



# CHAPTER 13

## Generic OnLine Diagnostics (GOLD)

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This chapter consists of the following:

- [What is GOLD?](#)
- [Types of Diagnostics](#)
- [Support for GOLD Tests](#)

### What is GOLD?

GOLD (Generic OnLine Diagnostics) is a device-specific IOS feature with fault detection capabilities. It defines a common framework for diagnostic operations across Cisco platforms running Cisco IOS Software.



**Note**

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Only Cisco Catalyst 6500 (IOS), 2900XL, 2970, 2960, 3550, 3560, 3750, and 3750E switches are supported.

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It provides:

- Fault Detection framework
- Proactive Diagnostics to detect hardware and software failures

The GOLD framework specifies the platform-independent fault-detection architecture for centralized and distributed systems.

The platform-specific diagnostics provide hardware-specific fault-detection tests and take corrective action in response to diagnostics test results.

#### **Diagnostics Operations**

GOLD implementation checks the health of hardware components and verifies proper operation of the system data and control planes. Some tests take effect when the system starts, whereas other tests take effect when the system is running.

# Types of Diagnostics

The diagnostics performed by GOLD (Generic OnLine Diagnostics) are:

- [Boot-Up Diagnostics](#)
- [Runtime Monitoring](#)

## Boot-Up Diagnostics

A booting module goes through a series of checks before coming online. This allows the system to detect faults in the hardware components at boot-up time and helps to ensure that a failing module is not introduced in a live network.

When boot-up diagnostics detect a diagnostics failure on a Cisco Catalyst 6500 Series, the failing modules are shut down.

As an administrator, you can enable or disable the boot-level diagnostics. If you enable the boot level diagnostics, you can set the diagnostics levels to either Complete or Minimal. See [GOLD Boot Level Task](#) for more information.

## Runtime Monitoring

Defects are also diagnosed during system operation or runtime. A series of diagnostics checks can be enabled to determine the condition of an online system. You must take care to distinguish between disruptive and non-disruptive diagnostics tests.

Although non-disruptive tests occur in the background and do not affect the system data or control planes, disruptive tests do affect live packet flows and should be scheduled during special maintenance windows.

The Runtime monitoring tests consist of [Health-monitoring Diagnostics Tests](#)

### Health-monitoring Diagnostics Tests

Health-monitoring diagnostics tests are non-disruptive, and they run in the background while the system is in operation. The role of online diagnostics health monitoring is to proactively detect hardware failures in the live network environment and inform appropriate entities of a failure.

Health-monitoring tests do not affect system performance. However, the software restricts the health-monitoring interval to a minimum threshold to prevent affecting the CPU performance.

When health monitoring tests detect several consecutive failures, they can reset a module. By default, health-monitoring tests include:

- Data verification
- Control Plane verification
- Verification of proper function of hardware registers

## Support for GOLD Tests

You can use LMS to configure the following on Cisco Catalyst 6500, 2900XL, 2970, 2960, 3550, 3560, 3750, and 3750E Switches:

- [Bootup Diagnostics](#)
- [Health Monitoring Diagnostics](#)

You can use LMS NetConfig Gold-specific tasks to configure the diagnostic tests on the Cisco Catalyst 6500 IOS switches, Cisco Catalyst 2900XL, 2970, 2960, 3550, 3560, 3750, and 3750E switches managed by LMS.

This section consists of:

- [LMS NetConfig Tasks for GOLD Tests](#)
- [Configuring GOLD Tests using LMS](#)
- [GOLD Tests and LMS Reports](#)
- [GOLD Tests and LMS NetShow](#)

## LMS NetConfig Tasks for GOLD Tests

You can configure GOLD tests using NetConfig tasks available for this purpose. The GOLD-specific NetConfig tasks are:

- [GOLD Boot Level Task](#)
- [GOLD Monitoring Test Task](#)
- [GOLD Health Monitoring Test Task](#)

### GOLD Boot Level Task

You can use this task to configure Boot Level Diagnostic tests on the following device category:

- Cisco Catalyst 6500 devices

For more details, see the *NetConfig System-Defined Tasks Supported by the Device Categories* topic under the Configuration Online help.

You can enter the details for this task in the GOLD Boot Level Configuration dialog box. (To invoke this dialog box, see the *Starting a New NetConfig Job* topic under the Configuration Online help.

For the features of system-defined tasks and a description of a system-defined task dialog box, see the *Understanding the System-defined Task User Interface (Dialog Box)* under the Configuration Online help.

The fields in the GOLD Bootup Level Configuration dialog box are:

Field/Button	Description
Action	Select either <b>Enable</b> to enable the actions or <b>Disable</b> to disable the actions
Level	Select either <b>Complete</b> to set the boot level to Complete or <b>Minimal</b> to set the boot level to Minimal This option is activated only if the Action option is enabled. This option is not activated, if you have selected <b>Disable</b> in the Action field.

Field/Button	Description
Save	Saves the information you have specified.
Reset	Clears all fields and reverts to the default setting.
Cancel	Ignores your changes.

## GOLD Monitoring Test Task

You can use this task to configure GOLD Monitoring tests on the following device categories:

- Cisco Catalyst 6500 IOS switches
- Cisco Catalyst 2900XL, 2970, 2960, 3550, 3560, 3750, and 3750E Switches

For more details, see the *NetConfig System-Defined Tasks Supported by the Device Categories* topic under the Configuration Online help.

You can enter the details for this task in the GOLD Boot Level Configuration dialog box. (To invoke this dialog box, see the *Starting a New NetConfig Job* topic under the Configuration Online help.

