

# CA Nimsoft Monitor

## Probe Guide for CPU, Disk, and Memory Monitoring

cdm v4.9 series



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## Documentation Changes

This table describes the version history for this document.

Version	Date	What's New?
4.9	June 2014	<ul style="list-style-type: none"><li>■ Added the <b>About This Guide</b> topic.</li></ul>
4.8	March 2014	<ul style="list-style-type: none"><li>■ Added the <b>lstat</b> topic.</li><li>■ Updated the <b>cdm QoS Metrics</b> topic.</li><li>■ Updated the <b>cdm Alert Metrics Default Settings</b> topic.</li></ul>
4.7	June 2013	Online help restructured for consistency with other probe documentation.
4.7	February 2013	Initial documentation release to cover addition of this probe's web-based GUI (previously Infrastructure Manager and raw configure were the only configuration options). Version 4.7 of the cdm probe added these features: <ul style="list-style-type: none"><li>■ Timeout option to avoid hang situations</li><li>■ Information for memory and paging properties</li><li>■ Updated information for CPU usage options and space monitoring</li><li>■ Information for memory usage graphs</li><li>■ Support for Debian and Ubuntu Linux distributions.</li></ul>

# Chapter 1: cdm Overview

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The CPU, Disk, and Memory Monitoring probe (cdm) monitors load and usage of the local system resources. The probe provides two main benefits:

- Generate alarm--based on configured threshold values, it generates alarms that can trigger corrective action immediately.
- Generate trending data--quality of Service (QoS) data is measured and sent to the **data\_engine** probe, which processes it and stores it in the database. This historical data facilitates capacity planning for monitored systems in the IT environment. For example, see disks filling rate over the time, plan batch jobs according to the CPU utilization, and upgrade systems which consistently operate near capacity.

## About This Guide

This guide is for the CA Nimsoft Monitor Administrator to help understand the configuration of the CPU, Disk, and Memory Monitoring probe and provides following information:

- Overview of the CPU, Disk, and Memory Monitoring probe and related documentation for previous probe versions.
- Configuration details of the probe.
- Field information and common procedures for configuring the probe.

**Important!** Description for intuitive GUI fields is not included in the document.

## Related Documentation

### Related Documentation

Documentation for other versions of the cdm probe

The [Release Notes](#) for the cdm probe

[User documentation for the Admin Console](#)

*Monitor Metrics Reference Information for CA Nimsoft Probes*

([http://docs.nimsoft.com/prodhelp/en\\_US/Probes/ProbeReference/index.htm](http://docs.nimsoft.com/prodhelp/en_US/Probes/ProbeReference/index.htm))

## Preconfiguration Requirements

The cdm probe requires the following software environment:

- Nimsoft Monitor Server 6.5 or later
- Nimsoft Robot 5.70 or later
- Java Virtual Machine 1.6 or later (typically installed with NMS)
- Any one of the following Web Browsers (for configuration of probe attribute within Admin Console):
  - Google Chrome
  - Mozilla Firefox 15.0 or later

## Considerations

- You can configure the probe to monitor shared disks as well as local disks. When monitoring shared disks (such as NFS mounts) over slow network links, be aware that monitoring response may be slow as well.
- If *quota* is turned on for a disk on a Windows system, the size reported is the total size, and the free disk space is calculated after quota.

## Supported Platforms

The cdm probe is supported on the same set of operating systems and databases as the Nimsoft Monitor Server solution. Please refer to the:

- [Nimsoft Compatibility Support Matrix](#) for the latest information on supported platforms.
- [Support Matrix for Nimsoft Probes](#) for additional information on the cdm probe.



# Chapter 2: cdm Configuration Details

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You can configure the cdm probe by selecting the green icon next to the probe icon in Admin Console and choosing **Configure**. This opens the cdm configuration dialog.

The left navigation pane displays the configurable items on the physical machine being monitored. To view all of the configuration nodes, expand the tree structure in the left navigation pane.

At the root level is [cdm](#) (see page 10), where you can configure the fundamental attributes for the cdm probe itself.

The next level down is the host on which cdm is installed, and which it is monitoring. Here you can enable quality of service (QoS) metrics and alarms that relate directly to host itself, separately from its disk, memory, and processor resources.

