

Extreme Networks®

Information Governance Engine User Guide

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Information Governance Engine Help

Document Version

The following table displays the revision history for the Information Governance Engine Help documentation.

Date	Revision Number	Description
3-18	8.1 Revision -00	Extreme Management Center 8.1 release

PN: 9035438

Governance Overview

The Extreme Management Center **Governance** tab provides oversight into the configuration of your devices and wireless threat alerts to ensure you are compliant with industry best practices.

IMPORTANT: The **Governance** tab is available and supported by Extreme on an Extreme Management Center engine running the Linux operating system supplied by Extreme. Other Linux operating systems can support Governance functionality, but python version 2.7 or higher must be installed. Additionally Governance functionality requires the git, python2, python mysql module, python setuptools module, and python "pygtail" module packages be installed and related dependencies managed by the customer for their server's unique operating system and version.

Run a governance audit against devices on the **Governance** tab or against device archives on the **Network** > [Archives tab](#).

NOTE: **Governance** tab functionality requires you to [acquire an additional license](#).

Extreme Management Center provides a set of audit tests that allow you to test the configuration of your devices. Groups of audit tests comprise a regime, which tests for a specific regulation or standard. Extreme Management Center uses the results to determine a score that indicates compliance with a regulation or standard.

The regimes included in the **Governance** tab are automatically included in your Extreme Management Center version 8.1 installation on an Extreme Management Center engine, but you must import them on a non-Extreme Management Center engine by accessing the engine console, navigating to the `<install directory>/GovernanceEngine` directory and entering `./governance-engine.py --db-import-all-tests --governance-type PCI` to import the PCI regime and `./governance-engine.py --db-import-all-tests --governance-type HIPAA` to import the HIPAA regime.

Configure a regime by disabling or editing specific audit tests within the regime. Once the regime meets your needs, use it to run a governance audit against a device or set of devices. You cannot run individual audit tests against a device.

The **Governance** tab contains the following sub-tabs:

- [Dashboard](#)
- [Audit Tests](#)

Dashboard

The [Dashboard tab](#) displays an overview of the audit test results for each regime. Additionally, the tab provides information about how the regime test results changed over time, the performance of each of the devices included in the audit test, and a list of the tests performed as part of the regime.

Audit Tests

The [Audit Tests tab](#) contains a variety of audit tests organized into the regime or standard of which it is a part. You can also create your own audit tests for the devices on your network via the **Audit Tests** tab.

Audit tests can be run ad-hoc or on a scheduled basis. Use the results to ensure your devices are configured to industry standards and are safe from vulnerabilities.

Related Information

For information on related tabs:

- [Governance Dashboard](#)
- [Audit Tests](#)
- [Archives](#)

How to Obtain and Apply a Governance License in Extreme Management Center

To use the [Governance tab](#) in Extreme Management Center, an additional license is required.

To obtain and apply the license in Extreme Management Center:

How to Obtain and Apply a Governance License in Extreme Management Center

1. Contact your sales representative to purchase an IGE (Information Governance Engine) license.

An email voucher is generated and sent to you with instructions.

2. Create an Extreme Networks Support Portal account, if necessary.
 - a. Open a browser and go to <https://secure.extremenetworks.com/>.
 - b. Enter your information and click **Create An Account**.

An email is sent to you with instructions to activate your account.

- c. Click the link in your email.

The Portal - Account Activation web page displays.

- d. Enter your **Email Address** and the **Activation Code** included in your activation email, if they do not automatically populate.
- e. Click **Activate**.

3. Access the Extreme Networks Support Portal at <https://extremeportal.force.com/ExtrLicenseLanding>.

4. Enter your **Email** and **Password** and click **Log In**.

5. Click **Generate License**.

The Generate License window displays.

6. Enter your **Voucher ID** from the email voucher sent to you and click **Next**.

7. Select the **Terms and Conditions** checkbox and click **Submit**.

A window displays with your software license key.

8. Copy the license key from the window.
9. Open Extreme Management Center.
10. Access the **Administration** > [Diagnostics tab](#).
11. Select **Server** > **Server Licenses** in the left-panel.

The **Server Licenses** panel displays.

12. Click **Add**.

The **Add License** window displays.