For the features of system-defined tasks and a description of a system-defined task dialog box, see the *Understanding the System-defined Task User Interface (Dialog Box)* under the Configuration Online help.

The fields in the GOLD Monitoring Test Configuration dialog box are:

Pane	Description
<b>GOLD Monitoring Test Configuration</b>	
<b>Configuring Health Monitoring Diagnostics</b>	
Action	Select any of the following: <ul style="list-style-type: none"> <li>• <b>Add Interval</b> - To add an interval</li> <li>• <b>No Interval.</b> - To not to add an interval</li> <li>• <b>No Change</b> - No change to the Action</li> </ul>
Enter Vendor Type or Name	Enter the Vendor type or Module Name. You can enter one or more comma separated module names. Example: cevCat6kVsS72010G This is a mandatory field and is available only if you select Cisco Catalyst 6500 devices.
Enter Switch ID	Enter the Switch ID. You can enter a single switch ID or a number of switch IDs separated by comma. Example 1: Enter <b>2</b> if you want to include switch with ID 2. Example 2: Enter <b>3, 6</b> if you want to include switches with IDs 3 and 6. This is a mandatory field and is available only if you select Cisco Catalyst 2900XL, 2970, 2960, 3550, 3560, 3750, or 3750E stack switches.

Pane	Description
<b>Enable/Disable Health Monitoring Diagnostics Test</b>	
Action	Select any of the following: <ul style="list-style-type: none"> <li>• <b>Enable</b> - To start the Health Monitoring tests</li> <li>• <b>Disable</b> - To stop the running Health Monitoring tests. The tests once stopped, will not start again until the Action is enabled.</li> <li>• <b>No Change</b> - No change to Action</li> </ul>
<b>Test Details</b>	
All	Allows you to configure all diagnostic tests.
Enter Testnames	Allows you to manually enter the test names. Enter one or more test names separated by comma. This option is activated only if the Enable Action is selected.
Range	Allows you to enter a range for tests to be run. This option is activated only if the Enable Action is selected. Example: Enter <b>2-8</b> if you want to run tests with IDs from 2 to 8.
<b>Configure Health Monitoring Interval</b>	
No. of Days	Enter the number of days till which you require the tests to be run on the devices. The number of days can be any value between 0 - 20. The default value is 1 day.
Hours	Select the hour frequency at which the tests should be run. You can enter any value between 00 and 23 for hour. This is a mandatory field and is enabled only if you have selected <b>Add Interval</b> .
Minutes	Select the minute frequency at which the tests should be run. You can enter any value between 00 and 59 for the minute. This is a mandatory field and is enabled only if you have selected <b>Add Interval</b> .
Seconds	Enter the seconds frequency at which the tests should be run. You can enter any value between 00 and 59 for the second. This is a mandatory field and is enabled only if you have selected <b>Add Interval</b> .
Milliseconds	Enter the millisecond frequency at which the tests should be run. You can enter any value between 0 and 999 for the second. This is a mandatory field and is enabled only if you have selected <b>Add Interval</b> .
Applicable Devices	Allows you to view the IOS devices in your selection that you want to monitor with GOLD Monitoring Tests.
Save	Saves the information you have specified.
Reset	Clears all fields and reverts to the default setting.
Cancel	Ignores your changes.

## GOLD Health Monitoring Test Task

You can use this task to configure GOLD Health Monitoring tests on Cisco Catalyst 6500 IOS switches device categories.

This task is available only for the Module-based netconfig job wizard.

You can enter the details for this task in the GOLD Boot Level Configuration dialog box. (To invoke this dialog box, see the *Starting a New NetConfig Job* topic under the Configuration Online help.

You can enter the details of this task in the Gold Health Monitoring Test Configuration dialog box. To invoke this dialog box, see [Create a NetConfig Job based on Module or Port](#).

The fields in the GOLD Health Monitoring Test Configuration dialog box are:

Pane	Description
<b>GOLD Health Monitoring Test Configuration</b>	
<b>Configuring Health-Monitoring Diagnostics for Cat6k Devices</b>	
Action	Select any of the following: <ul style="list-style-type: none"> <li>• <b>Run Test</b> - To run a test</li> <li>• <b>Add Test</b> - To add a test</li> <li>• <b>Remove Test</b> - To remove a test</li> </ul>
<b>Test Details</b>	
All	Allows you to configure all diagnostic tests.
Pre-defined	Allows you to select the following pre-defined tests: <ul style="list-style-type: none"> <li>• TestLoopback</li> <li>• TestNetflowInlineRewrite</li> <li>• TestEobcStressPing</li> <li>• TestFirmwareDiagStatus</li> <li>• TestAsicSync</li> </ul>
Enter Testnames	Allows you to manually enter the test names. Enter one or more test names separated by comma.
Range	Allows you to enter a range for tests to be run. Example: Enter <b>2-8</b> if you want to run tests with IDs from 2 to 8.
<b>Configure Health Monitoring Interval</b>	
No. of Days	Enter the number of days till which you require the tests to be run on the devices. The number of days can be any value between 0 - 20. The default value is one day. This field is enabled only if you have selected <b>Add Test</b> .
Hours	Select the hour frequency at which the tests should be run. You can enter any value between 00 and 23 for the hour. This field is enabled only if you have selected <b>Add Test</b> .