Beneath the host are three sections, one each for [Disks](#) (see page 12), [Memory](#) (see page 16) and [Processor](#) (see page 19) respectively. The Disks section contains a subnode for each disk that is mounted and monitored on the host.

Node	Subnode	Available settings
<b>cdm</b>		Probe information and logging attributes; view alarm messages
	<hostname>	Computer Uptime and System Reboot alarms for the cdm host system
<b>Disks</b>		Defaults applied to all newly-discovered disks
	<diskname1>	'disk missing' alarm message attributes
	Disk Usage	Usage alarms and threshold values for the <diskname1> disk
	Disk Usage Change	Change in usage alarms and threshold values for <diskname1>
	<diskname2>	Settings for <diskname2> (same as above)
<b>Memory</b>		Memory attributes (interval, samples, QoS interval, QoS target)
	Memory Paging	Alarms and threshold values
	Physical Memory	Alarms and threshold values
	Swap Memory	Alarms and threshold values
	Total Memory	Alarms and threshold values
<b>Processor</b>		Processor attributes (CPU configuration, queue length)
	Individual CPU	Alarms and threshold values
	Total CPU	Alarms and threshold values

This section contains the following topics:

- [Probe Configuration](#) (see page 10)
- [How to Configure Alarm Thresholds](#) (see page 11)
- [Disks](#) (see page 12)
- [Memory](#) (see page 16)
- [Processor](#) (see page 19)
- [lstat](#) (see page 22)

## Probe Configuration

**Navigation:** `cdm` (top-level node)

The Probe Configuration section allows you to configure the log level and log size. You can also specify if you want to send alarms for each sample, send the short name for the QoS source and allow the QoS source to be the target.

View or modify the following values based on your requirements:

### **cdm > Probe Information**

This section provides basic probe information and is read-only.

### **cdm > General Configuration**

This section covers general probe configuration.

- **Log Level:** Sets the amount of detail to be logged to the log file. Log as little as possible during normal operation to reduce disk consumption, and increase the level of detail when debugging.  
Default: 1 - Error
- **Log size (KB):** Sets the maximum size of the log. You can enter a number in this field or use the up and down arrows to increment the number by 5.  
Default: 100 (KB)
- **Send alarm on each sample:** The probe generates an alarm on each sample where there is a threshold breach. If not selected, the probe waits for the number of samples (specified in **Samples** in the **cdm > Disk Configuration**, **cdm > Memory** or **cdm > Processor** configuration screens) before sending the alarm. The sample count is cleared on de-activation of the probe.  
Default: Selected
- **Send short name for QoS source:** Sends only the host name. If not selected, sends the full host name with domain.  
Default: Not selected

- Allow QoS source as target: A number of QoS messages by default use the host name as their target. If selected, the target name is changed to be the same as the QoS source name.

Default: Not selected

- Monitor iostat: enables the iostat monitoring of the host system devices.

Default: Not selected

### **cdm > Messages**

This section provides a listing of alarm messages issued by the cdm probe and is read-only. Selecting a row displays additional alarm message attributes below the main list, including Message Token, Subsystem, and I18N Token.

**Navigation:** **cdm >** <hostname> (first sub-level node)

Beneath the root (cdm) level, you can configure whether or not to enable computer uptime QoS data and system reboot alarms.

### **cdm >** <probe hostname> **Computer Uptime**

- Publish Data: Publishes computer uptime to the Nimsoft bus; unchecked by default. All other fields are read-only.

### **cdm >** <probe hostname> **System Reboot**

- Publish Alarms: Publishes system reboot alarms to the Nimsoft bus; unchecked by default
- Alarm Message for Detected Reboot: Choose the desired alarm message from the pull-down menu.

## How to Configure Alarm Thresholds

Some Quality of Service measurement probes allow you to set different types of alarm thresholds. These threshold options allow you to more broadly control when alarm messages are sent for each QoS probe.

For more information about the different alarm thresholds and their configuration requirements, refer to the *General Probe Configuration* section of the Admin Console Help.

**Important!** Alarm threshold settings are dependent on the `baseline_engine` probe. If you do not have the correct version of `baseline_engine` configured, you will not see the additional threshold options.