13. Paste the license key you copied in Step 9 and click **OK**.
 14. Restart Extreme Management Center.
 15. The [Governance tab](#) is now available in the menu, allowing you to use governance audit functionality.
-


Related Information

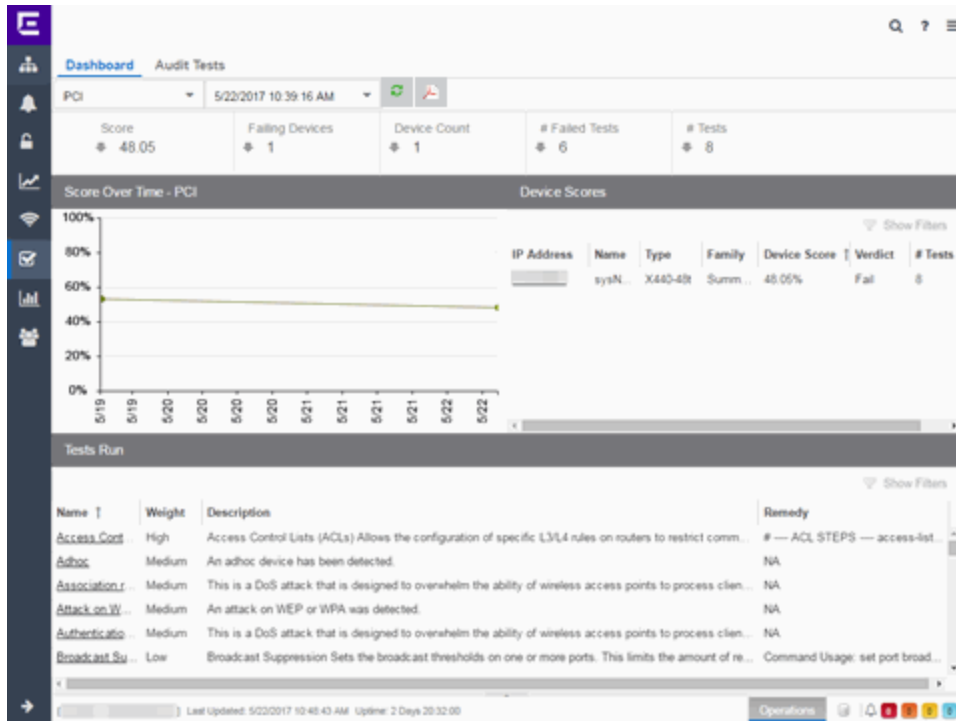
For information on related tabs:

- [Governance Overview](#)
- [Diagnostics](#)

Governance Dashboard

The **Governance > Dashboard** tab provides an overview of your audit test results performed over time on the devices in your network.

Use the drop-down menus at the top of the tab to select the regime and the date and time of the governance audit to view the results in the tab. Click the **Export to PDF** icon () to produce a PDF report that provides a summary of the regime audit test and a breakdown of the results for each device included in the test.



Test Results

The top of the **Dashboard** tab displays the audit test results for the governance audit you select using the regime and date in the drop-down menu.

Score

The number in this field is an average of the scores on each device included in the audit. Each device earns a score by comparing the percentage of audit tests that ran successfully on the device to the total number of audit tests. Clicking the score opens the **Run Results** tab, which provides a list of all of the audit tests run on all of the devices included in the audit, including the results.

Failing Devices

The number of devices that failed the governance audit. Clicking the number of failing devices opens the **Device Scores** tab, which provides a list of the devices that failed the audit test.

Device Count

The total number of devices included in the governance audit. Clicking the device count opens the **Device Scores** tab, which provides a list of all of the devices included in the audit test.

Failed Tests

The number of tests that failed when run against devices included in the governance audit. Clicking the failed test number opens the **Run Results** tab, which provides a list of the audit tests that failed when run on a device included in the audit.

Tests

The total number of tests run against devices included in the governance audit. Clicking the number of tests opens the **Run Results** tab, which provides a list of all audit tests run on devices included in the audit.

Score Over Time

The Score Over Time graph shows the results of all of the audit tests performed on your devices for the regime selected in the drop-down menu at the top of the window. This allows you to determine any trends and map your progress towards compliance with a particular regime.

Device Scores

The Device Scores section of the tab displays a table of the devices included in the audit test, details about those devices, and the results of the governance audit on each device.

IP Address

The IP address of the device tested.

Clicking an address in the IP Address column opens that device in the **Device Details** tab, which provides governance audit result information for that device.

Name

The name of the device, configured in the **System Name** field in the [Configure Device window](#).