Pane	Description
Minutes	Select the minute frequency at which the tests should be run. You can enter any value between 00 and 59 for the minute. This field is enabled only if you have selected <b>Add Test</b> .
Seconds	Enter the seconds frequency at which the tests should be run. You can enter any value between 00 and 59 for the second. This field is enabled only if you have selected <b>Add Test</b> .
Milliseconds	Enter the millisecond frequency at which the tests should be run. You can enter any value between 0 and 999 for the millisecond. This field is enabled only if you have selected <b>Add Test</b> .
<b>Apply the Monitoring Test</b>	
Run the above monitoring test case	Check the check box to run the above monitoring test case.
Configure Syslog	Check the check box and select the following options to enable or disable Syslog: <ul style="list-style-type: none"> <li>• Enable</li> <li>• Disable</li> </ul>
Applicable Devices (Button)	Allows you to view the IOS devices in your selection that you want to monitor with GOLD Health Monitoring Tests.
Save (Button)	Saves the information you have specified.
Reset (Button)	Clears all fields and reverts to the default setting.
Cancel (Button)	Ignores your changes.

## Configuring GOLD Tests using LMS

You can configure the following GOLD Tests using LMS NetConfig:

- GOLD Boot Level Tests, see [Configuring GOLD Boot Level Tests](#)
- GOLD Monitoring Tests, see [Configuring GOLD Monitoring Tests](#)
- GOLD Health Monitoring Tests, see [Configuring GOLD Health Monitoring Tests](#)

### Configuring GOLD Boot Level Tests

To configure GOLD tests using LMS:

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- Step 1** Select **Monitor > Diagnostic Tools > Generic Online Diagnostics > Configure**.  
The Devices and Tasks dialog box appears.
- Step 2** Select the devices from the Device Selector pane.

**Step 3** Select the GOLD Boot Level task, using the Task Selector.

**Step 4** Click **Next**.

The Add Tasks dialog box appears.

**Step 5** Select **GOLD Boot Level** from the Applicable Tasks pane and click **Add Instances**.

The GOLD Boot Level Configuration dialog box appears. For more information on the fields in the GOLD Boot Level Configuration dialog box, see [GOLD Boot Level Task](#).

**Step 6** Set the parameters in the task dialog box and click **Save**.

To reset the values that you have selected click **Reset**. Click **Cancel** to return to the previous dialog box, without saving your changes.

You will see the instance of the task in the Added Tasks pane of the Add Tasks dialog box. The instance appears in this format:

*Taskname\_n*, where *Taskname* is the name of the task you have added, and *n* is the number of the instance. For example, the first instance of a GOLD Boot Level task is Gold Boot Level\_1.

You can add as many instances as required, for a task.

**Step 7** Click **Next**.

The Set Schedule Options dialog box appears with these panes:

Pane	Description
Scheduling	Allows you to schedule the job.
Job Options	Allows you to set the job options.



**Step 8** Set the schedule for the job, in the Scheduling pane:

Field	Description
<b>Scheduling</b>	
Run Type	Select the frequency at which the job should be run—Immediate, Once, Daily, Weekly, Monthly, or Last Day of Month. If Job Approval is enabled, the Immediate option is not available.
Date	Select the start date for the job.
at	Select the start time for the job from the hour and minute drop-down lists.
<b>Job Info</b>	
Job Description	Enter the Job Description. Enter unique descriptions to help you to identify jobs easily. This is mandatory.
E-mail	Enter e-mail addresses to which the job will send status notices. Separate multiple addresses with commas or semicolons. You must configure the SMTP server to send e-mails ( <b>Admin &gt; System &gt; System Preferences</b> ). If the user who has created the job has a valid e-mail address, an e-mail notification is sent with the user's address in the sender address field, when job is started and completed. If the user who has created the job does not have a valid e-mail address, then the notification e-mails will be sent with the sender address field blank. Notification e-mails include a URL that displays the job details. If you are not logged in, you must log in using the provided login panel to view the job details.
Comments	Enter your comments for the job. Comments appear in the work order of the job and are stored in the configuration archive.
Approver Comments	Enter comments for the Job Approver. This field is displayed only if you have enabled Job Approval for NetConfig.
Maker E-mail	Enter the e-mail-ID of the job creator. This field is displayed only if you have enabled Job Approval for NetConfig. This is a mandatory field.

**Step 9** Set the job options, in the Job Options pane.

Option	Description
Fail on Mismatch of Config Versions	Causes the job to be considered as failed when the most recent configuration version in the configuration archive is not identical to the most recent configuration version that was in the configuration archive when you created the job.
Sync Archive before Job Execution	Causes the job to archive the running configuration before making configuration changes.
Copy Running Config to Startup	Causes the job to write the running configuration to the startup configuration on each device after configuration changes are made successfully. Does not apply to Catalyst OS devices.

Option	Description
<b>Enable Job Password</b>	
Login Username	<p>Enter the Login username. This option is available if you have set the appropriate job password policy in the Configuration Management module.</p> <p>This overrides the credentials that you had entered when you added the device in the Device and Credentials Administration module of LMS.</p>
Login Password	<p>Enter the Login password. This option is available if you have set the appropriate job password policy in the Configuration Management module.</p> <p>This overrides the credentials that you had entered when you added the device in the Device and Credentials Administration module of LMS.</p>
Enable Password	<p>Enter the Enable password. This option is available if you have set the appropriate job password policy in the Configuration Management module.</p> <p>This overrides the credentials that you had entered when you added the device in the Device and Credentials Administration module of LMS.</p>