## Disks

The left navigation pane displays all disks on your system under the **Disks** node. You can configure global defaults, and set attributes for each individual disk. The **Disks** node also includes the shared drives of the host system. For example, cifs a shared windows disk which is mounted on the Linux environment, and gfs which is a shared disk of a clustered environment.

- Disks - Set *default* disk information applied when disks are added/monitored
- [<diskname> Disk Missing Configuration](#) (see page 14) - Configure alarm information sent in the event a specific disk is 'missing' (not mounted or available).

Each named disk can have its attributes set individually:

- [Disk usage](#) (see page 14) - Set thresholds and alarm messages for disk usage in MB and percent.
- [Disk usage change](#) (see page 15) - Set thresholds and alarms for changes in disk usage.
- [Inode usage](#) (see page 15) (UNIX platforms only) - Set alarms and inode usage by number of files (count) and percent.

At the **Disks** level, set or modify the following global values based on your requirements:

**Navigation:** `cdm > Disks > Disk Configuration`

Note that the first three fields are common to all three probe configuration sections (Disks, Memory, Processor).

- Interval (minutes): specifies the time in minutes for how often the probe retrieves sample data.
- Samples: specifies how many samples the probe should keep in memory to calculate average and threshold values.  
**Note:** If you did not select the **Send alarm on each sample** checkbox in the Probe Configuration pane, the probe waits for the number of samples (specified in this field) before sending the alarm.
- QoS Interval (Multiple of 'Interval'): specifies the time in minutes for how often the probe calculates QoS. For example, If the interval is set to 5 minutes and number of samples is set to 5, the CPU utilization reported will be the average for the last 25 minutes.
- Ignore Filesystems: defines the filesystem to be excluded from monitoring. For example, specifying the regular expression `*C:*` in this field results in the probe *not* monitoring disk usage on disk C.

**cdm > Disks > Disk Missing Defaults**

- Disk Missing Alarm: selects the checkbox if you want to receive an alarm when a monitored disk becomes unavailable.
- Alarm Message: selects the message to send when a monitored disk is unavailable.

**cdm > Disks > Disk Usage Change Defaults**

- Type of Change: indicates the type of change you want to monitor: increasing, decreasing, or both.
- Change Calculation: indicates how you want to calculate the disk change. Select one of the following:
  - Summarized over all samples - The change in disk usage is the difference between the latest sample and the first sample in the set of samples specified in "Samples" (configured in the Disk Configuration section located at the top of the right-hand pane).
  - Between each sample - The change in disk usage will be calculated after each sample is collected.

**Note:** The following six attributes are common to many probe configuration fields in the cdm user interface. Here they pertain to disk usage, elsewhere they pertain to memory or CPU usage, depending on context.

- Enable High Threshold: enables the high threshold for disk usage change. This threshold is evaluated first and if it is not exceeded, then the low threshold is evaluated.
- Threshold: indicates the value in Mbytes of the free space on the disk. When disk free space gets below this value, an alarm message is sent.
- Alarm Message: sends the alarm message when the free space on the disk is below the high threshold.
- Enable Low Threshold: enables the low threshold for disk usage change. This threshold is evaluated only if the high threshold has not been breached.
- Threshold: indicates the value in Mbytes of the free space on the disk. When disk free space gets below this value, an alarm message is sent.
- Alarm Message: sends the alarm message when the free space on the disk is below the low threshold.
- QoS for Disk Change: measures the QoS for Disk Change.

**cdm > Disks > Disk Usage Defaults**

- Publishing Alarm Based on: indicates the usage measurement units. Select either percent or Mbytes.
- Thresholds and alarms attributes are the same as listed above in **Disk Usage Change Defaults**.
- QoS for Disk Usage MB: measures the QoS for Disk Usage MBytes.
- QoS for Disk Usage Percent: measures the QoS for Disk Usage percent.

**cdm > Disks > Inode Usage Defaults**

- Inode Usage Alarm Based on Threshold for: indicates the usage measurement units. Select either percent or Mbytes.
- Other configuration attributes are the same as listed above in **Disk Usage Defaults**.

## <diskname> Disk Missing Configuration

At this level you can individually configure the 'disk missing' settings for each disk listed under the **Disks** node.

