of endpoints from the selected group is dynamically filtered to show only rows that contain your text.
4. To refresh the displayed status information, click **Refresh Table**. To set how frequently the display is automatically refreshed, click **Refresh Interval**.
5. To undo a level or a profile that was applied to an endpoint:
 - a) Check the associated check box for the endpoint.
 - b) Click the **Undo** icon.

Checking the last applied compliance level and profile

You can check the last compliance level or profile that was applied to one or more endpoints in a selected group.

Tip: To schedule regular checks, use a cron job to run a check with **pscxpert -c** from the command line.

1. From the main page, select the **Compliance** tab. The **Compliance** page opens.
2. From the **Groups** tray, select the group that includes the endpoints for which you want to check the compliance levels and profiles.

3. All the endpoints for a selected group are displayed in the compliance table. You can filter the endpoints that are displayed by using the **Filtering by text** text box. Enter the text that you want to filter by in the text box and press Enter. The list of endpoints from the selected group is dynamically filtered to show only rows that contain your text.
4. To refresh the displayed status information, click **Refresh Table**. To set how frequently the display is automatically refreshed, click **Refresh Interval**.
5. Select the associated check box for the endpoint system name for which you want to check for the last level or profile that was applied.
6. Repeat step “5” on page 251 for each endpoint in the group for which you want to check the compliance levels and profiles.
7. Click the **Check** icon.
8. The endpoint is checked to see whether the rules that are in the compliance level or profile can be applied. The endpoints are not updated. If any rules cannot be applied, it is considered that they fail when they are applied. If one or more rules fail, the endpoint is flagged with a red bar; and the text **Failed** is displayed in the **#Failed Rules** column.
9. From the **#Failed Rules** list for each flagged endpoint, you can view the message that indicates why the rule failed. You can adjust the rules that are applied by creating a custom profile.

Checking a compliance level or profile that has not been applied

You can check a compliance level or profile that has not been applied to one or more endpoints in a selected group.

1. From the main page, select the **Compliance** tab. The **Compliance** page opens.
 2. From the **Groups** tray, select the group that includes the endpoints for which you want to check the effect of a compliance level or profile.
 3. All the endpoints for a selected group are displayed in the compliance table. You can filter the endpoints that are displayed by using the **Filtering by text** text box. Enter the text that you want to filter by in the text box and press Enter. The list of endpoints from the selected group is dynamically filtered to show only rows that contain your text.
 4. To refresh the displayed status information, click **Refresh Table**. To set how frequently the display is automatically refreshed, click **Refresh Interval**.
 5. Select the associated check box for the endpoint system name for which you want to check for the last level or profile that was applied. You can select more than one endpoint.
 6. Open the **Last Checked Type** drop down list. Select one of the following:
 - **All available levels** Displays a list of all the available levels that you can check against an endpoint.
 - **All available profiles** Displays a list of all the available profiles that you can check against an endpoint.
 7. Select the level or profile that want to check against an endpoint.
 8. Click the **Check** icon.
- Results of the check are returned and listed under the endpoint.

Sending email notification when a compliance event occurs

From the Compliance page, you can send an email notification to one or more recipients when a compliance event occurs.

1. From the main page, select the **Compliance** tab. The **Compliance** page opens.
2. Click the **Email Settings** icon in the upper right of the menu bar. The **Email Settings** window opens.

Note: Generated email may be encrypted. For details, see [“Configuring encrypted email” on page 236](#).
3. Select the **Send me** emails check box.
4. Enter the email addresses of each recipient separated by commas in the **Addresses (comma separated)** field.
5. Click **Save**.

Monitoring endpoint security

From the **Security** page, you can monitor endpoint security in real time.

The **Security** page is the real time monitoring page of the PowerSC GUI. It shows the events that are generated when files that are monitored by PowerSC change. Events include the details about when the file content changes, when the endpoint is accessed, or when the configuration changes. Events that might impact security include whether permission to a file changes unexpectedly, the contents of a file is updated, or an unscheduled application is installed. Recognizing these events in real time helps you to secure important files and applications.

From the PowerSC page you can also perform patch management tasks such as checking whether each endpoint is up-to-date with security patches and updating the endpoint with security patches if needed. PowerSC communicates with AIX endpoints using Trusted Execution (TE). TE scans the TSD database to check the status of monitored AIX endpoints.

PowerSC communicates with Linux endpoints by using Linux commands. For SUSE Linux Enterprise Server 12 SP3 endpoints, PowerSC GUI uses the **zypper** command. For Red Hat Enterprise Linux Server 7.4 endpoints, PowerSC uses the **yum** command.

1. From the main page, select the **Security** tab.
The **Security** page opens.
2. To customize the information that is displayed on the Security page, select **Languages and Settings > Sub-product usage**. For more information see [“Customizing the Security page display”](#) on page 254.
3. To turn on and turn off monitoring of AIX and Linux endpoints, click **Toggles**. For more information see [“Toggling endpoint monitoring”](#) on page 260.
4. From the **Groups** tray, select the group that includes the endpoints for which you want to view the real time monitoring security information. From the **Groups** tray, you can also create new groups of endpoints, and also perform all group management tasks. For more information, see [“Organizing and grouping endpoints”](#) on page 244 .
5. All the endpoints that are in the group that you selected are listed in the **Security System Name** table. You can filter the endpoints that are displayed by using the **Filtering by text** box. Enter the text by which you want to filter in the text box. The list of endpoints is refreshed.
6. To refresh the displayed Security information, click **Refresh Table**. To set how frequently the display is automatically refreshed, click **Refresh Interval**.
7. A check mark in the following columns indicates monitoring is active for the endpoint. An X indicates that monitoring is not available for the endpoint. If monitoring is active, and one or more events has occurred, you can click on that number to view the details of the event.

RTC

This column indicates whether Real Time Compliance (RTC) monitoring is activated for the AIX endpoint.

Auditd

This column indicates whether Linux Audit daemon monitoring is activated for the Linux endpoint.

TE

This column indicates whether Trusted Execution (TE) monitoring is activated for the AIX endpoint.

8. A circle with a number is displayed in the associated column if a RTC, Auditd, or TE event occurred. Click the icon to view the list of events. Click a specific event to view the details of the event. The Details page displays the details for each event. From the Details page, you can hide the event. For more information, see [“Hiding events ”](#) on page 257.
9. PowerSC periodically (every 8 hours) checks whether each monitored endpoint is up-to-date with security patches. If the endpoint is not up-to-date, an X appears in the column. If security patches need to be applied, a check mark with a number appears in the column. Hover over the column to view a list of patches that can be applied. You can use the **Update** command to apply all the patches. For more information, see [“Verifying and updating security patches”](#) on page 260.

10. A check mark in the following columns indicates that the feature is active for the endpoint. An X indicates that the feature is not available for the endpoint.

TB

This column indicates whether PowerSC Trusted Boot is available on the endpoint.

TF

This column indicates whether PowerSC Trusted Firewall is available on the endpoint.

TL

This column indicates whether PowerSC Trusted Logging is available on the endpoint.

11. The **OS** column identifies the operating system of the endpoint as either AIX or Linux.
12. Click the vertical three-dot ellipse to open the endpoint functions menu. Select one of the following functions that can be performed for the endpoint:

Configure RTC

See [“Configuring Real Time Compliance \(RTC\)”](#) on page 257 for more information.

Rollback RTC

See [“Restoring Real Time Compliance \(RTC\) configuration options to a previous date and time”](#) on page 257 for more information.

Copy RTC Configuration

See [“Copying Real Time Compliance \(RTC\) configuration options to other groups”](#) on page 257 for more information.

Edit RTC file List

See [“Editing the Real Time Compliance \(RTC\) file list”](#) on page 258 for more information.

Rollback RTC file List

See [“Restoring Real Time Compliance \(RTC\) file monitoring options to a previous configuration”](#) on page 258 for more information.

Copy RTC File List

See [“Copying Real Time Compliance \(RTC\) file monitoring options to other groups”](#) on page 258 for more information.

Run Compliance Check

See [“Running a Real Time Compliance \(RTC\) check”](#) on page 258 for more information.

Run TSD Scan

See [“Running a Trusted Signature Database \(TSD\) scan”](#) on page 259 for more information.

Configure TE

See [“Configuring Trusted Execution \(TE\)”](#) on page 259 for more information.

Copy TE Configuration

See [“Copying Trusted Execution \(TE\) options to other groups”](#) on page 259 for more information.

Edit TE file List

See [“Editing the Trusted Execution \(TE\) file list”](#) on page 259 for more information.

Copy TE File List

See [“Copying Trusted Execution \(TE\) file list monitoring options to other groups”](#) on page 260 for more information.

Clear All Events

Select this option to clear all events that are listed for the endpoints.

13. Click the **Email Settings** icon in the right corner of the menu bar to send an email notification to one or more recipients when a security event occurs.

Customizing the Security page display

You can customize the information that is displayed on the **Security** page.

From the Security page, you can view summary and detailed endpoint event information; view the status of the PowerSC Trusted Boot, Trusted Firewall, and Trusted Logging features; and you can view the status

of patch updates on an endpoint. This can be a sizable amount of information. The **Sub-product usage** menu options allow you to control the information that is displayed.

1. From the main page, select the **Security** tab. The **Security** page opens.
2. The **RTC** column in the endpoint table indicates whether Real Time Compliance (RTC) monitoring is activated for the AIX endpoint. A check mark in the **RTC** column indicates that RTC monitoring is active. An **X** indicates that it is not available on the endpoint.

The **Total RTC Events** section in the dashboard banner displays the number of RTC events that have occurred for the currently selected group of endpoints.

To toggle the display of the RTC information in the **Security** page, complete the following steps:

- a) Click the **Languages and Settings** icon in the menu bar of the main page.
- b) Click **Sub-product usage**.
- c) To hide the display of the Real Time Compliance (RTC) information in the dashboard and the table, slide the **Real Time Compliance (RTC)** switch to off.
- d) To reinstate the display, slide the switch to on.

Note: You can also click on **Real Time Compliance (RTC)** to turn on or turn off the switch.

3. The **Auditd** column in the endpoint table indicates whether Linux Audit daemon monitoring is activated for the Linux endpoint. A check mark in the **Auditd** column indicates that monitoring is active. An **X** indicates that it is not available on the endpoint.

The **Total Auditd Events** section in the dashboard banner displays the number of Auditd events that have occurred for the currently selected group of Linux endpoints.

To toggle the display of the Auditd information in the **Security** page, complete the following steps:

- a) Click the **Languages and Settings** icon in the menu bar of the main page.
- b) Click **Sub-product usage**.
- c) To hide the display of the Auditd information in the dashboard and the table, slide the **Linux Audit daemon (Auditd)** switch to off.
- d) To reinstate the display, slide the switch to on.

Note: You can also click on **Linux Audit daemon (Auditd)** to turn on or turn off the switch.

4. The **TE** column in the endpoint table indicates whether Trusted Execution (TE) monitoring is activated for the AIX endpoint. A check mark in the **TE** column indicates that monitoring is active. An **X** indicates that it is not available on the endpoint.

The **Total TE Events** section in the dashboard banner displays the number of Trusted Execution (TE) events that have occurred for the currently selected group of AIX endpoints.

To toggle the display of the Trusted Execution (TE) information in the **Security** page, complete the following steps:

- a) Click the **Languages and Settings** icon in the menu bar of the main page.
- b) Click **Sub-product usage**.
- c) To hide the display of the Trusted Execution (TE) information in the dashboard and the table, slide the **Trusted Execution (TE)** switch to off.
- d) To reinstate the display, slide the switch to on.

Note: You can also click on **Trusted Execution (TE)** to turn on or turn off the switch.

5. If monitoring is turned on, PowerSC can check each AIX and Linux endpoint to determine whether each endpoint is up-to-date with the latest security patches. The **Up-to-date** column in the table of endpoints indicates whether the endpoint is up-to-date based on patch information from the TNC server.

The **Up-to-date** section in the dashboard banner shows the percentage of endpoints in the group that are up-to-date with the latest security patches.

To toggle the display of the patch update information in the **Security** page, complete the following steps:

- a) Click the **Languages and Settings** icon in the menu bar of the main page.
- b) Click **Sub-product usage**.
- c) To hide the display of the patch management information in the dashboard and the table, slide the **Up-to-date** switch to off.
- d) To reinstate the display, slide the **Up-to-date** switch to on.

Note: You can also click on **Up-to-date** to turn on or turn off the switch.

6. The **TB** column in the endpoint table indicates whether PowerSC Trusted Boot is available on the endpoint. A check mark in the **TB** column indicates that PowerSC Trusted Boot is available on the endpoint. An **X** indicates that PowerSC Trusted Boot is not available on the endpoint.

The **Trusted Boot** section in the dashboard banner displays the percentage of endpoints in the currently selected group that have PowerSC Trusted Boot activated.

To toggle the display of the PowerSC Trusted Boot information in the **Security** page, complete the following steps:

- a) Click the **Languages and Settings** icon in the menu bar of the main page.
- b) Click **Sub-product usage**.
- c) To hide the display of the PowerSC Trusted Boot information in the dashboard and the table, slide the **Trusted Boot (TB)** switch to off.
- d) To reinstate the display, slide the switch to on.

Note: You can also click on **Trusted Boot (TB)** to turn on or turn off the switch.

7. The **TF** column in the endpoint table indicates whether PowerSC Trusted Firewall is available on the endpoint. A check mark in the **TF** column indicates that PowerSC Trusted Firewall is available on the endpoint. An **X** indicates that PowerSC Trusted Firewall is not available on the endpoint.

The **Trusted Firewall (TF)** section in the dashboard banner displays the percentage of endpoints in the currently selected group that have PowerSC Trusted Firewall activated.

To toggle the display of the PowerSC Trusted Firewall information in the **Security** page, complete the following steps:

- a) Click the **Languages and Settings** icon in the menu bar of the main page.
- b) Click **Sub-product usage**.
- c) To hide the display of the PowerSC Trusted Firewall information in the dashboard and the table, slide the **Trusted Firewall (TF)** switch to off.
- d) To reinstate the display, slide the switch to on.

Note: You can also click on **Trusted Firewall (TF)** to turn on or tune off the switch.

8. The **TL** column in the endpoint table indicates whether PowerSC Trusted Logging is available on the endpoint. A check mark in the **TL** column indicates that PowerSC Trusted Logging is available on the endpoint. An **X** indicates that PowerSC Trusted Logging is not available on the endpoint.

The **Trusted Logging (TL)** section in the dashboard banner displays the percentage of endpoints in the currently selected group that have PowerSC Trusted Logging activated.

To toggle the display of the PowerSC Trusted Logging information in the **Security** page, complete the following steps:

- a) Click the **Languages and Settings** icon in the menu bar of the main page.
- b) Click **Sub-product usage**.
- c) To hide the display of the PowerSC Trusted Logging information in the dashboard and the table, slide the **Trusted Logging (TL)** switch to off.
- d) To reinstate the display, slide the switch to on.

Note: You can also click on **Trusted Logging (TL)** to turn on or turn off the switch.

Hiding events

You can hide an event from displaying in the Security page. There are many reasons to hide an event, the most common is if you have resolved the event. A hidden event is not included in the number of events for an endpoint. You can unhide the event from the Timeline report.

1. From the main page, select the **Security** tab.
The **Security** page opens.
2. A circle with a number displays in the associated column if a RTC, Auditd, or TE event occurred. Click the icon to view the list of events.
3. Click a specific event to view the details of the event. The Details page displays the details for the event.
4. Click **Hide Events**. The event will no longer be displayed or included in the count of active events. You can unhide an event only from the interactive Timeline report.

Configuring Real Time Compliance (RTC)

From the **Security** page, you can configure the Real Time Compliance (RTC) product for a specific endpoint or group of endpoints.

1. Click the ellipse to the right of the endpoint for which you want to edit the RTC configuration.
2. Click **Configure RTC**. The RTC Policies Configuration window opens.
3. All the available RTC configuration options are listed with an explanation. To change one or more of the RTC configuration options, select or clear the check box to the left of the option. In some cases, the changes to the options are not implemented until the server is restarted.
4. Click **Save**.