Type

The specific type (model) of the device.

Family

The group of devices to which the device belongs, known as the device family in Extreme Management Center.

Device Score

The percentage of audit tests within the regime with which the device passes compliance. For example, if a device complies with 75 out of 100 audit tests in a regime, the **Device Score** is **75%**.

Verdict

The result of the governance audit (either **Pass** or **Fail**), based on the Device Score. A device with a score of less than 50% is labeled as **Fail** in the Verdict column, while a score of 50% or above is considered a **Pass**.

Tests

The number of tests included in the governance audit run against the device.

Tests Run

The Tests Run table displays a list of all of the tests included in the regime selected at the top of the window. The section also contains details about each of the audit tests and the action you can take to correct the device in the event that your device fails a test.

Clicking the test name in the **Name** column opens the **Test Details** tab, which provides information about the results of the test on all devices both over time and during a particular governance audit.

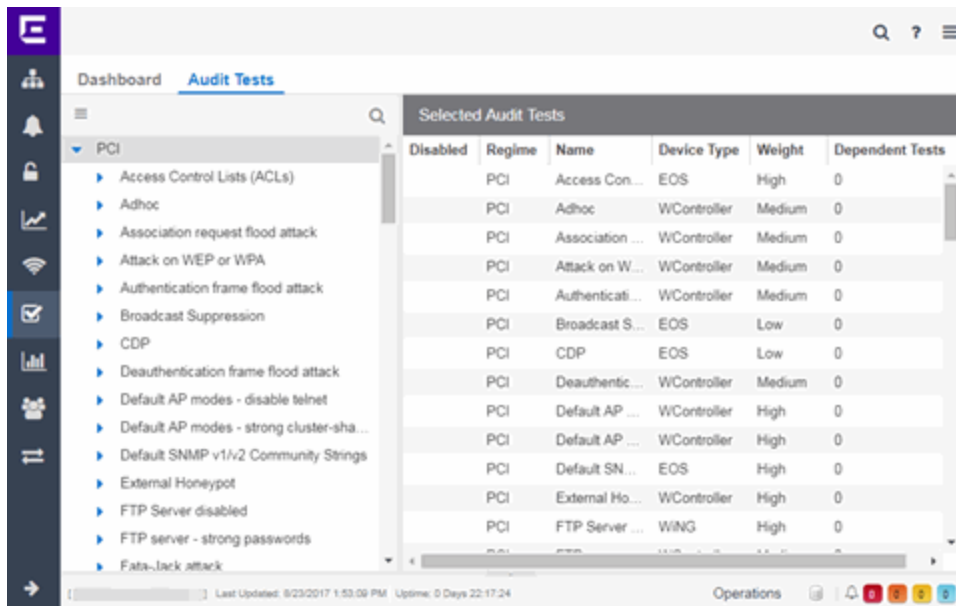
Related Information

For information on related topics:

- [Governance](#)
- [Audit Tests](#)
- [Configure Device](#)

Audit Tests

The **Audit Tests** tab displays a set of audit tests that check for vulnerabilities in your devices. The tab also allows you to create your own audit tests you can add to regimes.



The Audit Test list contains a list of all of the audit tests available in Extreme Management Center, contained within the regulatory and standards regime of which it is a part. Each individual audit test contains the device types on which the test can be run.

Select a regime, audit test, or device type in the Audit Test list to view the details of any audit tests contained in that folder in the Selected Audit Tests table to the right of the tree. Click the **Magnifying Glass** icon (🔍) and begin typing to search within the regimes for a specific audit test.

Disable an audit test by right-clicking it in the left-panel and selecting **Disable Audit Test**. Delete an audit test by right-clicking it in the left-panel and selecting **Delete Audit Test**.

NOTE: Only user-created audit tests or audit tests in user-created regimes can be deleted. Additionally, only user-created regimes can be deleted.

The screenshot shows a web interface for managing audit tests. On the left is a tree view of regimes and tests. The 'PCI' regime is expanded, showing several tests, with 'WController' selected. On the right is a table titled 'Selected Audit Tests' with columns for Disabled, Regime, Name, Device Type, Weight, and Dependent Tests. One row is visible for the 'WController' test.