Option	Description
Failure Policy	<p>Select one of these options to specify what the job should do if it does not run on a device.</p> <ul style="list-style-type: none"> <li>• Stop on failure: If the job does not run on a device, the job is stopped. The database is updated only for the devices on which the job was run successfully.</li> <li>• Ignore failure and continue If the job fails on a device, the job skips the device and continues running on the remaining devices. The database is updated only for the devices on which the job was run successfully.</li> <li>• Rollback device and stop Rolls back the changes on the failed device and stops the job.</li> <li>• Rollback device and continue Rolls back the changes on the failed device and continues the job.</li> <li>• Rollback job on failure Rolls back the changes on all devices and stops the job. Roll back configuration changes to failed device or all devices configured by job.</li> </ul>
Execution	<p>Specify the order in which the job should run on the devices.</p> <ul style="list-style-type: none"> <li>• Parallel Allows the job to run on multiple devices at the same time. By default, the job runs on five devices at a time.</li> <li>• Sequential Allows the job to run on only one device at a time. If you select sequential execution, you can click <b>Set Device Order</b> to set the order of the devices. In the Device Ordering dialog box: <ul style="list-style-type: none"> <li>a. Select a device name</li> <li>b. Click <b>Move Up</b> or <b>Move Down</b> to change its place in the order.</li> <li>c. Click <b>OK</b> to save the current order and close the dialog box</li> </ul> <p style="text-align: center;">or</p> <li>Click <b>Cancel</b> to close the dialog box without making any changes.</li> </li></ul>

**Step 10** Click **Device Order** to view the device order.

The Set Device Order pop-up appears. You can reset the order in which the job should be run on the devices using the Up and Down arrows.

**Step 11** Click **Done** after re-ordering the devices.

The pop-up closes.

**Step 12** Click **Next**.

The Job Work Order dialog box appears with information about the job policies, the job approval details (if you have enabled Job Approval), the device details, and the task. It also displays details of the CLI commands that will be run on the selected devices as part of this job.

- Step 13** Click **Finish** after you review the details of your job in the Job Work Order dialog box.  
A notification message appears along with the Job ID. The newly created job appears in the NetConfig Job Browser.
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## Configuring GOLD Monitoring Tests

To configure GOLD Monitoring tests using LMS:

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- Step 1** Select **Configuration > Tools > NetConfig > NetConfig Jobs**.  
The NetConfig Job Browser appears.
- Step 2** Click **Create**.  
The Job Flow Type page appears, displaying the following Job Flows:
- Device Based
  - Module Based
  - Port Based
- Step 3** Select **Device Based** and click **Go**.  
The Devices and Tasks dialog box appears.
- Step 4** Select the devices from the Device Selector pane.  
For more information on Device Selector, see the Admin Online help.
- Step 5** Select the GOLD Monitoring Tests task, using the Task Selector.
- Step 6** Click **Next**.  
The Add Tasks dialog box appears.
- Step 7** Click **Add Instances**.  
The GOLD Boot Level Configuration dialog box appears.  
For more information on the fields, see [GOLD Monitoring Test Task](#).

**Step 8** Set the parameters in the task dialog box and click **Save**.

To reset the values that you have selected click **Reset**. Click **Cancel** to return to the previous dialog box, without saving your changes.

You will see the instance of the task in the Added Tasks pane of the Add Tasks dialog box. The instance appears in this format:

*Taskname\_n*, where *Taskname* is the name of the task you have added, and *n* is the number of the instance. For example, the first instance of a GOLD Monitoring task is `Gold Monitoring Tests_1`.

You can add as many instances as required, for a task.

**Step 9** Click **Next**.

The Job Schedule and Options dialog box appears with these panes:

Pane	Description
Scheduling	Allows you to schedule the job.
Job Options	Allows you to set the job options.

**Step 10** Set the schedule for the job, in the Scheduling pane:

Field	Description
<b>Scheduling</b>	
Run Type	Select the frequency at which the job should be run—Immediate, Once, Daily, Weekly, Monthly, or Last Day of Month. If Job Approval is enabled, the Immediate option is not available.
Date	Select the start date for the job.
at	Select the start time for the job from the hour and minute drop-down lists.
<b>Job Info</b>	
Job Description	Enter the Job Description. Enter unique descriptions to help you to identify jobs easily. This is mandatory.
E-mail	Enter e-mail addresses to which the job will send status notices. Separate multiple addresses with commas or semicolons. You must configure the SMTP server to send e-mails ( <b>Admin &gt; System &gt; System Preferences</b> ). If the user who has created the job has a valid e-mail address, an e-mail notification is sent with the user's address in the sender address field, when job is started and completed. If the user who has created the job does not have a valid e-mail address, then the notification e-mails will be sent with the sender address field blank. Notification e-mails include a URL that displays the job details. If you are not logged in, you must log in using the provided login panel to view the job details.
Comments	Enter your comments for the job. Comments appear in the work order of the job and are stored in the configuration archive.

Field	Description
Approver Comments	Enter comments for the Job Approver. This field is displayed only if you have enabled Job Approval for NetConfig.
Maker E-mail	Enter the e-mail-ID of the job creator. This field is displayed only if you have enabled Job Approval for NetConfig. This is a mandatory field.

**Step 11** Set the job options, in the Job Options pane.

Field	Description
Fail on Mismatch of Config Versions	Causes the job to be considered as failed when the most recent configuration version in the configuration archive is not identical to the most recent configuration version that was in the configuration archive when you created the job.
Sync Archive before Job Execution	Causes the job to archive the running configuration before making configuration changes.
Copy Running Config to Startup	Causes the job to write the running configuration to the startup configuration on each device after configuration changes are made successfully.  Does not apply to Catalyst OS devices.
<b>Enable Job Password</b>	
Login Username	Enter the Login Username. This option is available to you if you have set the appropriate job password policy in the Configuration Management module.  This overrides the credentials that you have entered at the time of adding the device in the Device and Credentials Administration module of LMS.
Login Password	Enter the job password. This option is available to you if you have set the appropriate job password policy in the Configuration Management module.  This overrides the credentials that you had entered when you added the device in the Device and Credentials Administration module of LMS.