Restoring Real Time Compliance (RTC) configuration options to a previous date and time

You can restore the RTC configuration options for an endpoint to the RTC configuration options of a previous date and time.

1. Click the ellipse to the right of the endpoint for which you want to rollback the RTC configuration options to a previous version.
2. Click **Rollback RTC**. The timestamps for each set of applied RTC configuration options are listed.
3. Click the timestamp for the set of RTC configuration options to which you want to revert. The RTC configuration options of the endpoint are reverted to the configuration options of the selected date and time.

Copying Real Time Compliance (RTC) configuration options to other groups

You can copy the RTC configuration options to another group of endpoints or to a specific set of endpoints.

1. Click the ellipse to the right of the endpoint for which you want to copy the RTC configuration options to another group of endpoints or to a specific set of endpoints.
2. Click **Copy RTC Configuration**. Each group of endpoints including the **All Systems** group are listed.
3. Select the group or specific endpoints in one of the following ways:
 - Select the check box for the group of endpoints from the list of available groups. The configuration options are copied to each endpoint that is in the group.
 - Expand a group to view a list of the endpoints in the group. Select the check box for each endpoint of the group to which you want to copy the configuration options.
 - Expand the list of endpoints in the **All Systems** group. Select the check box for each endpoint of the group to which you want to copy the configuration options.
4. Click **OK**. The configuration options are copied to the selected group or the selected endpoint(s).

Editing the Real Time Compliance (RTC) file list

You can view and edit the RTC monitoring options for each file on an endpoint.

1. Click the ellipse to the right of the endpoint that hosts the files for which you want to view or edit the RTC monitoring options.
2. Click **Edit RTC File List**. The **RTC File List Configuration** page lists all the directories and files that are located on the endpoint.
A check mark on the directory folder icon indicates that one or more files in this directory are monitored.
3. To drill down to the files in a directory, double-click the directory to list the files. All the files in the directory are listed.
4. The monitoring options for each file on the endpoint are listed in the **Content** and the **Attributes** columns. If the file is monitored for content changes, the check box is selected in the **Content** column. If the file is monitored for attribute changes, the check box is selected in the **Attributes** column. To edit the monitoring options, select or clear the check boxes for one or more files on the endpoint.
5. Click **Save**.

Restoring Real Time Compliance (RTC) file monitoring options to a previous configuration

You can rollback to a previous version of the files that are being monitored by RTC.

1. Click the ellipse to the right of the endpoint for which you want to rollback to a previous version of the files that are being monitored.
2. Click **Rollback RTC File List**. The timestamps for each set of file monitoring options are listed.
3. Click the timestamp for the file monitoring options to which you want to revert. The file monitoring options that were in place for that date and time are restored.

Copying Real Time Compliance (RTC) file monitoring options to other groups

You can copy the RTC file monitoring options to another group of endpoints or to a specific set of endpoints.

1. Click the ellipse to the right of the endpoint from which you want to copy the file monitoring options to another group of endpoints or to a specific set of endpoints.
2. Click **Copy RTC File List**. Each group of endpoints including the **All Systems** group are listed.
3. Select the group or specific endpoints in one of the following ways:
 - Select the check box for the group of endpoints from the list of available groups. The file monitoring options are copied to each endpoint in the group.
 - Expand a group to view a list of all endpoints in the group. Select the check box for each endpoint of the group to which you want to copy the file monitoring options.
 - Expand the list of endpoints in the **All Systems** group. Select the check box for each endpoint of the group to which you want to copy the file monitoring options.
4. Click **OK**. The file monitoring options are copied to the selected group or the selected endpoint(s).

Running a Real Time Compliance (RTC) check

From the **Security** page, you can run a real time compliance check to verify that an endpoint is compliant.

1. Click the ellipse to the right of the endpoint for which you want to run a Real Time Compliance (RTC) check.
2. Click **Run Compliance Check**. The **Compliance** page opens with the endpoint row flashing to indicate that the check is running.
3. If any rules failed to apply, a message indicating the failure displays in the **#Failed Rules** column. Expand the endpoint to view the failed rule.

Running a Trusted Signature Database (TSD) scan

Instead of waiting for events to be posted on the Security page, you can run a Trusted Execution (TE) scan at any time to check the Trusted Signature Database (TSD) for events.

1. Click the ellipse to the right of the endpoint for which you want to run a Trusted Signature Database (TSD) scan.
2. Click **Run TSD Scan**. The selected endpoint row for which you are performing the scan flashes to indicate that the scan is running.
3. If events are found, the Security page is updated.

Configuring Trusted Execution (TE)

From the **Security** page, you can configure the Trusted Execution (TE) product for a specific endpoint or group of endpoints.

1. Click the ellipse to the right of the endpoint for which you want to edit the TE configuration options.
2. Click **Configure TE**. The TE Policies Configuration window opens.
3. All the TE configuration options are listed with an explanation. To change one or more of the TE configuration options, select or clear the associated check box. In some cases, changes to the options are not implemented until the server is restarted.
4. Click **Save**.

Copying Trusted Execution (TE) options to other groups

You can copy the TE configuration options to another group of endpoints or to a specific set of endpoints.

1. Click the ellipse to the right of the endpoint from which you want to copy configuration options to another group of endpoints or to a specific set of endpoints.
2. Click **Copy TE Configuration**. Each group of endpoints including the **All Systems** group are listed.
3. Select the group or specific endpoints in one of the following ways:
 - Select the check box for the group of endpoints from the list of available groups. The configuration options are copied to each endpoint in the group.
 - Expand a group to view a list of all endpoints in the group. Select the check box for each endpoint of the group to which you want to copy the configuration options.
 - Expand the list of endpoints in the **All Systems** group. Select the check box for each endpoint of the group to which you want to copy the configuration options.
4. Click **OK**. The configuration options are copied to the selected group or the selected endpoint(s).

Editing the Trusted Execution (TE) file list

You can view and edit the TE monitoring options for each file on an endpoint.

1. Click the ellipse to the right of the endpoint that hosts the file for which you want to view or edit the TE monitoring options.
2. Click **Edit TE File List**. The **TE File List Configuration** page lists the directories and files that belong to the endpoint.

A check mark on the directory folder icon indicates that one or more files in this directory are monitored.
3. To drill down to the files in a directory, double-click the directory to list the files. All the files in the directory are listed.
4. The monitoring options for each file on the endpoint are listed in the **TE** and the **Volatile** columns. The check box is selected in the **TE** column if the file is monitored for content changes. The check box is selected in the **Volatile** column if the file is monitored only for permission changes. To change the monitoring options, select or clear the check boxes for one or more files on the endpoint.
5. Click **Save**.

Copying Trusted Execution (TE) file list monitoring options to other groups

You can copy the TE file monitoring options to another group of endpoints or to a specific set of endpoints.

1. Click the ellipse to the right of the endpoint from which you want to copy the file monitoring options to another group of endpoints or to a specific set of endpoints.
2. Click **Copy TE File List**. Each group of endpoints including the **All Systems** group are listed.
3. Select the group or specific endpoints in one of the following ways:
 - Select the check box for the group of endpoints from the list of available groups. The file list monitoring options are copied to each endpoint that is in the group.
 - Expand a group to view a list of all endpoints in the group. Select the check box for each endpoint of the group to which you want to copy the file list monitoring options.
 - Expand the list of endpoints in the **All Systems** group. Select the check box for each endpoint of the group to which you want to copy the file list monitoring options.
4. Click **OK**. The file monitoring options are copied to the selected group or the selected endpoint(s).

Verifying and updating security patches

PowerSC automatically scans each monitored endpoint once every 8 hours to check the status of the endpoint for applied security patches. From the **Security** page, you can manually trigger a status check. You can also apply any security patches that are not applied to the endpoint.

1. Click the ellipse to the right of the endpoint for which you want to check the status.
2. Click **Verify**.

PowerSC communicates with AIX endpoints by using Trusted Execution (TE). TE scans the TSD database to check the status of monitored AIX endpoints. PowerSC communicates with Linux endpoints by using Linux commands. For SUSE Linux Enterprise Server 12 SP3 endpoints, PowerSC GUI uses the **zypper** command. For Red Hat Enterprise Linux Server 7.4, PowerSC uses the **yum** command.
3. If PowerSC detects that the endpoint is up-to-date, an X is displayed in the **Up-to-date** column. If PowerSC detects one or more updates need to be applied, an X with the number of updates is displayed in the **Up-to-date** column. For AIX endpoints, if a TNC server is not associated with the endpoint, a dash (-) is displayed in the **Up-to-date** column.
4. If an X with a number is displayed in the **Up-to-date** column, you can apply the patches. Click the ellipse to the right of the endpoint and select **Update**.

All the security patches are collectively applied to the endpoint. You cannot selectively apply individual security patches from the PowerSC GUI.

Toggling endpoint monitoring

You can turn on and turn off Trusted Execution (TE) monitoring, Real-time Compliance (RTC) monitoring, and Audit Daemon (Auditd) monitoring of endpoints. You can also turn off TE, RTC, and Auditd monitoring and schedule it to turn on based on a specified time interval.

1. Click the **Security** tab.
2. Click the **Toggles** icon.
3. Click one of the following buttons:
 - **Trusted Execution Toggle** to turn on or turn off TE monitoring for each endpoint.
 - **Real-time Compliance Toggle** to turn on or turn off RTC monitoring for each endpoint.
 - **Audit Daeman Toggle** to turn on or turn off Auditd monitoring for each Linux endpoint.
4. An identical window opens for each type of monitoring. From the list, select one of the following options:
 - **Turn ON for All endpoints** to turn on TE, RTC, or Auditd monitoring for each endpoint.
 - **Turn OFF for ALL endpoints** to turn off TE, RTC, or Auditd monitoring for each endpoint.

5. If TE, RTC, or Auditd monitoring is turned off, the options to set a time when monitoring restarts become available. You can select one of the following restart times:
 - **1 Hour**
 - **5 Hours**
 - **1 Day**
 - **1 Week**
 - **Never**
6. Click **Save**.

Sending email notification when a security event occurs

From the Security page, you can send an email notification to one or more recipients when a security event occurs.

1. From the main page, select the **Security** tab. The **Security** page opens.
2. Click the **Email Settings** icon in the right corner of the menu bar. The **Email Settings** window opens.

Note: Generated email can be encrypted. For details, see [“Configuring encrypted email”](#) on page 236.
3. Set up the addresses for email notifications as follows:
 - To send email notification about RTC events, select the **RTC Email Settings Send me emails** check box. Enter the email addresses of each recipient separated by commas in the **RTC Email Settings Addresses (comma separated)** field.
 - To send email notification about Auditd events, select the **Auditd Email Settings Send me emails** check box. Enter the email addresses of each recipient separated by commas in the **Auditd Email Settings Addresses (comma separated)** field.
 - To send email notification about TE events, select the **TE Email Settings Send me emails** check box. Enter the email addresses of each recipient separated by commas in the **TE Email Settings Addresses (comma separated)** field.
4. Click **Save**.

Working with reports

You can access several reports from the **Reports** page of the PowerSC GUI.

The following reports are available:

- The **Compliance Overview** report is a snapshot of the high-level information that is displayed on the **Compliance** page of the interface.
- The **Compliance Detail** report is a snapshot of the high level and detail information that is displayed on the **Compliance** page.
- The **File Integrity Overview** report is a snapshot of the high-level information that is displayed on the **Security** page of the interface.
- The **File Integrity Detail** report is a snapshot of the high level and detail information that is displayed on the **Security** page.
- The **Combined Compliance and FIM** report includes information from both the **Compliance** and the **Security** pages.
- The **Timeline** report is both a report and an interactive page that displays event information for a single endpoint.

You can produce each type of report for the **All Systems** group and each group that you have defined. You can produce the report for all the endpoints in a group or a subset of the endpoints in the group. After you generate a report, you can schedule to distribute the report in HTML-formatted email and as a CSV file to one or more email recipients on demand or every day.

The list of reports that are displayed in the **Reports** page varies based on your user log in ID. You can generate reports only for those endpoints that you manage based on your log in ID. Each report that you generate in a given session is listed when you open the next session.

Selecting the initial report group

When you run any of the reports for the first time, you must select the initial report group.

1. From the main page, click the **Reports** tab.

The **Reports** page opens.

2. From the initial **Reports** page, click **Select group here**.

3. From the Select systems for report window, expand the endpoint groups to select the endpoints that are to be included in the report.

4. Click **Save**.

The Timeline Report for the selected endpoints opens. For each subsequent session the Reports page displays the report that was in the page when the previous session was closed.

Working with the Timeline report

The **Timeline** report is both a report and an interactive page that displays event information for a single endpoint.

The **Timeline** report can display information about active and hidden events. From the interactive **Timeline** report, you can unhide events that were hidden by using the **Hide Events** button in the Security page. For more information see [“Hiding events”](#) on page 257.

1. From the main page, click the **Reports** tab.

The **Reports** page opens.

2. If you are running the **Timeline** report for the first time, click **Select group here** and choose an endpoint.

3. To change the endpoint of the report, click the ellipsis in the navigation pane that is associated with the **Timeline** report. Click **Change Endpoints**. The Select systems for the report window opens. Expand the groups to view individual endpoints. Click the button next to the endpoint for which you want to run the report. Click **Save**.

4. You can control the events that are displayed in the report for the selected endpoint. In the upper right of the title bar you can view each of the event types that are included in the report. The event types include **RTC**, **Auditd**, **Up-to-date**, and **Compliance**. Hover over one of the events and click **Click to Select event types**. A drop down menu opens. Click the event type to turn the display on or off. The toggle button for an event type that is off is displayed with gray color. The toggle button for an event type that is on is displayed with blue color.

5. Use the **Show hidden** button to display events that are hidden. From the **Security** page, you can hide events after you have fixed the issues causing the event. Click **Show hidden** to display the hidden events in the timeline. Clear **Show hidden** to hide the events.

6. The events listed for the selected endpoint occurred within the time range specified in the **From** and **To** date fields. You can modify the dates to increase or decrease the time range. The list of events is automatically refreshed.

7. The **Month**, **Day**, **Hour**, and **Events in list** fields control the number of rows that are included in the report. Listing the events by **Month** is the least granular listing, and listing the events by **Hour** is the most detailed listing.

8. Events are highlighted in the table with a red circle. A number within the circle indicates more than one event. Click on the red circle to view the details of the event. For multiple events, PowerSC automatically refreshes the display to show each event. Click the event to view the details.

9. From the **Details** page, you can unhide an event. To unhide an event, ensure that the **Show hidden event** check box is selected. Click on the hidden event. From the **Details** window, click **Hide events**.

Changing the report group

You can run each of the reports for the **All Systems** group and every group that you have defined. You can choose to run a report for all the endpoints that have been included in a group or for a subset of endpoints in the group.

1. From the main page, click the **Reports** tab.
The **Reports** page opens.
2. Click the ellipse to the right of the type of report that you want to run.
3. Click **Change Group**.
4. A selection box listing all the available groups opens. Select the radio button next to the group for which you want to run the report. Click **Confirm**. The report runs and the content of the main pane is refreshed with the information for the selected group.
5. To run a report for a subset of endpoints, expand the **All Systems** group. A list of all the available endpoints is displayed. Select the check box next to each endpoint that you want to include in the report. Click **Confirm** to run the report.

Note: If you want to run a report on a specific group of endpoints, you can create a group that contains those endpoints. Creating the group saves time and it can be used by all users because groups are global (can be seen by all users of the interface).

6. You can search for a specific endpoint by entering the name of the endpoint in the search text box. Click **Confirm** to run the report for that endpoint.

Distributing report through email

After setting the group for a report you can schedule it for distribution in the form of a HTML-formatted email and a CSV file. You can schedule the email to be sent to one or more email recipients immediately or every day.

Including the CSV version of the report allows recipients to load the report data into a spreadsheet or import it into some other software application that consumes CSV files. CSV files do not have graphics or dashboard concepts. A CSV file generated from an overview report contains each of the column headings separated by commas as the first row. The subsequent rows list the endpoint and the values for each of the columns.