**Navigation: cdm > Disks > <diskname1> Disk Missing**

- Publishing Data: sends the QoS data.
- Publishing Alarms: sends an alarm if the connection to the disk fails.
- Alarm Message: sends the alarm message when the connection to the disk fails.

## <diskname> Disk Usage Configuration

You can configure disk usage individually for each monitored disk (diskname1, diskname2, etc). You can set attributes for alarm thresholds, disk usage (%) and disk usage (MB).

**Navigation: cdm > Disks > <diskname1> Disk Usage > Alarm Thresholds**

- Send Alarm Based on Threshold for: indicates the usage measurement units. Select either percent or Mbytes.
- Thresholds and alarms attributes are the same as listed in [Disk Usage Change Defaults](#) (see page 13).

**cdm > Disks > <diskname1> Disk Usage > Disk Usage (%)**

- Publishing Data: sends the QoS data. Other fields are read-only.

**cdm > Disks > <diskname1> Disk Usage > Disk Usage (MB)**

- Publishing Data: sends the QoS data. Other fields are read-only.

## <diskname> Disk Usage Change Configuration

You can individually configure thresholds for, and alarm messages sent with, changes in disk usage for each monitored disk.

**Navigation: cdm > Disks > <diskname1> Disk Usage Change > Disk Usage Change (MB)**

- Publishing Data: sends the QoS data.
  - Type of Change: indicates the type of change you want to monitor: increase, decrease, or both.
- Change Calculation: indicates how you want to calculate the disk change. Select from the drop-down menu either of the following:
  - Summarized over all samples - The change in disk usage is the difference between the latest sample and the first sample in the "samples window," which is configured at the Disk Configuration level.
  - Between each sample - The change in disk usage is calculated after each sample is collected.
- Thresholds and alarms attributes are the same as listed under [Disk Usage Change Defaults](#) (see page 13).

## <diskname> Inode Usage Configuration

You can individually configure inode usage for each monitored disk on a Unix host.

**Navigation: cdm > Disks > <diskname1> Inode Usage > Alarm Thesholds**

- Inode Usage Alarm Based on Threshold for: indicates the usage measurement units. Select either percent or count.
- Thresholds and alarms attributes are the same as listed in [Disk Usage Change Defaults](#) (see page 13).

**cdm > Disks > <diskname1> Inode Usage (%)**

- Publishing Data: sends the QoS data. Other fields are read-only.

**cdm > Disks > <diskname1> Inode Usage (Count)**

- Publishing Data: sends the QoS data. Other fields are read-only.

## Memory

The left navigation pane displays a system memory node and lets you configure attributes for:

- [Memory Paging](#) (see page 17)
- [Physical Memory](#) (see page 17)
- [Swap Memory](#) (see page 18)
- [Total Memory](#) (see page 18)

At the **Memory** level, set or modify the following global memory attributes based on your requirements.

### Navigation: **cdm > Memory > Memory Configuration**

Note that the first three fields are common to all three probe configuration sections (Disks, Memory, Processor).

- **Interval (minutes):** specifies the time in minutes for how often the probe retrieves sample data.
- **Samples:** specifies how many samples the probe should keep in memory to calculate average and threshold values.

**Note:** If you did not select the **Send alarm on each sample** checkbox in the Probe Configuration pane, the probe waits for the number of samples (specified in this field) before sending the alarm.

- **QoS Interval (Multiple of 'Interval'):** specifies the time in minutes for how often the probe calculates QoS. For example, If the interval is set to 5 minutes and number of samples is set to 5, the CPU utilization reported will be the average for the last 25 minutes.
- **Set QoS Target as 'Memory':** sets the QoS target to Memory.



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## Memory Paging Configuration

### Navigation: cdm > Memory > Memory Paging > Alarm Thresholds

- Send Alarm Based on Threshold for: indicates the usage measurement units. Select either pages per second or kilobytes per second.
- Enable High Threshold: enables the high threshold for memory paging. This threshold is evaluated first and if it is not exceeded, then the low threshold is evaluated.
- Threshold: sends a alarm message when the memory exceeds this value. The value in pages or Kbytes per second. This is based on the selection in the alarm based on threshold setting.
- Alarm Message: sends the alarm message when the memory paging exceeds the high threshold.
- Enable Low Threshold: enables the low threshold for memory paging. This threshold is evaluated only if the high threshold has not been exceeded.
- Threshold: sends a alarm message when the memory exceeds this value. The value in pages or Kbytes per second. This is based on the selection in the alarm based on threshold setting.
- Alarm Message: sends the alarm message when the memory paging breaches the low threshold.