Field	Description
Enable Password	<p>Enter the Enable password. This option is available if you have set the appropriate job password policy in the Configuration Management module.</p> <p>This overrides the credentials that you had entered when you added the device in the Device and Credentials Administration module of LMS.</p>
Failure Policy	<p>Select one of these options to specify what the job should do if it does not run on a device.</p> <ul style="list-style-type: none"> <li>• Stop on failure: If the job does not run on a device, the job is stopped. The database is updated only for the devices on which the job was run successfully.</li> <li>• Ignore failure and continue If the job fails on a device, the job skips the device and continues running on the remaining devices. The database is updated only for the devices on which the job was run successfully.</li> <li>• Rollback device and stop Rolls back the changes on the failed device and stops the job.</li> <li>• Rollback device and continue Rolls back the changes on the failed device and continues the job.</li> <li>• Rollback job on failure Rolls back the changes on all devices and stops the job. Roll back configuration changes to failed device or all devices configured by job.</li> </ul>
Execution	<p>Specify the order in which the job should run on the devices.</p> <ul style="list-style-type: none"> <li>• Parallel Allows the job to run on multiple devices at the same time. By default, the job runs on five devices at a time.</li> <li>• Sequential Allows the job to run on only one device at a time. If you select sequential execution, you can click <b>Set Device Order</b> to set the order of the devices. In the Device Ordering dialog box: In the Device Ordering dialog box: <ul style="list-style-type: none"> <li>a. Select a device name</li> <li>b. Click <b>Move Up</b> or <b>Move Down</b> to change its place in the order.</li> <li>c. Click <b>OK</b> to save the current order and close the dialog box</li> </ul> <p>or</p> <p>Click <b>Cancel</b> to close the dialog box without making any changes.</p> </li> </ul>

**Step 12** Click **Device Order** to view the device order.

The Set Device Order pop-up appears. You can reset the order in which the job should be run on the devices, using the Up and Down arrows.

**Step 13** Click **Done** after re-ordering the devices.

The pop-up closes.

**Step 14** Click **Next**

The Job Work Order dialog box appears with information about the job policies, the Job Approval details (if you have enabled Job Approval), the device details, and the task. It also displays details of the CLI commands that will be run on the selected devices as part of this job.

**Step 15** Click **Finish** after you review the details of your job in the Job Work Order dialog box.

A notification message appears along with the Job ID. The newly created job appears in the NetConfig Job Browser.

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## Configuring GOLD Health Monitoring Tests

To configure GOLD Health Monitoring tests using LMS:

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**Step 1** Select **Configuration > NetConfig > NetConfig Jobs**.

The NetConfig Job Browser appears.

**Step 2** Click **Create**.

The Job Flow Type page appears, displaying the following Job Flows:

- Device Based
- Module Based
- Port Based

**Step 3** Select **Module Based** and click **Go**.

The Device and Group Selector dialog box appears.

**Step 4** Either:

- Select the devices using the Device Selector option.

Or

- Select the groups using the Group Selector option.

**Step 5** Click **Next**.

The Module Groups page appears

**Step 6** Either:

- Select **Custom Group**—Allows you to select the module groups on which the NetConfig job has to run.

Or

- Select **Adhoc Rule**—Allows you to create Adhoc module groups by defining rules.

**Step 7** Click **Next**.

The Module Tasks page appears

**Step 8** Select the GOLD Health Monitoring Tests task, using Task Selector.**Step 9** Click **Next**.

The Add Tasks dialog box appears.



**Step 10** Click **Add Instances**.

The GOLD Health Monitoring Test Configuration dialog box appears.

For more information on the fields, see [GOLD Health Monitoring Test Task](#).

**Step 11** Set the parameters in the Task dialog box and click **Save**.

- To reset the values that you have selected click **Reset**.
- To return to the previous dialog box without saving your changes, click **Cancel**.

You will see the instance of the task in the Added Tasks pane of the Add Tasks dialog box. The instance appears in this format:

*Taskname\_n*, where *Taskname* is the name of the task you have added, and *n* is the number of the instance. For example, the first instance of a GOLD Monitoring task is `Gold Monitoring Tests_1`.

You can add as many instances as required, for a task.

**Step 12** Click **Next**.

The Job Schedule and Options dialog box appears with these panes:

Pane	Description
Scheduling	Allows you to schedule the job.
Job Options	Allows you to set the job options.

**Step 13** Set the schedule for the job, in the Scheduling pane:

Field	Description
<b>Scheduling</b>	
Run Type	Select the frequency at which the job should be run—Immediate, Once, Daily, Weekly, Monthly, or Last Day of Month. If Job Approval is enabled, the Immediate option is not available.
Date	Select the start date for the job.
at	Select the start time for the job from the hour and minute drop-down lists.
<b>Job Info</b>	
Job Description	Enter the Job Description. Enter unique descriptions to help you to identify jobs easily. This is mandatory.
E-mail	Enter e-mail addresses to which the job will send status notices. Separate multiple addresses with commas or semicolons. You must configure the SMTP server to send e-mails ( <b>Admin &gt; System &gt; System Preferences</b> ). If the user who has created the job has a valid e-mail address, an e-mail notification is sent with the user's address in the sender address field, when job is started and completed. If the user who has created the job does not have a valid e-mail address, then the notification e-mails will be sent with the sender address field blank. Notification e-mails include a URL that displays the job details. If you are not logged in, you must log in using the provided login panel to view the job details.