Multiple CSV files are generated from the detail reports. The first CSV file is formatted similar to the overview report. A separate CSV file is generated for each detail level of the report. For example, in the File Integrity Details Report the following levels of detail will generate a separate CSV file:

- **TE Configuration**
- **RTC Configuration**
- **Sub-product status**

1. From the main page, click the **Reports** tab.
The **Reports** page opens.
2. From the list of available reports, select the report that you want to distribute. The report runs and the contents of the main page is refreshed.
3. Click the ellipse to the right of the report that you want to distribute.
4. Click **Email Options**. The Send report by email window opens.

Note: Generated email can be encrypted. For details, see [“Configuring encrypted email” on page 236](#) for details.

5. Specify the email address for each recipient in the **Addresses** field. Separate multiple recipient addresses with a semicolon (;).
6. Specify a description of the email in the **Subject** field.
7. Choose one of the following options:

- Select the **Send every day at** check box to send the report to the recipients every day. Specify the local time to send the report by selecting the time in hours and minutes. Click **Save and Close**. The report is sent every day at the specified time.
- Click **SEND IMMEDIATELY** to send the report. The report is sent and the window closes.

PowerSC Standard Edition commands

PowerSC Standard Edition provides commands that enable communication with the Trusted Firewall component and the Trusted Network Connect component by using the command line. In addition, commands are provided that can be used to perform different PowerSC GUI server and PowerSC GUI agent functions.

chvfilt command

Purpose

Changes the values for the existing virtual LAN-crossing filter rule.

Syntax

```
chvfilt [ -v <4|6> ] [ -n fid [ -a <D|P> ] [ -z <svlan> ] [ -Z <dvlan> ] [ -s <s_addr> ] [ -d <d_addr> ] [ -o <src_port_op> ] [ -p <src_port> ] [ -O <dst_port_op> ] [ -P <dst_port> ] [ -c <protocol> ]
```

Description

The **chvfilt** command is used to change the definition of a virtual LAN-crossing filter rule in the filter rule table.

Flags

-a

Specifies the action. Valid values follow:

- D (Deny): Blocks traffic
- P (Permit): Allows traffic

-c

Specifies different protocols to which the filter rule is applicable. Valid values follow:

- udp
- icmp
- icmpv6
- tcp
- any

-d

Specifies the destination address in IPv4 or IPv6 format.

-m

Specifies the source address mask.

-M

Specifies the destination address mask.

-n

Specifies the filter ID of the filter rule that should be modified.

-o

Specifies the source port or the Internet Control Message Protocol (ICMP) type operation. Valid values follow:

- lt
- gt

- eq
 - any
- O**
Specifies the destination port or the ICMP code operation. Valid values follow:
- lt
 - gt
 - eq
 - any
- p**
Specifies the source port or the ICMP type.
- P**
Specifies the destination port or the ICMP code.
- s**
Specifies the source address in v4 or v6 format.
- v**
Specifies the IP version of the filter rule table. Valid values are 4 and 6.
- z**
Specifies the virtual LAN ID of the source logical partition.
- Z**
Specifies the virtual LAN ID of the destination logical partition.

Exit Status

This command returns the following exit values:

- 0**
Successful completion.
- >0**
An error occurred.

Examples

1. To change a valid filter rule that exists in the kernel, type the command as follows:

```
chvfilt -n 1 -v4 -a P -z 100 -Z 300 -o eq -p 23 -O lt -P 345 -c tcp
```

2. When a filter rule (n=2) does not exist in the kernel, the output is as follows:

```
chvfilt -n 2 -v4 -a P -z 100 -Z 300 -o eq -p 23 -O lt -P 345 -c tcp
```

The system displays the output as follows:

```
ioctl(QUERY_FILTER) failed no filter rule err=2
Cannot Change the filter rule.
```

genvfilt command

Purpose

Adds a filter rule for the virtual LAN (VLAN) crossing between logical partitions on the same IBM Power Systems server.

Syntax

```
genvfilt -v <4|6> -a <D|P> -z <svlan> -Z <dvlan> [-s <s_addr>] [-d <d_addr>] [-o <src_port_op>] [-p <src_port>] [-O <dst_port_op>] [-P <dst_port>] [-c <protocol>]
```

Description

The **genvfilt** command adds a filter rule for the virtual LAN (VLAN) crossing between logical partitions (LPARs) on the same IBM Power Systems server.

Flags

-a

Specifies the action. Valid values follow:

- D (Deny): Blocks traffic
- P (Permit): Allows traffic

-c

Specifies different protocols to which the filter rule is applicable. Valid values follow:

- udp
- icmp
- icmpv6
- tcp
- any

-d

Specifies the destination address in v4 or v6 format.

-m

Specifies the source address mask

-M

Specifies the destination address mask.

-o

Specifies the source port or the Internet Control Message Protocol (ICMP) type operation. Valid values follow:

- lt
- gt
- eq
- any

-O

Specifies the destination port or the ICMP code operation. Valid values follow:

- lt
- gt
- eq
- any

-p

Specifies the source port or the ICMP type.

-P

Specifies the destination port or the ICMP code.

-s

Specifies the source address in IPv4 or IPv6 format.

-v

Specifies the IP version of the filter rule table. Valid values are 4 and 6.

-z

Specifies the virtual LAN ID of the source LPAR. The virtual LAN ID must be in the range of 1 - 4096.

-Z

Specifies the virtual LAN ID of the destination LPAR. The virtual LAN ID must be in the range of 1 - 4096.

Exit Status

This command returns the following exit values:

0

Successful completion.

>0

An error occurred.

Examples

1. To add a filter rule to permit TCP data from a source VLAN ID of 100 to a destination VLAN ID of 200 on specific ports, type the command as follows:

```
genvfilt -v4 -a P -z 100 -Z 200 -o lt -p 345 -O lt -P 345 -c tcp
```

Related reference

[mkvfilt command](#)

[vlantfw command](#)

lsvfilt command

Purpose

Lists virtual LAN-crossing filter rules from the filter table.

Syntax

lsvfilt [-a]

Description

The **lsvfilt** command is used to list the virtual LAN-crossing filter rules and their status.

Flags

-a

Lists only the active filter rules.

Exit Status

This command returns the following exit values:

0

Successful completion.

>0

An error occurred.

Examples

1. To list all the active filter rules in the kernel, type the command as follows:

```
lsvfilt -a
```

Related concepts

Deactivating rules

You can deactivate rules that enable cross-VLAN routing in the Trusted Firewall feature.

mkrtc command

Purpose

Configures or unconfigures Power SC real-time compliance for the operating system instance.

Syntax

To configure Power SC real-time compliance:

```
mkrtc [-e <email1>, <email2>...] [-a <alertStyle>] [-d debug] [-h] [-i <infoLevel>] [-s <emailSubject>] [-c <minCheckTime>]
```

To unconfigure Power SC real-time compliance:

```
mkrtc -u
```

Description

Use the **mkrtc** command to configure or unconfigure Power SC real-time compliance. All flags are optional.

On configuring Power SC real-time compliance, the **mkrtc** command performs the following tasks:

1. Updates the `/etc/security/rtc/rtcd.conf` file with the options from the command line.
2. Updates the `/etc/inittab` file with `psrcrc:2:once: /usr/bin/startsrc -s rtcd`.
3. Starts the `rtcd` daemon.

If you specify the **-u** flag, the **mkrtc** command performs the following tasks:

1. Removes the Power SC real-time compliance entry from the `/etc/inittab` file.
2. Stops the `rtcd` daemon.

Flags

Item	Description
-a <alertStyle>	Specifies the alert style. The following are valid values: <ul style="list-style-type: none">• Once: Alerts once for the same set of compliance violations. This is the default alert style.• Event: Alerts once for the same set of compliance violations, but keeps alerting for each file modification event.• Always: Alerts compliance violations and the file modification. It keeps alerting for the file modification.
-c <minCheckTime>	Specifies the minimum amount of time between the compliance verifications. This flag checks the Power SC for compliance regularly even without file modification triggers, so that the mkrtc command can detect compliance implications in the files that are created by the user. For example, this flag can detect the <code>.rhost</code> file creation in the home directory that can have compliance implication. The default minimum time is 30 minutes. If this value is set to 0, it indicates that the compliance check is never run unless the files are modified.
-d debug	Specifies the debug option to be turned on or off. The valid values are On or Off. The default value is Off.

Item	Description
-h	Displays the usage.
-e <email1>, <email2>...	Provides a comma-separated list of emails to which email alerts are to be sent. Note: RTC does not send email if the /var filesystem is below 100KB because sendmail does not function below the limit.
-i <infoLevel>	Specifies the information level of file modification events.
-s <emailSubject>	Provides the subject line to be used for the email alert.
-u	Unconfigures the Power SC real-time compliance.

Security

Only the root user and users with aix.security.aixpert authorization are authorized to run this command.

Exit Status

This command returns the following exit values:

- 0**
Successful completion.
- >0**
An error occurred.

Examples

1. To configure Power SC real-time compliance, enter the following command:

```
mkrtc -e test@abc.com,dummy@abc.com -a event
```

This command configures Power SC real-time compliance to send compliance violation alert and file modification events to test@abc.com and dummy@abc.com. The alert style is set to event.

2. To display the usage, enter the following command:

```
mkrtc -h
```

3. To unconfigure Power SC real-time compliance, enter the following command:

```
mkrtc -u
```

Files

File	Description
/etc/security/rtc/rtcd.conf	The rtd daemon, which is the main component of the PowerSC Real Time Compliance feature, obtains its information about the types of alerts and recipients from the /etc/security/rtc/rtcd.conf configuration file. The mkrtc command saves the options to the /etc/security/rtc/rtcd.conf file.

mkvfilt command

Purpose

Activates the virtual LAN-crossing filter rules defined by the **genvfilt** command.

Syntax

mkvfilt -u

Description

The **mkvfilt** command activates the virtual LAN-crossing filter rules defined by the **genvfilt** command.

Flags

-u
Activates the filter rules in the filter rule table.

Exit Status

This command returns the following exit values:

0
Successful completion.

>0
An error occurred.

Examples

1. To activate the filter rules in the kernel, type the command as follows:

```
mkvfilt -u
```

Related reference

[genvfilt command](#)

pmconf command

Purpose

Reports and manages the trusted network connect patch management (TNCPM) server by registering technology levels and TNC servers for latest fixes and generating reports on TNCPM status.

Note: The TNCPM server must be run only on AIX Version 7.2 with the 7100-02 Technology Level to allow the download of the service pack metadata.

Syntax

pmconf mktncpm [**pmport**=<port>] **tncserver**=ip | hostname : <port>

pmconf rmtncpm

pmconf start

pmconf stop

pmconf restart

pmconf status

pmconf init **-i** <download interval> **-l** <TL List> **-A** [**-P** <download path>] [**-x** <ifix interval>] [**-K** <ifix key>]

pmconf add **-l** *TL_list*

pmconf add **-o** <package name> **-V** <version> **-T** [installp|rpm] **-D** <User defined path>

pmconf add **-p** <SP List> [**-U** <user-defined SP path>]

pmconf add **-p** <SP> **-e** <ifix file>

pmconf add **-y** <advisory file> **-v** <signature file> **-e**

pmconf chtncpm attribute = *value*
pmconf delete -l <TL list>
pmconf delete -o <package name> **-V** <version>
pmconf delete -p <SP List>
pmconf delete -p <SP> **-e** *ifix file*
pmconf export -f *filename*
pmconf get -o <package> **-V** <version> **-T** <installp | rpm> **-D** <download directory>
pmconf get -L -o <package> **-V** <version | all> **-T** <installp | rpm>
pmconf get -L -p <SP>
pmconf get -p <SP> **-D** <download directory>
pmconf hist -d
pmconf hist -u
pmconf import -f *cert_filename* **-k** *key_filename*
pmconf list -s [-c] [-q]
pmconf list SP
pmconf list -C
pmconf list -l SP
pmconf list -o <package name> **-V** <version>
pmconf list -O [-c] [-q]
pmconf log loglevel = info | error | none
pmconf modify -i <download interval>
pmconf modify -P <download path>
pmconf modify -g <yes or no to accept all licenses>
pmconf modify -t <APAR type list>
pmconf modify -x <ifix interval>
pmconf modify -K <ifix key>
pmconf replicate add <host> | <host list>
pmconf replicate delete <host> | <host list>
pmconf replicate add <host> | <host list>
pmconf replicate mode primary | secondary | none
pmconf replicate sync
pmconf replicate test [<host> | <host list>]
pmconf proxy display
pmconf proxy [enable=yes | no] [host=<hostname>] [port=<portnum>]

Description

The functions of the **pmconf** command are as follows:

Fix repository management

Registers or unregisters technology levels; unregisters TNC servers. TNCPM creates a fix repository for each technology level that contains the latest fixes, **lspp** information (for example, information about installed file sets or file set updates), and security fix information for that technology level.

Reporting

Generates reports on the status of TNCPM.

The following operations can be performed by using the **pmconf** command:

Item	Description
add	Registers a new technology level by using TNCPM.
chtncpm	Changes the attributes in the tnccs.conf file. An explicit start command is required for the changes to take effect in the TNCPM server.
delete	Unregisters a technology level by using TNCPM.
get	Display or download information about available security fixes and Open Source packages.
history	Displays update and download history.
list	Displays the information about TNCPM.
log	Sets the log level for the TNC components.
mktncpm	Creates the TNCPM server.
modify	Modifies the tncpm.conf attributes.
proxy	Manages configuration of Proxy server parameters.
rmtncpm	Removes the TNCPM server.
start	Starts the TNCPM server.
stop	Stops the TNCPM server.
restart	Restarts the TNCPM server.
replicate add	Adds a secondary TNCPM host to the primary TNCPM host.
replicate delete	Removes a secondary TNCPM host from the primary TNCPM host.
replicate display	Displays the TNCPM host status.
replicate mode	Sets the TNCPM host mode.
replicate sync	Initiates a re-sync of the TNCPM hosts.
replicate test	Tests the connectivity between the primary TNCPM host and secondary hosts.
status	Displays the TNCPM server status.

Flags

Item	Description
-A	Accepts all license agreements when performing client updates.
-a <advisory file>	Specifies the advisory file that corresponds to the ifix parameter. If the advisory file is not provided, the ifix parameter is not viewed as a common vulnerabilities and exposures (CVE) address of the interim fix.
-e <ifix file>	Specifies the interim fixes that are added to the TNCPM.

Item	Description
-i <i>download_interval</i>	Specifies the interval that TNCPM checks for a new service pack for the registered technology levels. The interval is an integer value that represents minutes or represents the following format: d (no of days): h (hours): m (minutes). The supported range for the <i>download_interval</i> is 30 - 525600 minutes.
-K <ifix key>	Specifies the public key of IBM AIX Product Security Incident Response Tool (PSIRT) that is used to authenticate the downloaded advisories and interim fixes. This public key can be downloaded from a GPG public key server by using the 0x28BFAA12 ID.
-L	Specifies List or Search only mode.
-o <i>package name</i>	The name of the Open Source Package on which to search or download.
-P <i>fix_repository_path</i>	Specifies the download directory for the fix repositories that will be download by TNCPM. The default directory is /var/tnc/tncpm/fix_repository .
-p <i>SP_list</i>	Specifies a list of service packs to be downloaded. The list is a comma-separated list in the format, REL00-TL-SP (for example, 6100-01-04 represents the service pack 04 for technology level 01 and version 6.1). When you use the -U flag, specify only one SP.
-t <i>APAR_type_list</i>	Specifies the APAR types that the TNCPM supports for the client update and TNC server listing. Security APARs are always supported. <i>APAR_type_list</i> is a comma-separated list of the following types: HIPER, FileNet® Process Engine, Enhancement.
T <i>package type</i>	Specifies the type of Open Source Package on which to search or to download
-U <i>user_defined_fix_repository</i>	Specifies the path to the user-defined fix repository. Specify the release, the technology level, and the service pack that are associated with the fix repository that is used for verification and updates of clients.
-s	Generates a report of registered service packs.
-l <i>SP</i>	Generates a report of lspp information for the service pack. <i>SP</i> is in the format, REL00-TL-SP (for example, 6100-01-04 represents the service pack 04 for technology level 01 and version 6.1).
-u	Generates a report of the client update history.
-V <i>version</i>	The version of the Open Source Package on which to search or to download. In search mode (-L) a value "all" may be specified to search for all available versions of the specified package.
-d	Generates a report of the service pack download history.
-C	Generates a report for the server certificate.
-f <i>filename</i>	Specifies the certificate file name.
-k <i>filename</i>	Specifies the file from which the certificate key must be read in case of an import operation.
-c	Displays the user attributes in colon-separated records, as follows: <div style="background-color: #f0f0f0; padding: 5px; margin-top: 5px;"> <pre># name: attribute1: attribute2: ...</pre> </div> <div style="background-color: #f0f0f0; padding: 5px; margin-top: 5px;"> <pre>policy: value1: value2: ...</pre> </div>
-v <signature file>	Specifies the signature file for the IBM AIX vulnerability advisory.
-y <advisory file>	Specifies an IBM AIX vulnerability advisory file.
-q	Suppresses the header information.
-x <ifix interval>	Specifies the interval in minutes to check for and download new interim fixes. If this value is set to 0, the automatic interim fix download and notification is disabled. The default interval is every 24 hours. The supported range for the <ifix interval> is 30 - 525600 minutes.