Disabled	Regime	Name	Device Type	Weight	Dependent Tests
	PCI	Attack on W...	WController	Medium	0

Disabled

A checkmark in this column indicates the test is disabled for the regime. When a test is disabled, it is not run when performing a governance audit against a device or a group of devices. To disable or enable an audit test, select the test in the left-panel, right-click the audit test, and select **Disable Audit Test** or **Enable Audit Test**, respectively.

Regime

This indicates standard or regulation to which you are maintaining compliance. Each regime contains a set of audit tests, specific to a device type. Expand the regime folder to view the tests included as part of the regime.

Selecting a regime opens a list of all of the audit tests in that regime in the selected Audit Tests table to the right of the list. Use the Selected Audit Tests table to select or deselect any of the tests in the regime and then run an audit test using all of the selected tests in the regime on the devices you select to which the tests apply.

Name

This shows the name of the audit test, a test of the configuration of a device to ensure compliance with the best practices of that industry and is nested within the regime to which the test applies. Expand the audit test folder to see the device types to which that test applies.

Device Type

The device type displays the type of devices on which you can run the expanded audit test and is the lowest level in the Audit Test list, nested within an audit test.

Selecting device type displays that audit test in the Details table to the right of the Audit Test list. Use the Details table to select or deselect the test and then run an

audit test on the devices you select to which the test applies.

Additionally, double-clicking the device type from the left-panel opens the Edit Audit Test window from which you can edit the audit test.

Weight

The value in the **Weight** column of the Selected Audit Tests table indicates the priority of the audit test:

- High
- Medium
- Low

Dependent Tests

This shows the number of audit tests that must run successfully before the selected test runs.

For example, when running an audit test to ensure a device is running the latest version of an anti-virus software, you might first check whether the device has anti-virus software installed. The audit test verifying the version does not run if the audit test checking whether an anti-virus software is installed fails.

Use the **Menu** icon (☰) in the left-panel to [add a new regime or audit test](#), edit existing regimes or [audit tests](#), or run the regime against a device or group of devices. These options are also available via the right-click menu in the left-panel.

Select a regime from the left-panel, click the **Menu** icon and select **Run Regime** to open the [Run Regime window](#), where you select the device against which to run the audit.

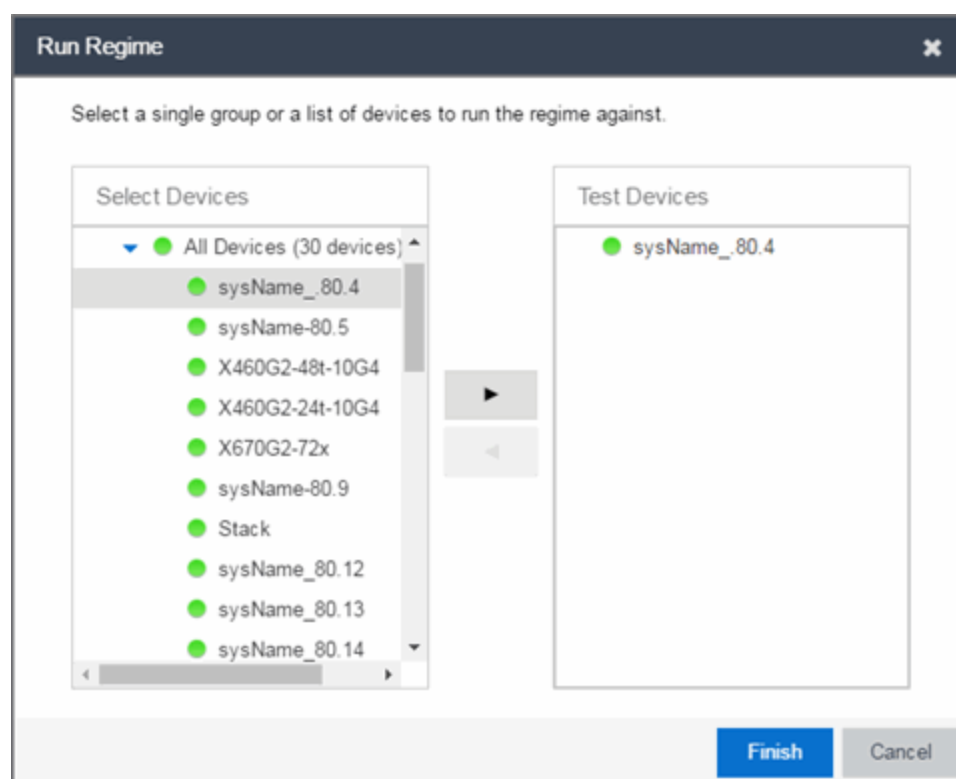
Related Information

For information on related tabs:

- [Governance](#)
- [Scheduler](#)

Run Regime

This window allows you to select the device or devices against which to run the [selected audit test](#). The **Run Regime** window contains all of the devices added to Extreme Management Center.