Field	Description
Comments	Enter your comments for the job. Comments appear in the work order of the job and are stored in the configuration archive.
Approver Comments	Enter comments for the Job Approver. This field is displayed only if you have enabled Job Approval for NetConfig.
Maker E-mail	Enter the e-mail-ID of the job creator. This field is displayed only if you have enabled Job Approval for NetConfig. This is a mandatory field.

**Step 14** Set the job options, in the Job Options pane.

Field	Description
Fail on Mismatch of Config Versions	Causes the job to be considered as failed when the most recent configuration version in the configuration archive is not identical to the most recent configuration version that was in the configuration archive when you created the job.
Sync Archive before Job Execution	Causes the job to archive the running configuration before making configuration changes.
Copy Running Config to Startup	Causes the job to write the running configuration to the startup configuration on each device after configuration changes are made successfully. Does not apply to Catalyst OS devices.
<b>Enable Job Password</b>	
Login Username	Enter the Login Username. This option is available to you if you have set the appropriate job password policy in the Configuration Management module. This overrides the credentials that you have entered at the time of adding the device in the Device and Credentials Administration module of LMS.
Login Password	Enter the job password. This option is available to you if you have set the appropriate job password policy in the Configuration Management module. This overrides the credentials that you had entered when you added the device in the Device and Credentials Administration module of LMS.

Field	Description
Enable Password	<p>Enter the Enable password. This option is available if you have set the appropriate job password policy in the Configuration Management module.</p> <p>This overrides the credentials that you had entered when you added the device in the Device and Credentials Administration module of LMS.</p>
Failure Policy	<p>Select one of these options to specify what the job should do if it does not run on a device.</p> <ul style="list-style-type: none"> <li>• Stop on failure: If the job does not run on a device, the job is stopped. The database is updated only for the devices on which the job was run successfully.</li> <li>• Ignore failure and continue If the job fails on a device, the job skips the device and continues running on the remaining devices. The database is updated only for the devices on which the job was run successfully.</li> <li>• Rollback device and stop Rolls back the changes on the failed device and stops the job.</li> <li>• Rollback device and continue Rolls back the changes on the failed device and continues the job.</li> <li>• Rollback job on failure Rolls back the changes on all devices and stops the job. Roll back configuration changes to failed device or all devices configured by job.</li> </ul>
Execution	<p>Specify the order in which the job should run on the devices.</p> <ul style="list-style-type: none"> <li>• Parallel Allows the job to run on multiple devices at the same time. By default, the job runs on five devices at a time.</li> <li>• Sequential Allows the job to run on only one device at a time. If you select sequential execution, you can click <b>Set Device Order</b> to set the order of the devices. In the Device Ordering dialog box: In the Device Ordering dialog box: <ul style="list-style-type: none"> <li>a. Select a device name</li> <li>b. Click <b>Move Up</b> or <b>Move Down</b> to change its place in the order.</li> <li>c. Click <b>OK</b> to save the current order and close the dialog box</li> </ul> <p>or</p> <p>Click <b>Cancel</b> to close the dialog box without making any changes.</p> </li> </ul>

**Step 15** Click **Device Order** to view the device order.

The Set Device Order pop-up appears. You can reset the order in which the job should be run on the devices, using the Up and Down arrows.

**Step 16** Click **Done** after re-ordering the devices.

The pop-up closes.

**Step 17** Click **Next**

The Job Work Order dialog box appears with information about the job policies, the Job Approval details (if you have enabled Job Approval), the device details, and the task. It also displays details of the CLI commands that will be run on the selected devices as part of this job.

**Step 18** Click **Finish** after you review the details of your job in the Job Work Order dialog box.

A notification message appears along with the Job ID. The newly created job appears in the NetConfig Job Browser.

## GOLD Tests and LMS Reports

You can use LMS Custom Reports along with Syslogs to generate GOLD test reports.

Before you generate reports, you need to configure those devices on which GOLD tests are configured, to send Syslog messages to the LMS server.

Each device sends out Syslog messages after running each diagnostic test. You can identify the GOLD Syslog messages, based on their facility names. The facility names for GOLD Syslog messages will consist of DIAG or CONST-DIAG.

You can use the Syslog GOLD Custom report to ascertain the results of the test run on each device.

To generate this custom report, see the Reports Online help. The fields in the generated Syslog GOLD Custom Report are given below:

Field	Description
Device Name	Name of the device generating the Syslog message.
Interface	Name or IP Address of the interface in that device generating the Syslog message.
Timestamp	Time when the Syslog message was generated. The format used by timestamp is: <i>mmm dd yyyy hh:mm:ss</i> where: <i>mmm</i> represents month <i>dd</i> represents date <i>yyyy</i> represents year <i>hh</i> represents hour <i>mm</i> represents minute <i>ss</i> represents second Example: Nov 18 2008 12:24:36

Field	Description
Facility/Sub Facility	<p>Displays the facility or sub-facility codes.</p> <p>A facility is a hardware device, a protocol, or a module of the system software.</p> <p>See System Error Messages in the Cisco IOS Reference manual, for a predefined list of system facility codes.</p> <p>A sub-facility is the sub-facility in the device that generates the Syslog message.</p>
Severity	<p>Displays the message severity levels.</p> <p>Representations for the severity codes are:</p> <p><b>0</b>—Emergencies</p> <p><b>1</b>—Alerts</p> <p><b>2</b>—Critical</p> <p><b>3</b>—Errors</p> <p><b>4</b>—Warnings</p> <p><b>5</b>—Notifications</p> <p><b>6</b>—Informational</p>
Mnemonics	<p>Codes that uniquely identifies an error message.</p> <p>Example:</p> <p>TEST_RUNNING</p> <p>TEST_OK</p>
Description	Description of each Syslog message.
Details	Other details for each Syslog message.