Exit Status

This command returns the following exit values:

Item	Description
0	The command ran successfully, and all the requested changes are made.
>0	An error occurred. The printed error message includes more details about the type of failure.

Examples

1. To initialize TNCPM, enter the following command:

```
pmconf init -i 10080 -l 5300-11,6100-00
```

2. To create the TNCMP daemon, enter the following command:

```
mktncpm pmpport=55777 tncserver=11.11.11.11:77555
```

3. To start the server, enter the following command:

```
pmconf start
```

4. To stop the server, enter the following command:

```
pmconf stop
```

5. To restart the server, enter the following command:

```
pmconf restart
```

6. To display the server status, enter the following command:

```
pmconf status
```

7. To register a new technology level by using TNCMP, enter the following command:

```
pmconf add -l 6100-01
```

8. To unregister a technology level from TNCMP, enter the following command:

```
pmconf delete -l 6100-01
```

9. To unregister a TNC server that has an IP address of 11.11.11.11 from TNCMP, enter the following command:

```
pmconf delete -t 11.11.11.11
```

10. To register a newer version of an earlier service pack to TNCMP, enter the following command:

```
pmconf add -s 6100-01-04
```

11. To unregister an earlier service pack from TNCMP, enter the following command:

```
pmconf delete -s 6100-01-04
```

12. To generate a report of fix repositories for each registered technology level, enter the following command:

```
pmconf list -s
```

13. To generate a report of a registered technology level **lspp** information, enter the following command:

```
pmconf list -l 6100-01-02
```

14. To generate a report from the update history, enter the following command:

```
pmconf hist -u
```

15. To generate a report from the download history, enter the following command:

```
pmconf hist -d
```

16. To generate a report of the server certificate, enter the following command:

```
pmconf list -C
```

17. To import a server certificate, enter the following command:

```
pmconf import -f /tmp/server.txt -k /tmp/server-cert-key.txt
```

18. To export the server certificate, enter the following command:

```
pmconf export -f /tmp/server.txt
```

19. To display all available rpm-format versions of the 'emacs' open source package, enter the following command:

```
pmconf get -L -o emacs -V all -T rpm
```

20. To download Version 4.5.1 of the 'lsof' open source package, in rpm format, to the /tmp/new_lsof directory, enter the following commands:

```
mkdir /tmp/new_lsof  
pmconf get -o lsof -V 4.5.1 -T rpm -D /tmp/new_lsof
```

21. To display all available versions of OpenSSH in installp format, enter the following command:

```
pmconf get -o openssh -T installp -L -V all
```

22. To display the current proxy configuration settings that cURL will use when downloading Open Source Packages or Security Fixes, enter the following command:

```
pmconf proxy display
```

23. To set the proxy configuration to be disabled, enter the following command:

```
pmconf proxy enable=no
```

24. To enable the proxy and set the host to 'myProxyServer' on port 9876, enter the following command:

```
pmconf proxy enable=yes host=myProxyServer port=9876
```

25. To change the proxy server port to use, enter the following command:

```
pmconf proxy port=1234
```

26. To display known vulnerabilities addressed by security fixes for Service Pack Level 7100-03-02, enter the following command:

```
pmconf get -L -p 7100-03-02
```

27. To download, but not apply, security fixes for Service Pack Level 7200-00-01, to the /tmp/ifixes_for_7.2.0.1 directory, enter the following commands:

```
mkdir /tmp/ifixes_for_7.2.0.1  
pmconf get -p 7200-00-01 -D /tmp/ifixes_for_7.2.0.1
```

28. To use the system as the primary TNCMP host, enter the following command:

```
pmconf replicate mode primary
```

29. To use the system as a secondary TNCMP host, enter the following command:

```
pmconf replicate mode secondary
```

30. To add a secondary TNCMP host to the list of secondary hosts known to the primary TNCMP host, enter the following command from the primary TNCMP host:

```
pmconf replicate add secondary-hostname
```

31. To remove a secondary TNCMP host from the list of secondary hosts known to the primary TNCMP host, enter the following command from the primary TNCMP host:

```
pmconf replicate delete secondary-hostname
```

32. To display the TNCPM host settings, enter the following command. When issued from the primary TNCPM host, the list of secondaries, their mode, and the available disk space are displayed.

```
pmconf replicate display
```

33. To set the replication mode to none and disable replication, enter the following command:

```
pmconf replicate mode none
```

34. To initiate a sync between the TNCPM hosts, enter the following command from the primary TNCPM host:

```
pmconf replicate sync
```

35. To test connectivity to one or more hosts, enter the following command from the primary TNCPM host:

```
pmconf replicate test
```

psconf command

Purpose

Reports and manages the Trusted Network Connect (TNC) server, the TNC client, the TNC IP Referrer (IPRef), and Service Update Management Assistant (SUMA). It manages fileset and patch management policies regarding endpoint (server and client) integrity at or after network connection to protect the network from threats and attacks.

Syntax

TNC server operations:

```
psconf mkserver [ tncport=<port> ] pmserver=<host:port> [ tsserver=<host> ]  
[ recheck_interval=<time_in_minutes> | d (days) : h (hours) : m (minutes) ] [ dbpath = <user-defined  
directory> ] [ default_policy=<yes / no > ] [ clientData_interval=<time_in_minutes> | d (days) : h (hours) :  
m (minutes) ] [ clientDataPath=<Full_path > ]
```

```
psconf { rmserver | status }
```

```
psconf { start | stop | restart } server
```

```
psconf chserver attribute = value
```

```
psconf clientData -i host [-l | -g]
```

```
psconf add -F <FSPolicyname> -r <buildinfo> [ apargrp= [ ± ] <apargrp1, apargrp2.. > ]  
[ ifixgrp= [ + | - ] <ifixgrp1, ifixgrp2...> ]
```

```
psconf add { -G <ipgroupname> ip= [ ± ] <host1, host2...> | { -A <apargrp> [ aparlist= [ ± ] apar1, apar2... | { -V  
<ifixgrp> [ ifixlist= [ + | - ] ifix1, ifix2... } }
```

```
psconf add -P <policyname> { fspolicy= [ ± ] <f1, f2...> | ipgroup= [ ± ] <g1, g2...> }
```

```
psconf add -e emailid [-E FAIL | COMPLIANT | ALL ] [ ipgroup= [ ± ] <g1, g2...> ]
```

```
psconf add -I ip= [ ± ] <host1, host2...>
```

```
psconf delete { -F <FSPolicyname> | -G <ipgroupname> | -P <policyname> | -A <apargrp> | -V <ifixgrp> }
```

```
psconf delete -H -i <host | ALL> -D <yyyy-mm-dd>
```

```
psconf certadd -i <host> -t <TRUSTED | UNTRUSTED>
```

```
psconf certdel -i <host>
```

```
psconf verify -i <host> | -G <ipgroup> [-u]
```

psconf update [-p] {-i <host> | -G <ipgroup, ipgroup2,...> [-r <buildinfo> | -a <apar1, apar2, apargrp1, apargrp2,...> | [-u] -v <ifx1, ifx2, ifixgrp1, ifixgrp2,...> | -O <openpkggrp1, openpkggrp2,...>]}

psconf log loglevel=<info | error | none>

psconf import -C -i <host> -f <filename> | -d <import database filename>

psconf { import -k <key_filename> | export } -S -f <filename>

psconf list { -S | -G <ipgroupname | ALL> | -F <FSPolicyname | ALL> | -P <policyname | ALL> | -r <buildinfo | ALL> | -I -i <ip | ALL> | -A <apargrp | ALL> | -V <ifixgrp> | -O <openpkggrp/ALL> } [-c] [-q]

psconf list { -H | -s <COMPLIANT | IGNORE | FAILED | ALL> } -i <host | ALL> [-c] [-q]

psconf export -d <path to export directory>

psconf report -v <CVEid|ALL> -o <TEXT|CSV>

psconf report -A <advisoryname>

psconf report -P <policyname|ALL> -o <TEXT|CSV>

psconf report -i <ip|ALL> -o <TEXT|CSV>

psconf report -B <buildinfo|ALL> -o <TEXT|CSV>

psconf clientData {-l | -g} -i <ip/host>

psconf add -O <openpkggrp> <openpkgname:version>

psconf delete -O <openpkggrp> <openpkgname:version>

psconf delete -O <openpkggrp>

psconf delete -O ALL

psconf add -O <openpkggrp> fspolicy=<fspolicy name>

psconf report -O ALL -o TEXT

psconf reboot -i <host> last one

psconf pull

TNC client operations:

psconf mkclient [tncport=<port>] tncserver=<host:port>

psconf mkclient tncport=<<port>> -T

psconf { rmclient | status }

psconf { start | stop | restart } client

psconf chclient attribute = value

psconf list { -C | -S }

psconf export { -C | -S } -f <filename>

psconf import { -S | -C -k <key_filename> } -f <filename>

TNC IPRef operations:

psconf mkipref [tncport=<port>] tncserver=<host:port>

psconf { rmipref | status }

psconf { start | stop | restart } ipref

psconf chipref attribute = value

psconf { import -k <key_filename> | export } -R -f <filename>

psconf list -R

Description

The TNC technology is an open standard-based architecture for endpoint authentication, platform integrity measurement, and integrating security systems. The TNC architecture inspects endpoints (network clients and servers) for compliance with security policies before allowing them on the protected network. The TNC IPRef notifies the TNC server about any new IPs that are detected on the virtual I/O server (VIOs).

SUMA helps move system administrators away from the task of manually retrieving maintenance updates from the web. It offers flexible options that enable the system administrator to set up an automated interface to download fixes from a fix distribution website to their systems.

The **psconf** command manages the network server and clients by adding or deleting security policies, validating clients as trusted or untrusted, generating reports, and updating the server and the client.

The following operations can be performed by using the **psconf** command:

Item	Description
add	Adds a policy, a client, or the email information on the TNC server.
apargrp	Specifies the APAR group names as part of the fileset policy that are used for verification of TNC clients.
aparlist	Specifies the list of APARs that are part of the APAR group.
certadd	Marks the certificate as trusted or untrusted.
certdel	Deletes the client information.
chclient	Changes the attributes in the <code>tnccs.conf</code> file. An explicit start command is required for the changes to take effect in the TNC client. The syntax of attribute=value will be same as that of mkclient .
chipref	Changes the attributes in the <code>tnccs.conf</code> file. An explicit start command is required for the changes to take effect in IPRef. The syntax of attribute=value is the same as that of the mkipref .
chserver	Changes the attributes in the <code>tnccs.conf</code> file. An explicit start command is required for the changes to take effect in the TNC server. The syntax of attribute=value is same as that of mkserver . Note: The dbpath attribute cannot be changed by using the chserver command. It can be set only while running the mkserver .

Item	Description
clientData	<p>Creates a snapshot of information (operating system level and filesets installed) about the TNC client.</p> <p>The <i>clientDataPath</i> path identifies where the snapshot collection information is stored. The default location is in the <code>/var/tnc/clientData/</code> directory on the TNC server. You can change or set the <i>clientDataPath</i> path by using the chserver or mkserver subcommand.</p> <p>You can initiate the TNC client snapshot collection from the command line by running the clientData subcommand from the TNC server. The clientData subcommand that is run from the command line is independent of the clientData_interval interval.</p>
clientData_interval	<p>You can use the chserver or mkserver subcommand to configure the snapshot collection to occur at regular intervals by specifying a value for the clientData_interval interval. The snapshot collection starts automatically when the clientData_interval interval has a value other than 0 (zero).</p> <p>By default, the snapshot collection is disabled by the scheduler. To enable the scheduler, specify a clientData_interval value that is greater than or equal to 30. To disable the scheduler, specify a clientData_interval value of 0 (zero). The supported range for the clientData_interval interval is 30 - 525600 minutes.</p>
dbpath	Specifies the TNC database location. The default value is <code>/var/tnc</code> .
default_policy	Enables or disables automatic verification of the TNC clients for the intern fix (ifix) and APARs at the same level as the client. Specify <i>yes</i> to enable automatic verification. Specify <i>no</i> to disable automatic verification. For more information about the default_policy subcommand, see the default_policy table .
delete	Deletes a policy or the client information.
export	Exports the client or server certificate, or database on TNC server.
fspolicy	Specifies the fileset policy of the release, technology level and service pack that are used for verification of TNC Clients.
import	Imports a certificate on client or server, or database on TNC server.
ipgroup	Specifies the Internet Protocol (IP) group that contains multiple client IP addresses or host names.

Item	Description
list	Displays information about the TNC server, the TNC client, or the SUMA.
log	Sets the log level for the TNC components.
mkclient	Configures the TNC client.
mkipref	Configures the TNC IPRef.
mkserver	Configures the TNC server.
Openpkggrp	Specifies the openpkg group name as part of fileset policy that is used to verify clients.
pmport	Specifies the port number on which the pmserver listens to. The default value is 38240.
pmserver	Specifies the host name or IP address of the suma command that downloads the latest service packs and security fixes available in the IBM® ECC website and the IBM Fix Central website.
pull	Retrieves information from the TNC Patch Management repository on the TNC server.
reboot	Reboots the TNC client that is identified by the IP address in the variable <i><host></i> .
recheck_interval	<p>Specifies the interval in minutes or d (days) : h (hours) : m (minutes) format for the TNC server to verify the TNC clients. The supported range for the recheck_interval interval is 30 - 525600 minutes.</p> <p>Note: A value of recheck_interval=0 means that the scheduler does not initiate verification of the clients at regular intervals and the registered clients are automatically verified when they start. In such cases, the client can be manually verified.</p>
report	Generates a report that has a .txt or .csv file extension.
restart	Restarts the TNC client, the TNC server, or the TNC IPRef.
rmclient	Unconfigures the TNC client.
rmipref	Unconfigures the TNC IPRef.
rmserver	Unconfigures the TNC server.
start	Starts the TNC client, the TNC server, or the TNC IPRef.
status	Shows the status of the TNC configuration.
stop	Stops the TNC client, the TNC server, or the TNC IPRef.
tncport	Specifies the port number on which the TNC server listens to. The default value is 42830.
tncserver	Specifies the TNC server that verifies or updates the TNC clients.

Item	Description
tssserver	Specifies the IP or host name of the Trusted Surveyor server.
update	Installs patches on the client.
verify	Initiates a manual verification of the client.

The following table displays the results of configuring the **default_policy** subcommand to either *yes* or *no* values:

Table 23. Results of default_policy subcommand		
FSpolicy (Fileset policy)	default policy=yes	default policy=no
TNC client belongs to a fileset policy with an interim fix (iFix) and APARs groups defined	The default policy is overridden by the iFix and APARs provided in the fileset policy.	The default policy is not used. The iFix and APARs provided in the fileset policy are considered during the verification process for the TNC client.
TNC client belongs to a fileset policy without an iFix and APARs groups defined	The default policy is used with the iFix and APARs during the verification process for the TNC client. Only the iFix and APARs that match the level of the TNC client are used during the verification process.	The default policy is not used.