Select Devices

Expand the folders and select a single device, multiple devices, or a single device group. Click the right arrow button > to move the devices to the Test Devices list.

Test Devices

Lists the device(s) or device group the on which the audit test is performed. To remove a member from the list, select the device or device group and click the left arrow button <.

Right Arrow Button

Click > to add the device(s) or device group to the Test Devices list.

Left Arrow Button

Click < to remove the device(s) or device group from the Test Devices list.

Finish Button

Click the **Finish Test** button to run the selected audit test(s) on the devices selected in the Test Devices list. The progress of the governance audit is displayed in the [Operations table](#).

Related Information

For information on related tabs:

- [Governance](#)
- [Scheduler](#)

Create/Edit Audit Test

Use the **Audit Test Editor** tab of the **Create/Edit Audit Tests** window to create a new audit test or edit information for an existing audit test. The **Audit Test Editor** tab in the Create/Edit Audit Test window allows you to indicate the name of the audit test, the regime to which it belongs, the device type to which the test applies, and the weight of the test.

Access the Create Audit Test window on the **Governance** > [Audit Tests tab](#) by selecting a regime in the left-panel, clicking the **Menu** icon (☰), and selecting **Add > Audit Test**.

Access the Edit Audit Test window by selecting an audit test in the left-panel, clicking the **Menu** icon (☰), and selecting **Edit > Audit Test**.

NOTE: Only audit tests in user-created regimes can be edited.

The screenshot shows the 'Edit Audit Test' window for a test named 'BGP enabled' in the 'test' regime on 'EXOS' devices with a 'Medium' weight. The 'Disable' checkbox is unchecked. The 'Test Name' is 'BGP enabled', 'Regime' is 'test', 'Device Type' is 'EXOS', and 'Weight' is 'Medium'. The 'Prerequisite Match' is set to 'Match / Don't Match' with an empty 'Prerequisite Regex' field. The 'Test Conditions' are set to 'Match / Don't Match'. The 'Regex' field contains '<bgpPeer', with 'Alternate Regex' set to '*enable!abgp'. There are also fields for 'Test Function', 'Test Function Multi-Verdict', 'XML', and 'XML Info'. On the right side, there are checkboxes for 'Suppress Alert' (checked), 'Loop All', 'Match All', 'Track Opposite Match', and 'Regex Group Anchor'. There are also input fields for 'Regulatory Requirement', 'Require Command', 'Example' (containing 'NA'), and 'Advisory' (containing 'BGP'). 'Save' and 'Cancel' buttons are at the bottom right.

Disable

Select the checkbox prevent the audit test from running as part of the regime when a governance audit is performed on your devices.

Test Name

The name of the audit test. As regimes contain a large number of audit tests, some of which testing similar configurations, ensure the **Test Name** is very specific.

Regime

The set of standards or regulations to which the test applies. Extreme Management Center comes with three regimes, PCI, HIPAA, and GDPR. You can create a new regime or edit an existing regime on the **Audit Tests** tab by clicking the **Menu** icon and selecting **Add** or **Edit > Regime**.

Device Type

The type of device being tested. In version 8.1, Extreme Management Center supports multiple Device Types, including **E200**, **EXOS**, **EOS**, **BOSS**, **VOSS**, and **WController**.

Weight

The priority of the audit test. Valid selections are **Low**, **Medium**, or **High**.

Prerequisite Match

Select this checkbox to indicate the regular expression or function audit test must match the configuration file for the audit test to be valid.

Prerequisite Regex

The regular expression that must match the device configuration file for Extreme Management Center to consider the audit test valid.

For example, if an audit test is checking if strong ciphers are selected for SSH configuration, use this field to verify that SSH is enabled.

Match

Select this checkbox to indicate the regular expression or function audit test are intended to match the configuration file to be compliant and pass the test. If the checkbox is not selected, any result that does not match the test case is considered compliant and passes the test.

Regex

The [regular expression](#) against which Extreme Management Center is comparing a device's configuration file.