## GOLD Tests and LMS NetShow

LMS NetShow allows you to generate reports based on various command sets. You can use LMS NetShow to generate:

- [Report on Configured GOLD Tests on Each Device](#)
- [Detailed Report of All the GOLD Test Results](#)

### Report on Configured GOLD Tests on Each Device

Use LMS NetShow to view the list of GOLD tests configured on each device.

The commandset which is used for this purpose is Show Configured GOLD Tests Info.

This commandset consists of the following commands:

```
show diagnostic content all
show diagnostic schedule module all
show diagnostic schedule switch all
show diagnostic status
show diagnostic bootup level
show diagnostic ondemand settings
show diagnostic content module all
```

To generate this report:

- 
- Step 1** Select **Configuration > NetShow > NetShow Jobs**.  
The NetShow Job Browser window appears.
- Step 2** Click **Create** .  
The Select Devices and Commandsets window appears.
- Step 3** Select the devices from the Device Type Selector.
- Step 4** Select **Show Configured GOLD Tests Info** commandset from the Commandset List.
- Step 5** Enter the custom commands in the Custom Commands text area if required.
- Step 6** Click **Next** to continue.  
The Set Schedule Options dialog box appears.
- Step 7** Enter the following information in the Set Schedule Options dialog box:

Field	Description
<b>Scheduling</b>	
Run Type	<p>Select the frequency at which the job should be run:</p> <ul style="list-style-type: none"> <li>• Immediate—Runs the job immediately.</li> <li>• Once—Once at the specified date and time.</li> <li>• 6 -hourly—Every 6 hours, starting from the specified time.</li> <li>• 12 -hourly—Every 12 hours, starting from the specified time.</li> <li>• Daily—Daily at the specified time.</li> <li>• Weekly—Weekly on the day of the week and at the specified time.</li> <li>• Monthly—Monthly on the day of the month and at the specified time.</li> <li>• Last day of Month—On the last day of the month at the specified time.</li> </ul> <p>The subsequent instances of periodic jobs will run only after the earlier instance of the job is complete.</p> <p>For example, if you have scheduled a daily job at 10:00 a.m. on November 1, the next instance of this job will run at 10:00 a.m. on November 2 only if the earlier instance of the November 1 job has completed. If the 10.00 a.m. November 1 job has not completed before 10:00 a.m. November 2, the next job will start only at 10:00 a.m. on November 3.</p>
Date	Scheduled date and time of the job.
<b>Job Information</b>	
Job Description	Enter the Job Description. Enter unique descriptions to help you to identify jobs easily.This is mandatory.
E-mail	<p>Enter the e-mail addresses to which the job sends messages at the beginning and at the end of the job.</p> <p>You can enter multiple e-mail addresses; separate these addresses by commas.</p> <p>Configure the SMTP server to send e-mails in the View / Edit System Preferences dialog box (<b>Admin &gt; System &gt; System Preferences</b>).</p> <p>We recommend that you configure the LMS Server E-mail ID in the View / Edit System Preferences dialog box (<b>Admin &gt; System &gt; System Preferences</b>). When the job starts or completes, an e-mail is sent with the LMS Server E-mail ID as the sender's address.</p>
Comments	Enter your comments for the job. Comments appear in the Job Work Order.

Field	Description
<b>Job Options</b>	
Enable Job Password	<ul style="list-style-type: none"> <li>If you have enabled the Enable Job Password option and disabled the User Configurable option in the Job Policy dialog box (<b>Admin &gt; Network &gt; Configuration Job Settings &gt; Config Job Policies</b>) enter the device login user name and password and Device Enable password.</li> <li>If you have enabled the Enable Job Password option and enabled the User Configurable option in the Job Policy dialog box (<b>Admin &gt; Network &gt; Configuration Job Settings &gt; Config Job Policies</b>) either: <ul style="list-style-type: none"> <li>Enter the device login user name and password and Device Enable password. The credentials are for contacting the device and not the DCR credentials.</li> </ul> </li> </ul> <p>Or</p> <ul style="list-style-type: none"> <li>Disable the Job Password option in the Set Schedule Options dialog box.</li> </ul>
Execution	<p>Specify the order in which the job should run on the devices.</p> <ul style="list-style-type: none"> <li>Parallel—Allows the job to run on multiple (up to five) devices at the same time.</li> <li>Sequential—Allows the job to run on only one device at a time.</li> </ul>
MakerComments	This field appears if you have enabled Job Approval Policies for NetShow. Enter the Maker Comments.
Maker E-mail	This field appears if you have enabled Job Approval Policies for NetShow. Enter the Maker E-mail address. This is mandatory.

**Step 8** Click **Next**.

The View Job Work Order page appears with the Job Work Order.

The Job Work Order contains general information on the job and on:

- Job policies.
- Job Approval details (if you have enabled Job Approval).
- Device details.
- Command sets and the commands to be executed.

**Step 9** Click **Finish** after you review the details of your job in the Job Work Order.

A message appears, *Job ID created successfully*.

The newly created job appears in the NetShow Job Browser.

If your job failed and you want to run the same job, click **Retry** and perform steps 7 through 9 above.

**Step 10** Click on the Job ID to view the results of the NetShow job created.

When a NetShow job is created for the commandset **Show Configured GOLD Tests Info**, It fails for any kind of devices that are selected. For each device that is selected in the job, only a particular command in the commandset is successful. Other commands fail and hence the job fails.