### Navigation: cdm > Memory > Memory Paging > Memory Paging (KB/s)

- Publishing Data: sends the QoS data. Other fields are read-only.

### Navigation: cdm > Memory > Memory Paging > Memory Paging (Pg/s)

- Publishing Data: sends the QoS data. Other fields are read-only.

## Physical Memory Configuration

### Navigation: cdm > Memory > Physical Memory > Physical Memory (%)

- Publishing Data: sends the QoS data.
- Thresholds and alarm attributes are the same as listed in [Memory Paging Alarm Thresholds](#) (see page 17).

### Navigation: cdm > Memory > Physical Memory > Physical Memory (MB)

- Publishing Data: sends the QoS data. Other fields are read-only.

## Swap Memory Configuration

**Navigation:** cdm > Memory > Swap Memory > Swap Memory (%)

- Publishing Data: sends the QoS data.
- Thresholds and alarm attributes are the same as listed in [Memory Paging Alarm Thresholds](#) (see page 17).

**Navigation:** cdm > Memory > Swap Memory > Swap Memory (MB)

- Publishing Data: sends the QoS data. Other fields are read-only.

## Total Memory Configuration

**Navigation:** cdm > Memory > Total Memory > Memory Usage (%)

- Publishing Data: sends the QoS data.
- Thresholds and alarm attributes are the same as listed in [Memory Paging Alarm Thresholds](#) (see page 17).

**Navigation:** cdm > Memory > Total Memory > Memory Usage (MB)

- Publishing Data: sends the QoS data. Other fields are read-only.

## Processor

The left navigation pane displays the processor nodes on your system and allows you to configure:

- [Individual CPU](#) (see page 20)
- [Total CPU](#) (see page 21)

### Navigation: cdm > Processor

Set or modify the following values based on your requirement:

#### cdm > Processor > Processor Configuration

Note that the first three fields are common to all three probe configuration sections (Disks, Memory, Processor).

- Interval (minutes): specifies the time in minutes for how often the probe retrieves sample data.
- Samples: specifies how many samples the probe should keep in memory to calculate average and threshold values.  
**Note:** If you did not select the **Send alarm on each sample** checkbox in the Probe Configuration pane, the probe waits for the number of samples (specified in this field) before sending the alarm.
- QoS Interval (Multiple of 'Interval'): specifies the time in minutes for how often the probe calculates QoS. For example, If the interval is set to 5 minutes and number of samples is set to 5, the CPU utilization reported will be the average for the last 25 minutes. Set QoS Target as 'Total': Select this checkbox if you want the QoS target to be set to Total.
- Include CPU Wait in CPU Usage: includes the CPU Wait in the CPU Usage calculation.
- Number of CPUs: displays the number of CPUs. This is a read-only field.

#### cdm > Processor > Processor Queue Length

- Publishing Data: sends the QoS data.
- Publishing Alarms: publishes the alarms.
- Maximum Queue Length: indicates the maximum number of items in the queue before an alarm is sent.
- Alarm Message: sends the alarm message when the queue has been exceeded.

## Individual CPU Configuration

The following five configuration fields simply provide a **Publishing Data** checkbox; select the checkbox to send QoS data for each respective metric. Other fields are read-only.

**Navigation:** `cdm > Processor > Individual CPU > Individual CPU Idle`

**Navigation:** `cdm > Processor > Individual CPU > Individual CPU System`

**Navigation:** `cdm > Processor > Individual CPU > Individual CPU Usage`

**Navigation:** `cdm > Processor > Individual CPU > Individual CPU User`

**Navigation:** `cdm > Processor > Individual CPU > Individual CPU Wait`

The following field provides three configurable attributes.