Alternate Regex

A second [regular expression](#) against which Extreme Management Center is comparing a device's configuration file, in case the **Regex** test fails.

NOTE: Using multiple Regex fields allows you to run one audit test against multiple configuration file formats (e.g. ExtremeXOS configuration files use both XML and plain text).

Alternate Regex 2

A third [regular expression](#) against which Extreme Management Center is comparing a device's configuration file, in case the other **Regex** tests fail.

NOTE: Using multiple Regex fields allows you to run one audit test against multiple configuration file formats (e.g. ExtremeXOS configuration files use both XML and plain text).

Alternate Regex 3

A fourth [regular expression](#) against which Extreme Management Center is comparing a device's configuration file, in case the other **Regex** tests fail.

NOTE: Using multiple Regex fields allows you to run one audit test against multiple configuration file formats (e.g. ExtremeXOS configuration files use both XML and plain text).

Test Function

A python function you can configure if the audit test requires more complex logic to test a configuration.

Test Function Multi-Verdict

A python function you can configure to return multiple verdicts. Use this to configure audit tests for wireless controllers with complex configurations.

XML

Select the button and enter the XML element in the wireless threat data for which the audit test is checking.

XML Info

Enter the set of `Info` elements from the wireless threat XML data for which the audit test is checking.

Supress Alert

Select this checkbox to indicate the result of the audit test is not factored into the score assigned to the devices included in a governance audit.

Loop All

Select this checkbox to indicate the audit test is performed repeatedly against the entire device configuration and the match criteria is applied to the end result of the

governance audit. For example, if SSH must be enabled in multiple places on a device, selecting this checkbox requires SSH to be enabled in all places to pass.

Match All

Select this checkbox to indicate all instances of the regular expression you are comparing to the device configuration must match for the audit test to pass.

Track Opposite Match

Select this checkbox if you want the results of the audit test to indicate whether the opposite of the regular expression you are comparing to the device configuration is observed during the governance audit.

Regex Group Anchor

Select this checkbox to indicate this audit test is the starting point for the regime. Use this checkbox for test chains when collecting data via regex capture groups.

Regulatory Requirement

The requirement from the standard or regulation that serves as the justification for the audit test.

Require Command

The path to a command on the Extreme Management Center server, if required for the audit test. For example, enter the path to the `cracklib-check` command for an audit test verifying the strength of cleartext credentials.

Example

A descriptive example of the configuration for which the audit test is checking.

Advisory

The reason the audit test is important to the regulation or standard and the procedure to improve the audit test results.

Related Information

For information on related topics:

- [Audit Tests](#)
- [Dependent Tests](#)