Example:

The command `show diagnostic bootup level` will be successful for a Cisco Catalyst 6000 device but will fail for Stack and Non Stack devices.

## Detailed Report of All the GOLD Test Results

Use LMS NetShow to view a detailed report of the GOLD test results.

The commandset which is used for this purpose is Show GOLD Test Results.

This commandset consists of the following two commands:

```
show diagnostic result switch all detail
show diagnostic result all
```

To generate this report:

- 
- Step 1** Select **Monitor > Troubleshooting Tools > NetShow > NetShow Jobs**.  
The NetShow Job Browser window appears.
- Step 2** Click **Create**.  
The Select Devices and Commandsets window appears.
- Step 3** Select the devices from the Device Type Selector.
- Step 4** Select **Show GOLD Test results** commandset from the Commandset List
- Step 5** Enter Custom Commands in the Custom Commands text area if required.
- Step 6** Click **Next** to continue.  
The Set Schedule Options dialog box appears.
- Step 7** Enter the following information in the Set Schedule Options dialog box:

Field	Description
<b>Scheduling</b>	
Run Type	<p>Select the frequency at which the job should be run:</p> <ul style="list-style-type: none"> <li>• Immediate—Runs the job immediately.</li> <li>• Once—Once at the specified date and time.</li> <li>• 6 -hourly—Every 6 hours, starting from the specified time.</li> <li>• 12 -hourly—Every 12 hours, starting from the specified time.</li> <li>• Daily—Daily at the specified time.</li> <li>• Weekly—Weekly on the day of the week and at the specified time.</li> <li>• Monthly—Monthly on the day of the month and at the specified time.</li> <li>• Last day of Month—On the last day of the month at the specified time.</li> </ul> <p>The subsequent instances of periodic jobs will run only after the earlier instance of the job is complete.</p> <p>For example, if you have scheduled a daily job at 10:00 a.m. on November 1, the next instance of this job will run at 10:00 a.m. on November 2 only if the earlier instance of the November 1 job has completed. If the 10.00 a.m. November 1 job has not completed before 10:00 a.m. November 2, the next job will start only at 10:00 a.m. on November 3.</p>
Date	Scheduled date and time of the job.



Field	Description
<b>Job Information</b>	
Job Description	Enter a description for the job. This is mandatory. You can enter only alphanumeric characters.
E-mail	<p>Enter the e-mail addresses to which the job sends messages at the beginning and at the end of the job.</p> <p>You can enter multiple e-mail addresses; separate these addresses by commas.</p> <p>Configure the SMTP server to send e-mails in the View / Edit System Preferences dialog box (<b>Admin &gt; System &gt; System Preferences</b>).</p> <p>We recommend that you configure the LMS Server E-mail ID in the View / Edit System Preferences dialog box (<b>Admin &gt; System &gt; System Preferences</b>). When the job starts or completes, an e-mail is sent with the LMS Server E-mail ID as the sender's address.</p>
Comments	Enter your comments for the job. Comments appear in the Job Work Order.
<b>Job Options</b>	
Enable Job Password	<ul style="list-style-type: none"> <li>• If you have enabled the Enable Job Password option and disabled the User Configurable option in the Job Policy dialog box (<b>Admin &gt; Network &gt; Configuration Job Settings &gt; Config Job Policies</b>) enter the device login user name and password and Device Enable password.</li> <li>• If you have enabled the Enable Job Password option and enabled the User Configurable option in the Job Policy dialog box (<b>Admin &gt; Network &gt; Configuration Job Settings &gt; Config Job Policies</b>) either: <ul style="list-style-type: none"> <li>– Enter the device login user name and password and Device Enable password.</li> </ul> <p>The credentials are for contacting the device and not the DCR credentials.</p> <p>Or</p> <ul style="list-style-type: none"> <li>– Disable the Job Password option in the Set Schedule Options dialog box.</li> </ul> </li> </ul>
Execution	<p>Specify the order in which the job should run on the devices.</p> <ul style="list-style-type: none"> <li>• Parallel—Allows the job to run on multiple (up to five) devices at the same time.</li> <li>• Sequential—Allows the job to run on only one device at a time.</li> </ul>
Maker Comments	This field appears if you have enabled Job Approval Policies for NetShow. Enter the Maker Comments.
Maker E-mail	This field appears if you have enabled Job Approval Policies for NetShow. Enter the Maker E-mail address. This is mandatory.

**Step 8** Click **Next**.

The View Job Work Order page appears with the Job Work Order.

The Job Work Order contains general information on the job and on the:

- Job policies.
- Job approval details (if you have enabled job approval).
- Device details.
- Command Sets and the commands to be executed.

**Step 9** Click **Finish** after you review the details of your job in the Job Work Order.

A message appears, *Job ID created successfully*.

The newly created job appears in the NetShow Job Browser.

If your job failed and you want to run the same job, click **Retry** and perform steps 7 through 9 above.

**Step 10** Click on the Job ID to view the results of the NetShow job created.

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When a NetShow job is created for the commandset **Show GOLD Test Results**, It fails for any kind of devices that are selected. For each device that is selected in the job, only a particular command in the command set is successful. Other commands fail and hence the job fails.

Example:

The command `show diagnostic result switch all detail` will be successful for Stack devices but will fail for Cisco Catalyst 6000 devices and Non Stack devices.

## GOLD Show Commands

See the Configuration Online help for configuring the NetConfig Show Commands job for devices that supports GOLD.

## GOLD Syslogs

See the Reports Online help for the steps to generate GOLD Syslogs report.