Flags

Item	Description
-a <apar1, apar2,apargrp1,apargrp2,...>	Specifies a comma-separated APAR list.
-A <advisoryName>	Specifies the advisory name for the report.
-B <buildinfo>	Specifies the build information to prepare a patch report.
-c	Displays the user attributes in colon-separated records as follows: <div># name: attribute1: attribute2: ...</div> <div>policy: value1: value2: ...</div>
-C	Specifies that the operation is for client component.
-d database file location/dir path of database	Specifies the file path location for import of the database/specifies the directory path location for export of the database.
-D yyyy-mm-dd	Specifies the date for a particular client entry in the log history, where yyyy is the year, mm in the month, and dd is the day.
-e emailid ipgroup=[±]g1, g2...	Specifies the email ID followed by a comma-separated IP group name list.

Item	Description
-E FAIL COMPLIANT ALL 	<p>Specifies the event for which the emails need to be sent to the configured email id.</p> <p>FAIL- Mails are sent when the verification status of the client is FAILED.</p> <p>COMPLIANT- Mails are sent when the verification status of the client is COMPLIANT.</p> <p>ALL - Mails are sent for all the statuses of the client verification.</p>
-f <i>filename</i>	Specifies the file from which the certificate must be read in case of an import operation, or specifies the location to which the certificate must be written in case of an export operation.
-F <i>fspolicy buildinfo</i>	<p>Specifies the file system policy name, followed by the build information. The build information can be provided in the following format:</p> <p>6100-04-01, where 6100 represents version 6.1, 04 is the maintenance level, and 01 is the service pack.</p>
-g	Run the clientData subcommand on the specified TNC client. This flag is available only with the clientData subcommand.
-G <i>ipgroupname ip=[±]ip1, ip2...</i>	Specifies the IP group name followed by a comma-separated IP list.
-H	Lists the history log.
-i <i>host</i>	Specifies the IP address or host name.
-I <i>ip=[±]ip1, ip2... [±] host1,host2...</i>	Specifies the IP/host name that must be ignored during verification.
-k <i>filename</i>	Specifies the file from which the certificate key must be read in case of an import operation.
-l	Lists the snapshot details on the TNC server for the specified TNC client. This flag is available only with the clientData subcommand.
-O <i><openpkggrp></i>	Specifies the openpkg group name for the policy.
-p	Previews the TNC client update.
-P <i><policyName></i>	Specifies the policy name to prepare a client policy report.
-q	Suppresses the header information.
-r <i>buildinfo</i>	<p>Generates the report based on the build information. The build information can be provided in the following format:</p> <p>6100-04-01, where 6100 represents version 6.1, 04 is the maintenance level, and 01 is the service pack.</p>
-R	Specifies that the operation is for IPRef component.

Item	Description
-s COMPLIANT IGNORE FAILED ALL	<p>Displays the client by status as follows:</p> <p>COMPLIANT Displays the active clients.</p> <p>IGNORE Displays the clients that are excluded from any verification.</p> <p>FAILED Displays the clients that have failed verification as per the configured policy.</p> <p>ALL Displays all the clients irrespective of their statuses.</p>
-S <host>	Specifies the host name to prepare a client security fix report.
-t TRUSTED UNTRUSTED	<p>Marks the specified client as trusted or untrusted.</p> <p>Note: Only system administrators can verify the server or client as trusted or untrusted.</p>
-T	Specifies that the client can accept request from any TS server that has a valid certificate.
-u	Uninstalls an interim fix that is installed on a TNC client. When used with verify , uninstalls conflicting ifixes after verification.
-v<CVEid/ALL>	<p>Displays the common exposures and vulnerabilities for the registered service packs.</p> <p>CVEid All Displays all the common exposures and vulnerabilities for the registered service packs.</p>
-v<ifix1, ifix2,ifixgrp1,ifixgrp2...>	Specifies a comma-separated interim fix list.
-V<ifixgrp>	Specifies the interim fix group name.

Exit Status

This command returns the following exit values:

Item	Description
0	The command ran successfully, and all the requested changes are made.
>0	An error occurred. The printed error message includes more details about the type of failure.

Examples

1. To start the TNC server, enter the following command:

```
psconf start server
```

2. To add a file system policy named 71D_latest for the build 7100-04-02, enter the following command:

```
psconf add -F 71D_latest 7100-04-02
```

3. To delete a file system policy named 71D_old, enter the following command:

```
psconf delete -F 71D_old
```

4. To validate that the client that has an IP address of 11.11.11.11 is **trusted**, enter the following command:

```
psconf certadd -i 11.11.11.11 -t TRUSTED
```

5. To delete the client that has an IP address of 11.11.11.11 from the server, enter the following command:

```
psconf certdel -i 11.11.11.11
```

6. To verify the client information that has an IP address of 11.11.11.11, enter the following command:

```
psconf verify -i 11.11.11.11
```

7. To display the client information that has an IP address of 11.11.11.11, enter the following command:

```
psconf list -i 11.11.11.11
```

8. To generate the report for clients that are in **COMPLIANT** status, enter the following command:

```
psconf list -s COMPLIANT -i ALL
```

9. To generate the report for the build 7100-04-02, enter the following command:

```
psconf list -r 7100-04-02
```

10. To display the connection history of a client that has an IP address of 11.11.11.11, enter the following command:

```
psconf list -H -i 11.11.11.11
```

11. To delete the entry of a client that has an IP address of 11.11.11.11 from the log history older or equal to 1 February, 2009, enter the following command:

```
psconf delete -H -i 11.11.11.11 -D 2009-02-01
```

12. To import the client certificate of a client that has an IP address of 11.11.11.11 from the server, enter the following command:

```
psconf import -C -i 11.11.11.11 -f /tmp/client.txt
```

13. To export the server certificate from a client, enter the following command:

```
psconf export -S -f /tmp/server.txt
```

14. To update the client that has an IP address of 11.11.11.11 to an appropriate level from the server, enter the following command:

```
psconf update -i 11.11.11.11
```

15. To display the client statuses, enter the following command:

```
psconf status
```

16. To display the client certificate, enter the following command:

```
psconf list -C
```

17. To start the client, enter the following command:

```
psconf start client
```

18. To display the snapshot information that was gathered with the **clientData** subcommand, enter the following command:

```
psconf clientData -l [ip|host]
```

19. To display the history for the TNC client, enter the following command:

```
psconf list -H -i [ip|ALL]
```

Security

Attention RBAC users and Trusted AIX users:

This command can perform privileged operations. Only privileged users can run privileged operations. For more information about authorizations and privileges, see Privileged Command Database in Security. For a list of privileges and the authorizations associated with this command, see the **lssecattr** command or the **getcmdattr** subcommand

pscuiagentctl command

Purpose

Used to set up the PowerSC GUI agent options.

Syntax

pscuiagentctl disable logging

pscuiagentctl enable logging

pscuiagentctl set [localListeningPort]

pscuiagentctl set [socksProxyHost]

pscuiagentctl set [socksProxyPort]

pscuiagentctl set [remotePort]

pscuiagentctl set [verbose]

Flags

disable logging

Disables pscuiagentctl debug logging.

enable logging

Enables pscuiagentctl debug logging. Sets the value `com.rocketsoft.nm.vertical.powersc.endpoint.level=ALL` in `/opt/powersc/uiAgent/bin/jre/lib/logging.properties`.

set

Sets or gets a PowerSC GUI server option.

Parameters

localListeningPort *portno*

Specifies the port number used by the PowerSC GUI agent to listen for secure communication from the PowerSC GUI server.

[socksProxyHost *servername*

Specifies the server name of the SOCKS proxy server that will be referenced by the PowerSC GUI agent to send all communication to the PowerSC GUI server. The default value for **socksProxyHost** is an empty string signifying the agent will not use a SOCKS proxy server.

socksProxyPort *portno*

Specifies the port that the SOCKS proxy server uses to listen for communication from the PowerSC GUI agent. The default value for **socksProxyPort** is 1080.

remotePort *portno*

Specifies the port that the PowerSC GUI server listens for communications from the PowerSC GUI agent. This port is used when no SOCKS proxy server is specified.

verbose **true** | **false**

Enables verbose logging from the PowerSC GUI agent. The default is true.

Exit Status

This command returns the following exit values:

0

Successful completion.

>0

An error occurred.

Examples

1. To view the port that the PowerSC GUI agent listens for secure communication from the PowerSC GUI server:

```
psguiagentctl set localListeningPort
```

2. To change the port that the PowerSC GUI agent listens for secure communication from the PowerSC GUI server:

```
psguiagentctl set localListeningPort portno
```

3. To specify the name of the SOCKS proxy host server:

```
psguiagentctl set socksProxyHost servername  
v
```

4. To specify the port that the SOCKS proxy server uses to listen for communication from the PowerSC GUI agent:

```
psguiagentctl set socksProxyPort portno  
v
```

5. To specify the port that the PowerSC GUI server listens for communications from the PowerSC GUI agent:

```
psguiagentctl set remotePort portno  
v
```

6. To enable verbose logging:

```
pscuiaagentctl set verbose true
```

7. To disable verbose logging:

```
pscuiaagentctl set verbose false
```

8. To enable debug logging:

```
stopsrc -s pscuiagent  
pscuiaagentctl enable logging  
startsrc -s pscuiagent
```

9. To disable debug logging:

```
stopsrc -s pscuiagent  
pscuiaagentctl disable logging  
startsrc -s pscuiagent
```

pscuiserverbackup.sh command

Purpose

Backs up and restores the PowerSC GUI server. You must stop the PowerSC GUI server before running this command.

Syntax

pscuiserverbackup.sh -c [destination_folder]

pscuiserverbackup.sh {[-r] [-m]} [data_file]

Flags

-c

Creates a PowerSC GUI server `uiServer.data.tar` backup data file.

-r

Restores the PowerSC GUI server data from the `uiServer.data.tar` file.

-m

Updates the data in the `uiServer.data.tar` file from a version prior to V1.2.0.2 to V1.2.0.latest.

The **-m** flag is needed in the following use case:

1. Install PowerSC GUI server V1.2.0.1.
2. Back up the data.
3. Uninstall PowerSC GUI server V1.2.0.1.
4. Clean up the PowerSC GUI server data to free up space
5. Install PowerSC GUI server V1.2.0.2 or later.
6. Restore the previously backed up data from V1.2.0.1.
7. The result is that PowerSC GUI server V1.2.0.1 does not work because the data is in the old format.

Parameter for -c

destination_folder

Specify the directory path for saving the PowerSC GUI backup `uiServer.data.tar` file.

destination_folder is created if it does not already exist. If you do not specify *destination_folder*, the default is directory is `/var/log/powersc/uiServer_backup`.

Parameter for -r

data_file

Specify the path to the PowerSC GUI `uiServer.data.tar` file. The default is `/var/log/powersc/uiServer_backup/uiServer.data.tar`.

Parameter for -m

data_file

Specify the path to the PowerSC GUI `uiServer.data.tar` file. The default is `/var/log/powersc/uiServer_backup/uiServer.data.tar`.

Exit Status

This command returns the following exit values:

0

Successful completion.

>0

An error occurred.

Security

The **`pscuiserverbackup.sh`** command can be run only by root.

Examples

1. Change directory to `/opt/powersc/uiServer/bin`.
2. To back up the PowerSC GUI server:

```
./pscuiserverbackup.sh -c destination_folder
```

3. To restore the PowerSC GUI server:

```
./pscuiserverbackup.sh -r destination_folder/uiServer.data.tar
```

4. To update the data in the `uiServer.data.tar` file from a version prior to V1.2.0.2 to V1.2.0.latest:

```
./pscuiserverbackup.sh -m destination_folder/uiServer.data.tar
```

pscuiserverctl command

Purpose

Used to set up the PowerSC GUI server options.

Syntax

`pscuiserverctl disable logging`

`pscuiserverctl enable logging`

`pscuiserverctl set [httpPort]`

`pscuiserverctl set [httpsPort]`

`pscuiserverctl set [administratorGroupList]`

`pscuiserverctl set [logonGroupList]`

`pscuiserverctl set [powervcKeystoneUrl]`

pscuiserverctl set [QRadarSyslogResponseEnabled]
pscuiserverctlsetemail [SMTP_CONNECTION_TIMEOUT]
pscuiserverctlsetemail [SMTP_TIMEOUT]
pscuiserverctlsetemail [HOST]
pscuiserverctlsetemail [PORT]
pscuiserverctlsetemail [USE_SSL USER_NAME]
pscuiserverctlsetemail [PASSWORD]
pscuiserverctlsetemail [FROM]
pscuiserverctl setgroup [groupname]

Flags

disable logging

Disables pscuiserverctl debug logging.

enable logging

Enables pscuiserverctl debug logging. Sets the value `com.rocketsoft.nm.vertical.powersc.endpoint.level=ALL` in `/opt/powersc/uiServer/bin/jre/lib/logging.properties`.

set

Sets or gets a PowerSC GUI server option.

setemail

Updates the default values that are used for email encryption.

setgroup

By default, any user who is a member of the security group can manage every endpoint that is visible in the PowerSC GUI. Administrators can restrict user access to the individual endpoint level by using the **setgroup** flag.

Parameters for set

httpPort *httpPortno*

View or specify the default port (80) used by PowerSC GUI.

httpsPort *httpsPortno*

View or specify the default secure port (443) used by PowerSC GUI.

administratorGroupList *unixgrp1,unixgrp2,...*

View or specify the UNIX groups that are allowed to perform administrator functions using the PowerSC GUI.

logonGroupList *unixgrp1,unixgrp2,...*

View or specify the UNIX groups that are allowed to login to the PowerSC GUI.

powervcKeystoneUrl *powervcKeystoneurl*

View or specify the URL of the PowerVC keystore server.

QRadarSyslogResponseEnabled on | off

View the current setting of Syslog logging from PowerSC GUI or set Syslog logging to on and off.

Parameters for setemail

SMTP_CONNECTION_TIMEOUT 10000

Specifies the default time (10000) interval in milliseconds before the connection attempt to the email server times out.

SMTP_TIMEOUT 3000

Specifies the default time (3000) interval in milliseconds to send an email before the send attempt times out.

HOST localhost

Specifies the default SMTP email server that is running on the PowerSC GUI server.

PORT 25

Specifies the default port number for the SMTP email server.

USE_SSL false

Specifies whether Secure Sockets Layer (SSL) is used when sending an email. The default is false. You can specify true to enable the use of Secure Sockets Layer (SSL).

USER_NAME username

Specifies a user name for the SMTP email server if one is required.

PASSWORD password

Specifies the associated password for the user name specified in the USER_NAME parameter.

FROM emailaddress

Specifies the address that will display in the From line of the email.

Parameters for setgroup**groupname [hostname.....]**

Specifies the AIX or Linux group that has access to the specified endpoints. One or more endpoints can be specified. If multiple endpoints are specified, each must be separated by a space. An asterisk (*) can be used as a wildcard. For example you can specify *host1 host 2 host 3* or to get all endpoints that begin with *host* you can specify *host**.

Exit Status

This command returns the following exit values:

0

Successful completion.

>0

An error occurred.