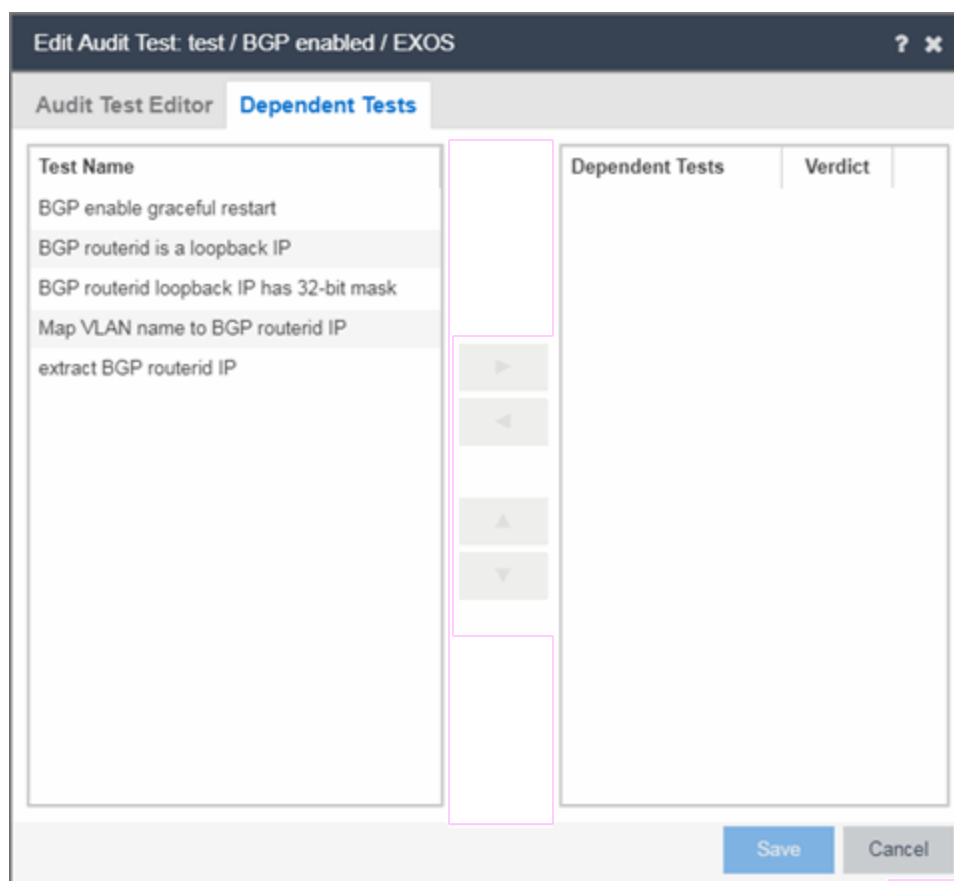
Dependent Tests

The **Dependent Tests** tab of the **Create/Edit Audit Test** window allows you to select audit tests that must run before the selected audit test runs. To be available as a dependent test, an audit test must be in the same regime and match the device type of the selected audit test.

Access the Create Audit Test window on the **Governance** > [Audit Tests tab](#) by selecting a regime in the left-panel, clicking the **Menu** icon (☰), and selecting **Add > Audit Test**.

Access the Edit Audit Test window by selecting an audit test in the left-panel, clicking the **Menu** icon (☰), and selecting **Edit > Audit Test**.

NOTE: Only audit tests in user-created regimes can be edited.



Test Name

The **Test Name** column displays the audit tests in the same regime that also match the device type of the selected audit test.


Dependent Tests

The audit tests that must run before the selected audit test runs.


Verdict

Select this checkbox if the dependent audit test must PASS for the selected audit test to run. If the checkbox is not selected, the dependent audit test must FAIL for the selected audit test to run.


Right Arrow ()

Select an audit test from the **Test Name** column and click  or double-click the audit test to add it to the **Dependent Tests** list.


Left Arrow ()

Select an audit test from the **Dependent Tests** column and click  or double-click the audit test to remove it from the **Dependent Tests** list.

Up Arrow ()

If you added multiple audit tests to the **Dependent Tests** column, select an audit test and click  to move the audit test up in the order in which the audit tests are run.

Down Arrow ()

If you added multiple audit tests to the **Dependent Tests** column, select an audit test and click  to move the audit test down in the order in which the audit tests are run.

Related Information

For information on related topics:

- [Audit Test Editor](#)
- [Audit Tests](#)

How to Add a New Regime in Extreme Management Center

The [Governance tab](#) provides you with regimes that include predefined audit tests. You can also create your own regimes, composed of audit tests you can copy from existing regimes, or configure yourself.

To create a new regime:

1. Open the **Governance** > [Audit Tests tab](#).
2. Click the **Menu** icon (☰) and select **Add > Regime**.

The Create Regime window displays.

3. Enter a **Regime Name**, describing the overarching standard or regulation against which you are testing compliance.
4. Enter a **Description** for the regime, if necessary.
5. Select **Test Wireless Events** to include wireless events in the governance audit.

NOTE: Because of the number of wireless events potentially stored by Extreme Management Center, wireless events are not included in a governance audit the first time it is run. Once the governance audit is run the first time, older wireless events are moved, so older events are not included in the results.

6. Click **Save**.
7. Copy existing audit tests to the new regime, if necessary.
 - a. Right-click the audit test in left-panel and selecting **Copy Audit Test**.

The **Copy Audit Test** window displays.

- b. Enter a new name for the audit test, if necessary.
- c. Select the new regime in the **Regime** drop-down menu.
- d. Select the device type to which the audit test applies in the **Device Type** drop-down menu.
- e. Click **Copy**.

8. Create your own audit tests.
 - a. Click the **Menu** icon (☰) and select **Add > Audit Test**.
 - b. Complete the fields in the [Audit Test Editor tab](#) to test for a device configuration.
 - c. Complete the fields in the [Dependent Tests tab](#), if necessary.
 - d. Click **Save**.

Your custom regime is now available on the [Governance tab](#).

Related Information

For information on related tabs:

- [Governance Overview](#)
- [Diagnostics](#)