**Navigation:** `cdm > Processor > Individual CPU > Maximum CPU Usage`

- **Publishing Data:** sends the QoS data.
- **Threshold:** sends an alarm message when the CPU usage exceeds this value. The value in percent of the CPU usage.
- **Alarm Message:** sends the alarm message when the CPU usage on the disk exceeds the threshold.

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## Total CPU Configuration

### Navigation: **cdm > Processor > Total CPU > Total CPU Idle**

- Publishing Data: sends the QoS data. Other fields are read-only.

### Navigation: **cdm > Processor > Total CPU > Total CPU System**

- Publishing Data: sends the QoS data. Other fields are read-only.

### Navigation: **cdm > Processor > Total CPU > Total CPU Usage**

- Publishing Data: sends the QoS data.
- Enable High Threshold: sets the high threshold for disk usage. This threshold is evaluated first and if it is not exceeded, then the low threshold is evaluated.
- Threshold: sends an alarm message when the CPU usage gets below this value. The value in percent of the CPU usage.
- Alarm Message: sends the alarm message when the CPU usage on the disk is below the high threshold.
- Enable Low Threshold: sets the low threshold for disk usage. This threshold is evaluated only if the high threshold has not been exceeded.
- Threshold: sends an alarm message when the CPU usage gets below this value. The value in percent of the CPU usage.
- Alarm Message: sends the alarm message when the CPU usage on the disk breaches the low threshold.

### Navigation: **cdm > Processor > Total CPU > Total CPU User**

- Publishing Data: sends the QoS data. Other fields are read-only.

### Navigation: **cdm > Processor > Total CPU > Total CPU Wait**

- Publishing Data: sends the QoS data. Other fields are read-only.

## Iostat

The **iostat** node lets you monitor the input and output statistics (iostat) on the respective devices.

This node appears only when the following two conditions are met:

- Probe is installed on the Linux, Solaris, and AIX environments.
- The **Monitor iostat** option is selected in the **General Configuration** section of the **cdm** node.

**Note:** The **Monitor iostat** option is disabled, by default.

The probe executes the **iostat** command for fetching the iostat monitors value. The QoS values are obtained from the second sample value of the devices.

**Navigation:** cdm > iostat

Set or modify the following values as required:

### **iostat > Iostat Configuration**

This section lets you configure basic iostat configuration for fetching the relevant data.

- **Interval (minutes):** defines the time interval for fetching the sample values from the device.

Default: 5

- **Sample Interval:** defines the time interval in seconds for fetching the second sample value. This value must be less than **Interval (minutes)** field value.

Default: 10

## Device Iostat Configuration

The *device iostat* node lets you configure the iostat monitors on the selected device. The list of iostat monitors differ for each operating system (OS) as follows:

Operating System	Iostat Monitors
Linux	<ul style="list-style-type: none"> <li>■ Iostat Average Queue Length</li> <li>■ Iostat Average Request Size</li> <li>■ Iostat Average Service Time (Linux)</li> <li>■ Iostat Average Wait Time (active, by default)</li> <li>■ Iostat Read Requests Merged Per Second</li> <li>■ Iostat Reads Per Second</li> <li>■ Iostat Sector Reads Per Second</li> <li>■ Iostat Sector Writes Per Second</li> <li>■ Iostat Utilization Percentage (active, by default)</li> <li>■ Iostat Write Requests Merged Per Second</li> <li>■ Iostat Writes Per Second</li> </ul>
Solaris	<ul style="list-style-type: none"> <li>■ Iostat Active Transactions</li> <li>■ Iostat Average Service Time (Solaris)</li> <li>■ Iostat Disk Reads Per Second</li> <li>■ Iostat Disk Writes Per Second</li> <li>■ Iostat Kilobytes Read Per Second</li> <li>■ Iostat Kilobytes Written Per Second</li> <li>■ Iostat Percentage Of Time Busy</li> <li>■ Iostat Percentage Of Time Waiting For Service (active, by default)</li> <li>■ Iostat Queue Length (active, by default)</li> </ul>
AIX	<ul style="list-style-type: none"> <li>■ Iostat Kilobytes Read</li> <li>■ Iostat Kilobytes Transferred Per Second</li> <li>■ Iostat Kilobytes Written</li> <li>■ Iostat Percentage Of Time Active (active, by default)</li> <li>■ Iostat Transfers Per Second</li> </ul>

The probe detects the underlying OS and filters the list of monitors.