Examples

1. To see what is currently specified as the default port used by the PowerSC GUI:

```
pscuiserverctl set httpPort
```

2. To set the default port used by the PowerSC GUI:

```
pscuiserverctl set httpPort 80
```

3. To see what is currently specified as the default security port used by PowerSC GUI:

```
pscuiserverctl set httpsPort
```

4. To set the default security port used by PowerSC GUI:

```
pscuiserverctl set httpsPort 483
```

5. To see what UNIX groups are allowed to perform administrator functions using the PowerSC GUI:

```
pscuiserverctl set administratorGroupList
```

6. To set the UNIX groups that are allowed to perform administrator functions using the PowerSC GUI:

```
pscuiserverctl set administratorGroupList securitygroup1,admingrp1
```

7. To see what UNIX groups are allowed to login to the PowerSC GUI:

```
pscuiserverctl set logonGroupList
```

8. To set the UNIX groups that are allowed to login to the PowerSC GUI:

```
pscuiserverctl set logonGroupList unixgroup1,unixgrp2
```

9. To see the URL of the PowerVC keystore server:

```
pscuiserverctl set powervcKeystoneUrl
```

10. To set the URL of the PowerVC keystore server:

```
pscuiserverctl set powervcKeystoneUrl https://powervc/server/example/
```

11. To see whether Syslog logging from PowerSC GUI is on or off:

```
pscuiserverctl set QRadarSyslogResponseEnabled
```

12. To set Syslog logging from PowerSC GUI to on or off:

```
pscuiserverctl set QRadarSyslogResponseEnabled on  
pscuiserverctl set QRadarSyslogResponseEnabled off
```

13. To set a time out interval other than the default (10000 milliseconds) before the connection attempt to the email server times out. The following sets the default time out to 20 seconds:

```
pscuiserverctl setemail SMTP_CONNECTION_TIMEOUT 20000
```

14. To set a time interval other than the default (3000 milliseconds) before the send attempt times out. The following sets the default time out to 6 seconds:

```
pscuiserverctl setemail SMTP_TIMEOUT 6000
```

15. To specify a default SMPT email server (host99) other than the one running on the PowerSC GUI server:

```
pscuiserverctl setemail HOST host99
```

16. To specify a default port number for the SMPT email server other than the default of 25:

```
pscuiserverctl setemail PORT 28
```

17. To enable the use of Transport Layer Security (TLS) when sending emails:

```
pscuiserverctl setemail USE_SSL true
```

18. To specify a user name for the SMPT email server if one is required:

```
pscuiserverctl setemail USER_NAME username1
```

19. To specify the associated password for the user name specified in the USER_NAME parameter:

```
pscuiserverctl setemail PASSWORD pwforusername1
```

20. To specify the address that will display in the From line of the email:

```
pscuiserverctl setemail FROM powersc@customer.com
```

21. To specify that group99 (either AIX or Linux) has access to all endpoints that begin with host:

```
pscuerverctl setemail group99 host*
```

22. To specify that groupzz (either AIX or Linux) has access to the endpoints host1, host7, and host99:

```
pscuerverctl setemail groupzz host1 host7 host99
```

23. To enable debug logging:

```
stopsrc -s pscuiserver  
pscuerverctl enable logging  
startsrc -s pscuiserver
```

24. To disable debug logging:

```
stopsrc -s pscuiserver  
pscuerverctl disable logging  
startsrc -s pscuiserver
```

pscxpert command

Purpose

Aids the system administrator in setting the security configuration.

Syntax

```
pscxpert -l {high|medium|low|default|sox-cobit} [ -p ]  
pscxpert -l {h|m|l|d|s} [ -p ]  
pscxpert -f Profile [ -p ] [ -r | -R ]  
pscxpert -u [ -p ]  
pscxpert -c [ -p ] [ -r | -R ] [ -P Profile ] [ -l {Level|Rule_Type} ]  
pscxpert -t  
pscxpert -l Level [ -p ] { -a File1 | -n File2 | -a File3 -n File4 }  
pscxpert -f Profile -a File [ -p ]  
pscxpert -d
```

Description

The **pscxpert** command sets various system configuration settings to enable the specified security level.

Running the **pscxpert** command with only the -l flag set implements the security settings promptly without allowing the user to configure the settings. For example, running the **pscxpert -l high** command applies all of the high-level security settings to the system automatically. However, running the **pscxpert -l** command with the -n and -a flags saves the security settings to a file specified by the *File* parameter. The -f flag then applies the new configurations.

After the initial selection, a menu is displayed itemizing all security configuration options that are associated with the selected security level. These options can be accepted in whole or individually toggled off or on. After any secondary changes, the **pscxpert** command continues to apply the security settings to the computer system.


Run the **pscxpert** command as the root user of the target Virtual I/O Server. When you are not logged in as the root user of the target Virtual I/O Server, run the **oem_setup_env** command before you run the command.

If you run the **pscexpert** command when another instance of the **pscexpert** command is already running, the **pscexpert** command exits with an error message.

Note: Rerun the **pscexpert** command after any major systems changes, such as the installation or updates of software. If a particular security configuration item is not selected when the **pscexpert** command is rerun, that configuration item is skipped.

Flags

Item	Description
-a	The settings with the associated security level options are written to the specified file in an abbreviated format.
-c	Checks the security settings against the previously applied set of rules. If the check against a rule fails, the previous versions of the rule are also checked. This process continues until the check passes, or until all of the instances of the failed rule in the <code>/etc/security/aixpert/core/appliedaixpert.xml</code> file are checked. You can run this check against any default profile or custom profile.
-d	Displays the document type definition (DTD).
-f	<p>Applies the security settings that are provided in the specified <i>Profile</i> file. The profiles are in the <code>/etc/security/aixpert/custom</code> directory. The available profiles include the following standard profiles:</p> <p>DataBase.xml This file contains the requirements for the default database settings.</p> <p>DoDv2.xml This file contains the requirements for version 2 of the Department of Defense Security Technical Implementation Guide (STIG) settings.</p> <p>DoDv2_to_AIXDefault.xml This changes the settings to the default AIX settings.</p> <p>GDPRv1.xml This file contains the requirements for General Data Protection Regulation (GDPR) settings.</p> <p>Hipaa.xml This file contains the requirements for the Health Insurance Portability and Accountability Act (HIPAA) settings.</p> <p>NERCv5.xml This file contains the requirements for the North American Electric Reliability Corporation (NERC) settings.</p> <p>NERCv5_to_AIXDefault.xml This file changes the NERC settings to the default AIX settings.</p> <p>PCIV3.xml This file contains the requirements for the Payment card industry Data Security Standard Version 3 settings.</p> <p>PCIV3_to_AIXDefault.xml This file changes the settings to the default AIX settings.</p> <p>SAPv1.xml This file contains the requirements for the SAP settings.</p> <p>SOX-COBIT.xml This file contains the requirements for the Sarbanes-Oxley Act and COBIT settings.</p>

Item	Description
	<p>You can also create custom profiles in the same directory and apply them to your settings by renaming and modifying the existing XML files.</p> <p>For example, the following command applies the HIPAA profile to your system:</p> <pre>pscexpert -f /etc/security/aixpert/custom/Hipaa.xml</pre> <p>When you specify the -f flag, the security settings are consistently applied from system to system by securely transferring and applying an appliedaixpert.xml file from system to system.</p> <p>All of the successfully applied rules are written to the <code>/etc/security/aixpert/core/appliedaixpert.xml</code> file and the corresponding undo action rules are written to the <code>/etc/security/aixpert/core/undo.xml</code> file.</p>
-l	<p>Sets the system security settings to the specified level. This flag has the following options:</p> <p>h high Specifies high-level security options.</p> <p>m medium Specifies medium-level security options.</p> <p>l low Specifies low-level security options.</p> <p>d default Specifies AIX standards-level security options.</p> <p>s sox-cobit Specifies the Sarbanes-Oxley Act and COBIT security options.</p> <p>If you specify both the -l and -n flags, the security settings are not implemented on the system; however, they are only written to the specified file.</p> <p>All the successfully applied rules are written to the <code>/etc/security/aixpert/core/appliedaixpert.xml</code> file and the corresponding undo action rules are written to the <code>/etc/security/aixpert/core/undo.xml</code> file.</p> <p> Attention: When you use the d default flag, the flag can overwrite the configured security settings that you had previously set by using the pscexpert command or independently, and restores the system to its traditional open configuration.</p>
-l Level	<p>This flag is used to check the compatibility of the system with the type of rules that are included in the profile that is specified in the Level parameter. The possible values for Level can be a built-in profile such as PCIV3 or GDPRv1; or a custom profile that contains rule types created by the end user. For example, “PCIV3_cus” or “PVP_type”.</p>
-n	<p>Writes the settings with the associated security level options to the specified file.</p>

Item	Description
-p	<p>Specifies that the output of the security rules is displayed by using verbose output. The -p flag logs the rules that are processed in to the audit subsystem if the auditing option is turned on. This option can be used with any of the -l, -u, -c, and -f flags.</p> <p>The flag -p flag enables verbose output to both the terminal and the aixpert.log file.</p>
-P	<p>Accepts the profile name as input. This option is used along with the -c flags. The -c and -P flags are used to check the compatibility of the system with the profile passed.</p>
-r	<p>Writes the existing settings of the system to the /etc/security/aixpert/check_report.txt file. You can use the output in security or compliance audit reports. The report describes each setting, how it might relate to a regulatory compliance requirement, and whether the check passed or failed.</p> <p>Note:</p> <ul style="list-style-type: none"> • The -r flag only supports the apply operation for profiles. It does not support the apply operation for levels. • The -r option displays the entire message (one or more lines) for a rule.
-R	<p>Produces the same output as the -r flag. In addition, this flag also appends a description of the rule script or program that is used to implement the configuration setting.</p> <p>Note:</p> <ul style="list-style-type: none"> • The -R flag only supports the apply operation for profiles. It does not support the apply operation for levels.
-t	<p>Displays the type of the profile that is applied on the system.</p>
-u	<p>Undoes the security settings that are applied.</p> <p>Note:</p> <ul style="list-style-type: none"> • You cannot use the -u flag to reverse the application of the DoDv2, NERC, or PCIV3 profiles. To remove these profiles after they are added, apply the profile that ends with _AIXDefault.xml. For example, to remove the NERC.xml profile, you must apply the NERC_to_AIXDefault.xml profile. • Changes to the system after an apply operation are lost with an undo operation. Settings are returned to the value as it existed before the apply operation.

Parameters

Item	Description
<i>File</i>	The output file that stores the security settings. Root permission is required to access this file.
<i>Level</i>	The custom level to check against the previously applied settings.
<i>Profile</i>	The file name of the profile that provides compliance rules for the system.

Security

The `pscexpert` command can be run only by root.

Examples

1. To write all of the high-level security options to an output file, enter the following command:

```
pscexpert -l high -n /etc/security/pscexpert/plugin/myPreferredSettings.xml
```

After you run this command, the output file can be edited, and specific security roles can be commented out by enclosing them in the standard XML comment string (`<--` begins the comment and `-->` closes the comment).

2. To apply the security settings from the Department of Defense STIG configuration file, enter the following command:

```
pscexpert -f /etc/security/aixpert/custom/DoDv2.xml
```

3. To apply the security settings from the HIPAA configuration file, enter the following command:

```
pscexpert -f /etc/security/aixpert/custom/Hipaa.xml
```

4. To check the security settings of the system, and to log the rules that failed in to the audit subsystem, enter the following command:

```
pscexpert -c -p
```

5. To check the custom level of the security settings for the NERC profile on the system, and to log the rules that failed in to the audit subsystem, enter the following command:

```
pscexpert -c -p -l NERC
```

6. To generate reports and to write them to the `/etc/security/aixpert/check_report.txt` file, enter the following command:

```
pscexpert -c -r
```

Location

Item	Description
<code>/usr/sbin/pscexpert</code>	Contains the <code>pscexpert</code> command.

Files

Item	Description
<code>/etc/security/aixpert/log/aixpert.log</code>	<p>Contains a trace log of applied security settings. It contains complete information on all of the rules that were deployed and the scripts and commands that were run to fulfill the rule. This file does not use the syslog standard. The pscxpert command writes directly to the file, has read/write permissions, and requires root security.</p> <p>The contents of this file are useful when there are any issues observed with PowerSC Compliance (pscxpert). In non-verbose mode (that is, without -p flag), the pscxpert command logs very basic information. In verbose mode, a significant amount of information is logged to this file and can fill up the file system. When a system is managed by PowerSC UI server, the pscxpert command is executed in non-verbose mode.</p> <p>If this file is taking too much space, you can archive it and remove it without any impact to the Compliance application.</p>
<code>/etc/security/powersc/uiAgent/uiAgent.json</code>	<p>Provides the source to the PowerSC GUI agent for all compliance-related events, including how many rules were successfully deployed on the client. Reason-for-failure information is also logged in this file. Entries are in JSON representation. The pscxpert command writes directly to the file, has read/write permissions, and requires root security.</p>
<code>/etc/security/aixpert/check_report.txt</code>	<p>Contains all of the check failures. Once a profile is deployed, periodic checks are made for compliance. If there are any discrepancies, the information is logged for audit purpose. The pscxpert command writes directly to the file, has read/write permissions, and requires root security.</p>
<code>/etc/security/aixpert/log/firstboot.log</code>	<p>Contains a trace log of the security settings that were applied during the first boot of a Secure by Default (SbD) installation.</p>
<code>/etc/security/aixpert/core/undo.xml</code>	<p>Contains an XML listing of security settings, which can be undone.</p>

pscxpert for linux command

Purpose

Aids the system administrator in setting the security configuration.

Syntax

```
pscxpert -f Profile [ -p ] [ -r|-R ]
pscxpert -u [ -p ]
pscxpert -c [ -p ] [ -r|-R ] [ -P Profile ] [ -l Rule_Type ]
pscxpert -t
pscxpert -d
```

Description

The **pscexpert** command sets various system configuration settings to enable the specified security standard.

If you run the **pscexpert** command when another instance of the **pscexpert** command is already running, the **pscexpert** command exits with an error message.

Note: Rerun the **pscexpert** command after any major systems changes, such as the installation or updates of software. If a particular security configuration item is not selected when the **pscexpert** command is rerun, that configuration item is skipped.

Flags

Item	Description
-c	Checks the security settings against the previously applied set of rules. If the check against a rule fails, the previous versions of the rule are also checked. This process continues until the check passes, or until all of the instances of the failed rule in the <code>/etc/security/pscexpert/core/appliedrules.xml</code> file are checked. You can run this check against any default profile or custom profile.
-d	Displays the document type definition (DTD).
-f	<p>Applies the security settings that are provided in the specified <i>Profile</i> file. The profiles are in the <code>/etc/security/pscexpert/custom</code> directory. The available profiles include the following standard profiles:</p> <p>Linux_PCIV3.xml This file contains the requirements for the Payment card industry Data Security Standard Version 3 for Linux settings.</p> <p>Linus_GDPRv1.xml This file contains the requirements for the General Data Protection Regulation (GDPR) compliance for Linux settings.</p> <p>You can also create custom profiles in the same directory and apply them to your settings by renaming and modifying the existing XML files.</p> <p>For example, the following command applies the Linux PCIV3 profile to your system:</p> <pre>pscexpert -f /etc/security/pscexpert/custom/Linux_PCIV3.xml</pre> <p>All of the successfully applied rules are written to the <code>/etc/security/pscexpert/core/appliedrules.xml</code> file and the corresponding undo action rules are written to the <code>/etc/security/pscexpert/core/undo.xml</code> file.</p>
-t	Displays the type of the profile that is applied on the system.
-u	Undoes the security settings that are applied.

Note:

- Changes to the system after an apply operation are lost with an undo operation. Settings are returned to the value as it existed before the apply operation.

Parameters for -c

Item	Description
-p	<p>Specifies that the output of the security rules is displayed by using verbose output. The -p flag logs the rules that are processed in to the audit subsystem if the auditing option is turned on.</p> <p>The flag -p flag enables verbose output to both the terminal and the <code>/etc/security/pscxpert/log/check_report.txt</code> file.</p>
-r	<p>Writes the existing settings of the system to the <code>/etc/security/pscxpert/log/check_report.txt</code> file. You can use the output in security or compliance audit reports. The report describes each setting, how it might relate to a regulatory compliance requirement, and whether the check passed or failed.</p> <p>The -r flag supports the apply and check operations for profiles.</p> <p>The -r option displays the entire message (one or more lines) for a rule.</p>
-R	<p>Produces the same output as the -r flag. In addition, this flag also appends a description of the rule script or program that is used to implement the configuration setting.</p>
-P	<p>This flag is used to check the compatibility of the system with the profile specified in the Profile parameter passed as input.</p>
Profile	<p>Specifies the file name of the profile that provides compliance rules for the system.</p>
-l	<p>This flag is used to check the compatibility of the system with the type of rules that are included in the profile that is specified in the Rule_Type parameter.</p>
Rule_Type	<p>Specifies a compliance profile. The possible values for Level can be a built-in profile such as PCIV3 or GDPRv1; or a custom profile that contains rule types created by the end user. For example, "PCIV3_cus" or "PVP_type".</p>

Parameters for -f

Item	Description
-p	<p>Specifies that the output of the security rules is displayed by using verbose output. The -p flag logs the rules that are processed in to the audit subsystem if the auditing option is turned on.</p> <p>The flag -p flag enables verbose output to both the terminal and the <code>pscx/etc/security/pscxpert/log/check_report.txt</code> file.</p>
Profile	<p>The file name of the profile that provides compliance rules that are applied for the system.</p>
-r	<p>Writes the existing settings of the system to the <code>/etc/security/pscxpert/log/check_report.txt</code> file. You can use the output in security or compliance audit reports. The report describes each setting, how it might relate to a regulatory compliance requirement, and whether the check passed or failed.</p> <p>The -r flag supports the apply and check operations for profiles.</p> <p>The -r option displays the entire message (one or more lines) for a rule.</p>

Item	Description
-R	Produces the same output as the -r flag. In addition, this flag also appends a description of the rule script or program that is used to implement the configuration setting.

Parameters for -u

Item	Description
-p	Specifies that the output of the security rules is displayed by using verbose output. The -p flag logs the rules that are processed in to the audit subsystem if the auditing option is turned on. The flag -p flag enables verbose output to both the terminal and the /etc/security/pscxpert/log/pscxpert.log file.

Examples

1. To apply the security settings from the PCIV3 configuration file, enter the following command:

```
pscxpert -f /etc/security/aixpert/custom/PCIV3.xml
```

2. To check the security settings of the system, and to log the rules that failed in to the audit subsystem, enter the following command:

```
pscxpert -c -p
```

3. To enable verbose output:

```
pscxpert -u -p
```

4. To generate reports:

```
pscxpert -c -r
```

Note: The standard location for administrative programs is /usr/sbin (and /sbin). If /usr/sbin (and /sbin) is not in the PATH environment variable, it needs to be added. If you do not add it to the PATH environment variable the **pscxpert** command can be called with the absolute path /usr/sbin/pscxpert.

rmvfilt command

Purpose

Removes the virtual LAN-crossing filter rules from the filter table.

Syntax

```
rmvfilt -n [fid|all> ]
```

Description

The **rmvfilt** command is used to remove the virtual LAN-crossing filter rules from the filter table.

Flags

-n

Specifies the ID of the filter rule that will be removed. The **all** option is used to remove all the filter rules.

Exit Status

This command returns the following exit values:

0

Successful completion.

>0

An error occurred.

Examples

1. To remove all the filter rules or to deactivate all the filter rules in the kernel, type the command as follows:

```
rmvfilt -n all
```

Related concepts

Deactivating rules

You can deactivate rules that enable cross-VLAN routing in the Trusted Firewall feature.

vlantfw command

Purpose

Displays or clears the IP and Media Access Control (MAC) mapping information, and controls the logging function.

Syntax

vlantfw -h | -s | -t | -d | -f | -G | -q | -D | -E | -F | -i | -l | -L | -m | -M | -N *integer*

Description

The **vlantfw** command displays or clears the IP and MAC mapping entries. It also provides the ability to start or stop the Trusted Firewall logging facility.

Flags

-d

Displays all the IP mapping information.

-D

Displays the collected connection data.

-E

Displays the connection data between logical partitions (LPARs) on different central processor complexes.

-f

Removes all the IP mapping information.

-F

Clears the connection data cache.

-G

Displays the filter rules that can be configured to route the traffic internally by using Trusted Firewall.

- I**
Displays the connection data between LPARs that are associated with different VLAN IDs, but share the same central processor complexes.
- l**
Starts the Trusted Firewall logging facility.
- L**
Stops the Trusted Firewall logging facility and redirects the trace file contents to the `/home/padmin/svm/svm.log` file.
- m**
Enables Trusted Firewall monitoring.
- M**
Disables Trusted Firewall monitoring.
- q**
Queries the secure virtual machine status.
- s**
Starts the Trusted Firewall.
- t**
Stops the Trusted Firewall.

Parameters

- N *integer***
Displays the filter rule that corresponds to the integer that is specified.

Exit Status

This command returns the following exit values:

- 0**
Successful completion.
- >0**
An error occurred.

Examples

1. To display all the IP mappings, type the command as follows:

```
vlantfw -d
```

2. To remove all the IP mappings, type the command as follows:

```
vlantfw -f
```

3. To start the Trusted Firewall logging function, type the command as follows:

```
vlantfw -l
```

4. To check the status of a secure virtual machine, type the command as follows:

```
vlantfw -q
```

5. To start trusted firewall, type the command as follows:

```
vlantfw -s
```

6. To stop trusted firewall, type the command as follows:

```
vlantfw -t
```

7. To display the corresponding rules that can be used to generate filters that route traffic within the central processor complex, type the command as follows:

```
vlantfw -G
```

Related reference

[genvfilt command](#)

Rest API commands

PowerSC Standard Edition provides a series of REST API commands.

/ ws / powerscui

Handled headers

- Accept - define output format (application/json, application/xml). Default is application/json.

List of resources

- ["/ ws / powerscui / session"](#) on page 305 - Session management and authentication
- ["/ ws / powerscui / groups"](#) on page 306 - Groups management
- ["/ ws / powerscui / systems"](#) on page 307 - System list management
- ["/ ws / powerscui / profiles / <profileLibrary>"](#) on page 309 - Profile management
- ["/ ws / powerscui / command"](#) on page 310 - Command execution resource
- ["/ ws / powerscui / backup"](#) on page 315 - Backup management

/ ws / powerscui / session

Handled headers

- Accept - define output format (application/json, application/xml), default is application/json

Methods

- GET

Get current session status information

URL Parameters

- denaliSessionId (optional) - current session identifier. If this parameter is omitted new session will be started. New session starting requires basic HTTP-authentication.

Result

<session>

- DELETE

Invalidate current session

URL Parameters

- denaliSessionId (required) - current session identifier.

Result

No content, status code only

Data Structures

Session

```
{
  "id" : <String>,
  "creationTime" : <Number>,
  "maxInactiveInterval" : <Number>
}
```

[/ ws / powerscui / groups](#)

Handled headers

- Accept - define output format (application/json, application/xml), default is application/json

List of resources

- /ws/powerscui/groups/<groupName> - set of group resources, where <groupName> is name of particular group resource

Methods

- GET

Get list of endpoint groups

URL Parameters

- denaliSessionId (required) - current session identifier.
- withGroupMembers (optional) - should output contains group members. Boolean (true|false), default false

Result

<GroupList>

Data structures

GroupList

```
{ "groupList" : [ <Group>, <Group>, <Group>, ... ] }
```

Group

```
{
  "name" : <String>,
  "membersCount" : <Number>,
  "groupMembers" : [ <GroupMember>, <GroupMember>, <GroupMember> ... ]
}
```

GroupMember

```
{
  "uid" : <uid>,
  "bestName" : <bestName>,
  "manageable" : <Boolean>
}
```

Handled headers

- Accept - define output format (application/json, application/xml), default is application/json

List of resources

- /ws/powerscui/systems/delete - resource which allow to delete a system from UI server database

Methods

- GET

Get list of endpoints

URL Parameters

- denaliSessionId (required) - current session identifier
- elementId (optional, allow multiple) - <uid> of a system
- groupName (optional, allow multiple) - group name

Result

<SystemList>

Data structures

SystemList

```
{ "tuples" : [ <System>, <System>, <System>, ... ] }
```

System

```
{
  "uid" : <uid>,
  "bestName" : <bestName>,
  "osName" : <osName>,
  "osLevel" : <osLevel>,
  "os" : <os>,
  "manageable" : <Boolean>,
  "compatibilityLastComplianceLevel" : <compatibilityLastComplianceLevel>,
  "compatibilityComplianceStatus" : <compatibilityComplianceStatus>,
  "compatibilityNumberFailed" : <compatibilityNumberFailed>,
  "operation" : <operationName>,
  "operationInProgress" : <operationInProgress>,
  "applyTimestamp" : <applyTimestamp>,
  "checkTimestamp" : <checkTimestamp>,
  "lastComplianceLevel" : <lastComplianceLevel>,
  "previousComplianceLevel" : <previousComplianceLevel>,
  "complianceStatus" : <complianceStatus>,
  "numberPassed" : <numberPassed>,
  "numberFailed" : <numberFailed>,
  "stdout" : <stdout>,
  "IP" : <IP>,
  "unixGroup" : <unixGroup>,
  "lastHeartbeatTimestamp" : <lastHeartbeatTimestamp>,
  "connectivityProblem" : <connectivityProblem>,
  "verifiedTimestamp" : <verifiedTimestamp>,
  "connectivityDiagnosisStatus" : <connectivityDiagnosisStatus>,
  "markedToDelete" : <markedToDelete>,
  "upToDateStatus" : <upToDateStatus>,
}
```

```

    "upToDateStatusTimestamp" : <upToDateStatusTimestamp>,
    "upToDateStatusStdout" : <upToDateStatusStdout>,
    "TE" : <TE>,
    "RTC" : <RTC>,
    "Auditd" : <Auditd>,
    "TB" : <TB>,
    "TF" : <TF>,
    "TL" : <TL>,
  }

```

uid

String value of server defined endpoint number

bestName

Display name for a system, it is host name usually

osName

Name of operation system (AIX or Linux)

osLevel

Operation system level

os

Operation system name and level

compatibilityLastComplianceLevel

Level of last simulated apply operation

compatibilityComplianceStatus

Numeric code of last simulated apply operation status: -1 - Unknown, 0 - Failed, 1 - Passed

compatibilityNumberFailed

Number of failed rules during simulated apply operation

operationInProgress

Boolean flag indicating an operation is in process on the endpoint side

operationName

Name of an operation which is in process

applyTimestamp

Last apply operation timestamp

checkTimestamp

Last check operation timestamp

lastComplianceLevel

Level of last apply operation

previousComplianceLevel

Level of previous apply operation

complianceStatus

Current compliance status code (-1 - Unknown, 0 - Failed, 1 - Passed)

numberPassed

Number of passed rules of last apply or check operation

numberFailed

Number of failed rules of last apply or check operation

stdout

Apply and undo operations command line tools output

IP

System IP-address

unixGroup

List of unix-groups allowed to manage the system

lastHeartbeatTimestamp

Timestamp of last ping from system

connectivityProblem

Boolean indicates the system doesn't ping server for a long time

verifiedTimestamp

Last verify operation timestamp

connectivityDiagnosisStatus

"OK" or exception message caused by server to system socket opening

markedToDelete

Boolean indication that the system is marked for removal from the server database. This system should be ignored.

upToDateStatus

True, False or null. The null value means the status is unknown.

upToDateStatusTimestamp

Timestamp of up to date status received.

upToDateStatusStdout

Up to date checking tool output.

TE

Trusted execution enabled (true, false or null). A value of null indicates that the status is unknown.

RTC

Real time compliance enabled (true, false or null). A value of null indicates that the status is unknown.

Auditd

Auditd enabled (true, false or null). A value of null indicates that the status is unknown.)

TB

Trusted boot enabled (true, false or null). A value of null indicates that the status is unknown.

TF

Trusted firewall enabled (true, false or null). A value of null indicates that the status is unknown.

TL

Trusted logging enabled (true, false or null). A value of null indicates that the status is unknown.

/ ws / powerscui / profiles / <profileLibrary>

Handled headers

- Accept - define output format (application/json, application/xml), default is application/json

List of resources

- /ws/powerscui/profiles/<profileLibrary>/<profileName> - resource which allow to manipulate profiles

Methods

- GET

Get profile list for the <profileLibrary>

URL Parameters

- denaliSessionId (required) - current session identifier.

Result

<ProfileList>

Data structures

profileLibrary The profile library variable may have two values: 'built-in' and 'custom'

```
ProfileList
{
  "profileList" : [ <ProfileRef>, <ProfileRef>, <ProfileRef>, ... ] }

ProfileRef
{
  "profile" : {
    "name" : <String>
  }
}
```

/ ws / powerscui / command

Handled headers

- Accept - define output format (application/json, application/xml), default is application/json

List of resources

- /ws/powerscui/command/results - resource to retrieve command execution result

Methods

- POST

Submit command to execute

URL Parameters

- denaliSessionId (required) - current session identifier.

Required content

<SubmitOrderList>

Result

<SubmitResultList>

Data structures

SubmitOrderList

```
{ "orders" : [ <SubmitOrder>, <SubmitOrder>, <SubmitOrder>, ... ] }
```

SubmitOrder

```
{
  "commandName" : <commandName>,
  "elementId" : <uid>,
  "arguments" : <commandArguments>,
}
```

SubmitResultList

```
{ "results" : [ <SubmitResult>, <SubmitResult>, <SubmitResult>, ... ] }
```

SubmitResult

```
{
  "elementId" : <uid>,
  "commandName" : <commandName>,
  "resultKey" : <submitResultKey>,
  "result" : <submitResult>
}
```

submitResultKey

One of the following:

FORBIDDEN - authenticated user has no rights for the operation
BAD_REQUEST - request is malformed
NO_PROFILE_FOUND - specific for profiles commands
INTERNAL_SERVER_ERROR - internal server error occurred
OK - the command successfully committed to execute

submitResult

<executionKey> or error message

monFileListItem

```
{
  "fileName" : <String>,
  "modFile" : <Boolean>,
  "modFileAttr" : <Boolean>,
  "modDir" : <Boolean>
}
```

teFileListItem

```
{
  "fileName" : <String>,
  "isMonitored" : <Boolean>,
  "isVolatile" : <Boolean>
}
```

teFileListItem

```
{
  "name" : <String>,
  "timestamp" : <String>
}
```

fileListItem

```
{
  "name" : <String>,
  "directory" : <String>
}
```

commandArguments

This should be a set of key values in JSON format. Refer to the tables below for command and required arguments information.

commandName

Refer to the following table for Compliance command information.

Command name	Description	Required arguments
refreshStatus	Get currently applied profiles.	No arguments are required.

Command name	Description	Required arguments
checkLevel	Check compliance level.	level Compliance level (-l argument of pscexpert).
applyLevel	Apply compliance level.	level Compliance level (-l argument of pscexpert)
checkProfile	Check compliance with a profile.	profileName Profile name (-P argument of pscexpert) The name should not contain a path
applyProfile	Apply compliance profile.	profileName Profile name (-P argument of pscexpert) The name should not contain a path
checkCompliance	Check compliance level against current rule type.	No arguments are required.
undoCompliance	Undoes the security settings that are applied.	No arguments are required.

Refer to the following table for Compliance profile command information:

Command name and description	Description	Required arguments
getProfile	Get profile XML file content from system.	profileName Profile XML file name The name should not contain a path.
putProfile	Get profile xml-file content from the specified library using the specified profile name, and put it to endpoint.	profileName Profile XML file name The name should not contain a path. profileLibrary The profile library name. The profile library variable may have two values: 'built-in' or 'custom'
deleteProfile	Delete profile XML file.	profileName Profile XML file name The name should not contain a path.
getProfileList	Get space-separated list of profile XML file names.	No arguments are required.

Refer to the following table for Real-time compliance profile command information:

Command name and description	Description	Required arguments
getRTCPolicy	Get RTC policy configuration in JSON format.	backupName (optional) Backed up RTC configuration file name The name should not contain a path
configureRTCPolicy	Change RTC policy.	policy RTC configuration key-value pairs in JSON format
getRTCMonitoredFileset	Get list of files monitored by RTC. This command returns JSON array of monFileListItem .	backupName (optional) Backed up RTC configuration file name The name should not contain a path.
changeRTCFilePolicy	Change list of monitored files.	fileList JSON array of < monFileListItem >
getRTCMonitoredFileBackupFileList	Get list of backed up policy files. This method return JSON array of backupFileListItem .	No arguments are required.
getRTCConfigurationBackupFileList	Get list of backed up configuration files. This method return JSON array of backupFileListItem .	No arguments are required.
turnOffRTC	Turn off (or turn on in a special case) RTC for a specified amount of time in minutes.	OffTimeout Timeout in minutes Special case: -1 - turn on permanently Special case: 1 - turn on immediately

Refer to the following table for Auditd command information:

Command name and description	Description	Required arguments
getAuditdMonitoredFileBackupFileList	Get list of backed up rules file. This method returns the JSON array of backupFileListItem .	No arguments are required.
getAuditdMonitoredFileset	Get list of files monitored by Auditd. This command returns the JSON array of monFileListItem .	backupName (optional) Backed up auditd rules file The name should not contain a path.

Command name and description	Description	Required arguments
changeAuditdFilePolicy	Change list of files monitored by Auditd.	fileList JSON array of monFileListItem command.
turnOffAuditd	Turn off (or turn on in special case) Auditd for a specified amount of time in minutes.	OffTimeout Specify timeout in minutes: Special case: -1 - turn on permanently Special case: 1 - turn on immediately

Refer to the following table for Trusted execution command information:

Command name and description	Description	Required arguments
getTEPolicy	Get trusted execution policy.	No arguments are required.
configureTEPolicy	Change trusted execution policy.	TE policy key value pairs in JSON format.
getTEMonitoredFileset	Get list of files monitored by TE. This command return JSON array of teFileListItem .	No arguments are required.
changeTEFilePolicy	Change list of files monitored by TE.	fileList JSON array of teFileListItem .
turnOffTE	Turn off (or turn on in special case) TE for a specified amount of time in minutes.	OffTimeout Specify timeout in minutes: Special case: -1 - turn on permanently Special case: 1 - turn on immediately
runTSDScan	Check the security parameters stored in the TSD against the parameters of the actual files using trustchk -n ALL .	No arguments are required.

Refer to the following table for Up to date command information:

Command name and description	Description	Required arguments
verify	Check patch management status (up to date status).	No arguments are required.
update	Update system with patch management.	No arguments are required.

Refer to the following table for custom command information:

Command name and description	Description	Required arguments
getFileList	Get list of files. This command returns JSON array of <fileListItem>.	Path Path to file list.

/ ws / powerscui / backup

Use this command to backup the PowerSC GUI server.

Handled headers

- Accept - define output format (application/json, application/xml), default is application/json

Methods

- POST

Run backup task

URL Parameters

- denaliSessionId (required) - current session identifier.

Required content

No content required

Result

No content, status code only

Notices

This information was developed for products and services offered in the US.

IBM may not offer the products, services, or features discussed in this document in other countries. Consult your local IBM representative for information on the products and services currently available in your area. Any reference to an IBM product, program, or service is not intended to state or imply that only that IBM product, program, or service may be used. Any functionally equivalent product, program, or service that does not infringe any IBM intellectual property right may be used instead. However, it is the user's responsibility to evaluate and verify the operation of any non-IBM product, program, or service.

IBM may have patents or pending patent applications covering subject matter described in this document. The furnishing of this document does not grant you any license to these patents. You can send license inquiries, in writing, to:

IBM Director of Licensing
IBM Corporation
North Castle Drive, MD-NC119
Armonk, NY 10504-1785
US

For license inquiries regarding double-byte character set (DBCS) information, contact the IBM Intellectual Property Department in your country or send inquiries, in writing, to:

Intellectual Property Licensing
Legal and Intellectual Property Law
IBM Japan Ltd.
19-21, Nihonbashi-Hakozakicho, Chuo-ku
Tokyo 103-8510, Japan

INTERNATIONAL BUSINESS MACHINES CORPORATION PROVIDES THIS PUBLICATION "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF NON-INFRINGEMENT, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. Some jurisdictions do not allow disclaimer of express or implied warranties in certain transactions, therefore, this statement may not apply to you.

This information could include technical inaccuracies or typographical errors. Changes are periodically made to the information herein; these changes will be incorporated in new editions of the publication. IBM may make improvements and/or changes in the product(s) and/or the program(s) described in this publication at any time without notice.

Any references in this information to non-IBM websites are provided for convenience only and do not in any manner serve as an endorsement of those websites. The materials at those websites are not part of the materials for this IBM product and use of those websites is at your own risk.

IBM may use or distribute any of the information you provide in any way it believes appropriate without incurring any obligation to you.

Licensees of this program who wish to have information about it for the purpose of enabling: (i) the exchange of information between independently created programs and other programs (including this one) and (ii) the mutual use of the information which has been exchanged, should contact:

IBM Director of Licensing
IBM Corporation
North Castle Drive, MD-NC119
Armonk, NY 10504-1785
US

Such information may be available, subject to appropriate terms and conditions, including in some cases, payment of a fee.

The licensed program described in this document and all licensed material available for it are provided by IBM under terms of the IBM Customer Agreement, IBM International Program License Agreement or any equivalent agreement between us.

The performance data and client examples cited are presented for illustrative purposes only. Actual performance results may vary depending on specific configurations and operating conditions.

Information concerning non-IBM products was obtained from the suppliers of those products, their published announcements or other publicly available sources. IBM has not tested those products and cannot confirm the accuracy of performance, compatibility or any other claims related to non-IBM products. Questions on the capabilities of non-IBM products should be addressed to the suppliers of those products.

Statements regarding IBM's future direction or intent are subject to change or withdrawal without notice, and represent goals and objectives only.

All IBM prices shown are IBM's suggested retail prices, are current and are subject to change without notice. Dealer prices may vary.

This information is for planning purposes only. The information herein is subject to change before the products described become available.

This information contains examples of data and reports used in daily business operations. To illustrate them as completely as possible, the examples include the names of individuals, companies, brands, and products. All of these names are fictitious and any similarity to actual people or business enterprises is entirely coincidental.

COPYRIGHT LICENSE:

This information contains sample application programs in source language, which illustrate programming techniques on various operating platforms. You may copy, modify, and distribute these sample programs in any form without payment to IBM, for the purposes of developing, using, marketing or distributing application programs conforming to the application programming interface for the operating platform for which the sample programs are written. These examples have not been thoroughly tested under all conditions. IBM, therefore, cannot guarantee or imply reliability, serviceability, or function of these programs. The sample programs are provided "AS IS", without warranty of any kind. IBM shall not be liable for any damages arising out of your use of the sample programs.

Each copy or any portion of these sample programs or any derivative work must include a copyright notice as follows:

© (your company name) (year).

Portions of this code are derived from IBM Corp. Sample Programs.

© Copyright IBM Corp. _enter the year or years_.

Privacy policy considerations

IBM Software products, including software as a service solutions, ("Software Offerings") may use cookies or other technologies to collect product usage information, to help improve the end user experience, to tailor interactions with the end user or for other purposes. In many cases no personally identifiable information is collected by the Software Offerings. Some of our Software Offerings can help enable you to collect personally identifiable information. If this Software Offering uses cookies to collect personally identifiable information, specific information about this offering's use of cookies is set forth below.

This Software Offering does not use cookies or other technologies to collect personally identifiable information.

If the configurations deployed for this Software Offering provide you as the customer the ability to collect personally identifiable information from end users via cookies and other technologies, you should seek your own legal advice about any laws applicable to such data collection, including any requirements for notice and consent.

For more information about the use of various technologies, including cookies, for these purposes, see IBM's Privacy Policy at <http://www.ibm.com/privacy> and IBM's Online Privacy Statement at <http://www.ibm.com/privacy/details> the section entitled "Cookies, Web Beacons and Other Technologies" and the "IBM Software Products and Software-as-a-Service Privacy Statement" at <http://www.ibm.com/software/info/product-privacy>.

Trademarks

IBM, the IBM logo, and [ibm.com](http://www.ibm.com) are trademarks or registered trademarks of International Business Machines Corp., registered in many jurisdictions worldwide. Other product and service names might be trademarks of IBM or other companies. A current list of IBM trademarks is available on the web at [Copyright and trademark information](http://www.ibm.com/legal/copytrade.shtml) at www.ibm.com/legal/copytrade.shtml.

Java and all Java-based trademarks and logos are trademarks or registered trademarks of Oracle and/or its affiliates.

Linux is a registered trademark of Linus Torvalds in the United States, other countries, or both.

Red Hat, the Red Hat "Shadow Man" logo, and all Red Hat-based trademarks and logos are trademarks or registered trademarks of Red Hat, Inc., in the United States and other countries.

UNIX is a registered trademark of The Open Group in the United States and other countries.

Index

Special Characters

/etc/pam.d
 editing [241](#), [242](#)

A

AIX Audit subsystem [206](#)
AIX syslog [207](#)
applications
 configuring for IBM PowerSC MFA [239](#)
Attesting a system [192](#)

C

chvfilt command [265](#)
client
 creating truststore [240](#)
Client Policies [216](#)
Client verification [217](#)
Commands
 chvfilt [265](#)
 genvfilt [266](#)
 lsvfilt [268](#)
 mkrtc [269](#)
 mkvfilt [270](#)
 pscuiserverbackup [288](#)
 pscuiserverctl [286](#), [289](#)
 rmvfilt [301](#)
 vlantfw [302](#)
Components [209](#)
concepts [209](#)
Configuring [213](#)
Configuring client [213](#)
Configuring host name and ports [213](#)
Configuring patch management server [214](#)
Configuring PowerSC Security and Compliance Automation [185](#)
Configuring server [213](#)
Configuring the trusted logging [206](#)
Configuring Trusted Boot [192](#)
Configuring Trusted Logging [206](#), [207](#)
cURL [209](#), [211](#)

D

Deleting systems [193](#)
Department of Defense STIG compliance [17](#)

E

editing
 /etc/pam.d [241](#), [242](#)
 pam.conf [241](#)
 server properties [240](#)
email notification [215](#)

enrolling a system [192](#)

F

feature
 PowerSC Real Time Compliance [187](#)

G

genvfilt command [266](#)
GUI interface
 accessing the REST API [232](#)
 adding endpoints to group [245](#)
 agent [11](#)
 applying compliance profiles [250](#)
 backing up the server [230](#)
 checking compliance profiles [251](#), [252](#)
 cloning endpoint groups [246](#)
 compliance event notification [252](#)
 compliance profiles [246](#)
 configuring encrypted email [236](#)
 Configuring RTC [257](#)
 configuring TE [259](#)
 copying profiles to endpoints [249](#)
 copying RTC configuration options to groups [257](#)
 copying RTC file monitoring options to other groups [258](#)
 copying TE configuration options to groups [259](#)
 copying TE file list monitoring options to other groups [260](#)
 Copying the truststore file to endpoints manually [232](#)
 creating compliance profiles [247](#)
 creating security certificates [232](#)
 custom endpoint groups [244](#)
 customizing the Security page display [254](#)
 deleting custom profiles [249](#)
 deleting endpoint groups [245](#)
 editing profiles to endpoints [233](#), [248](#)
 editing RTC file list [258](#)
 Editing rule arguments for custom profiles [248](#)
 editing TE file list [259](#)
 endpoint [230](#)
 endpoint and server communication [242](#)
 generating keystore requests [243](#)
 grouping endpoints [244](#)
 hiding events [257](#)
 importing custom profiles not created with PowerSC [249](#)
 installing [239](#)
 introduction [229](#)
 language [238](#)
 monitoring endpoint security [253](#)
 navigating [238](#)
 opening [238](#)
 QRadar integration [236](#)
 removing endpoints [243](#)
 renaming endpoint groups [246](#)
 requirements [9](#)

GUI interface (*continued*)

- rolling back RTC files to a previous monitoring configuration [258](#)
- rolling back RTC to previous timestamp [257](#)
- running a RTC check [258](#)
- running a TSD scan [259](#)
- running group scripts [235](#)
- security [229](#)
- security event notification [261](#)
- server [11](#), [15](#)
- specifying endpoint groups [234](#)
- syslog entries [236](#)
- toggling TE monitoring [260](#)
- undoing compliance profiles [251](#)
- Updating expired security certificates [244](#)
- using [236](#)
- using the SOCKS proxy server with the PowerSC GUI [231](#)
- verifying and updating security patches [260](#)
- verifying endpoint and server communication [242](#)
- verifying keystore requests [243](#)
- viewing compliance profiles [247](#)
- Viewing profile rules [247](#)
- Viewing security certificate expiration dates [244](#)

H

hardware and software requirements [7](#)

I

- IMC and IMV modules [211](#)
- import certificates [210](#)
- Import certificates [219](#)
- installing
 - PAM modules on PowerSC GUI server [239](#), [240](#)
- Installing [9](#), [12](#), [212](#)
- Installing PowerSC Standard Edition [9](#)
- Installing PowerSC Standard Edition on AIX systems [9](#)
- Installing PowerSC Standard Edition on Linux systems [12](#)
- Installing the collector [191](#)
- Installing the verifier [191](#)
- Installing Trusted Boot [191](#)
- Interpreting attestation results [193](#)
- IP Referrer [210](#)

L

lsvfilt command [268](#)

M

- Managing policies [219](#)
- Managing Security and Compliance Automation [183](#), [184](#)
- Managing TNC components [216](#)
- Managing Trusted Boot [193](#)
- Migration considerations [191](#)
- mkrtc command [269](#)
- mkvfilt command [270](#)

O

overview [7](#), [209](#)

P

- PAM modules
 - editing [240](#)
 - installing on PowerSC GUI server [239](#), [240](#)
 - setting policy first [240](#)
- pam.conf
 - editing [241](#)
- Patch management [209–211](#)
- Planning [190](#)
- pmconf [210](#)
- pmconf command [271](#)
- policy first
 - setting [240](#)
- PowerSC
 - Real-Time Compliance [187](#)
 - Trusted Firewall
 - configuring [200](#)
 - configuring with multiple SEAs [201](#)
 - creating rules [202](#)
 - deactivating rules [203](#)
 - installing [199](#)
 - removing SEAs [202](#)
 - Trusted Logging
 - installing [206](#)
- PowerSC Real Time Compliance
 - log file [188](#)
- PowerSC Standard Edition [7](#), [9](#), [12](#)
- Preparing for remediation [190](#)
- Prerequisites [190](#)
- Protocol [211](#)
- psconf command [277](#)
- pscuiagentctl command [286](#)
- pscuiserverbackup.sh command [288](#)
- pscuiserverctl command [289](#)
- pscxpert command [293](#)
- pscxpert for linux command [298](#)

R

- Real-Time Compliance [187](#)
- Replicating the Trusted Network Connect Patch Management (TNCMPM) component [219](#)
- Reporting and management tool for TNC, SUMA
 - using psconf command [277](#)
- Reporting and management tool for TNCMPM
 - using pmconf command [271](#)
- reports
 - changing the report group [263](#)
 - distributing [263](#)
 - selecting the initial report group [262](#)
 - working with [261](#)
 - working with Timeline report [262](#)
- rmvfilt command [301](#)

S

- secure communication [210](#)
- security
 - PowerSC
 - Real-Time Compliance [187](#)
- Server [209](#)
- server properties

server properties (*continued*)
 editing [240](#)
SOX and COBIT [137](#)
SUMA [209–211](#)

T

TNC [226](#)
TNC client [210](#)
troubleshooting [193](#)
Troubleshooting TNC and Patch management [226](#)
Trusted Boot [189–193](#)
Trusted Boot concepts [189](#)
Trusted Firewall
 configuring
 multiple SEAs [201](#)
 creating rules [202](#)
 deactivating rules [203](#)
 installing [199](#)
 removing
 SEAs [202](#)
Trusted Firewall concepts [197](#)
Trusted Logging
 installing [206](#)
Trusted Logging overview [205](#)
Trusted network connect [213](#), [217](#), [219](#)
Trusted Network Connect [209–214](#), [216](#), [218](#), [219](#)
Trusted Network Connect and Patch management [209](#)
Trusted Network Connect server [215](#), [216](#), [220–224](#)
truststore
 creating on client [240](#)

U

Updating the failed rule [184](#)
Updating TNC client [218](#)

V

Viewing logs [216](#), [220–224](#)
Viewing verification results [218](#)
Viewing virtual log devices [205](#)
virtual logs [205](#)
vlantfw command [302](#)

W

Writing data to virtual log devices [207](#)