**Navigation:** `cdm > iostat > device name`

Set or modify the following values as required:

***device name > Device Configuration***

This section lets you enable the iostat monitoring for the device. This option is disabled, by default.

***device name > monitor name***

This section represents the actual monitor name of the device for configuration.

- QoS Name: identifies the QoS name of the monitor.
- Units: identifies a unit of the monitor. For example, % and Mbytes.
- Metric Type Id: identifies the unique identification number of the monitor.
- Enable High Threshold: lets you configure the high threshold parameters.  
Default: Disabled
- Threshold: defines the threshold value for comparing the actual value.  
Default: 90
- Alarm Message: specifies the alarm message when the threshold value breaches.  
Default: iostatError
- Enable Low Threshold: lets you configure the low threshold parameters.  
Default: Disabled
- Threshold: defines the threshold value for comparing the actual value.  
Default: 90
- Alarm Message: specifies the alarm message when the threshold value breaches.  
Default: iostatWarning

**Note:** Typically, the low threshold generates a warning alarm and the high threshold generates an error alarm.

Similarly, you can configure other monitors because each monitor contains the same set of fields.



# Chapter 3: cdm QoS Threshold Metrics

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Many Nimsoft Monitor probes ship with default QoS threshold values set. The default threshold values provide an idea of the type of values to be entered in the fields and are not necessarily recommended best-practice values. To aid in tuning thresholds and reducing false-positive alarms, this section describes the QoS metrics and provides the default QoS thresholds.

## cdm QoS Metrics

This section contains the QoS metrics for the cdm probe.

Monitor Name	Units	QoS Metric
QOS_CPU_IDLE	Percent	CPU idle
QOS_CPU_MULTI_USAGE (all of these metrics are calculated from this monitor)	Percent	Individual CPU idle
	Percent	Individual CPU system
	Percent	Individual CPU usage (total)
	Percent	Individual CPU user
	Percent	Individual CPU wait
QOS_CPU_USAGE (all of these metrics are calculated from this monitor)	Percent	CPU system
	Percent	CPU usage
	Percent	CPU user
	Percent	CPU wait
QOS_DISK_DELTA	Megabytes	Disk usage change
QOS_DISK_USAGE	Megabytes	Disk usage
QOS_DISK_USAGE_PERC	Percent	Disk usage in percent
QOS_INODE_USAGE	Inodes	Inode usage
QOS_INODE_USAGE_PERC	Percent	Inode usage in percent
QOS_MEMORY_USAGE	Megabytes	Memory usage
QOS_MEMORY_PAGING	Kilobytes/ Second	Memory paging in kilobytes per second
QOS_MEMORY_PAGING_PGSPS	Pages/ Second	Memory paging in pages per second
QOS_MEMORY_PERC_USAGE	Percent	Memory usage in percent

Monitor Name	Units	QoS Metric
QOS_MEMORY_PHYSICAL	Megabytes	Physical memory usage
QOS_MEMORY_PHYSICAL_PERC	Percent	Physical memory usage in percent
QOS_MEMORY_SWAP	Megabytes	Swap memory usage
QOS_MEMORY_SWAP_PERC	Percent	Swap memory usage in percent
QOS_PROC_QUEUE_LEN	Processes	Processor queue length
QOS_SHARED_FOLDER	Available	Folder availability
QOS_DISK_AVAILABLE	Available	Disk availability
QOS_COMPUTER_UPTIME	Seconds	Computer uptime
<b>IOSTAT Monitors: Linux Platform</b>		
QOS_IOSTAT_RRQM_S	ReadReqMerged/Sec	IOSTAT read requests merged per second
QOS_IOSTAT_WRQM_S	WriteReqMerged/Sec	IOSTAT write requests merged per second
QOS_IOSTAT_RS	Reads/Sec	IOSTAT reads per second
QOS_IOSTAT_WS	Writes/Sec	IOSTAT writes per second
QOS_IOSTAT_SEC_RS	SectorReads/Sec	IOSTAT sector reads per second
QOS_IOSTAT_SEC_WS	SectorWrites/Sec	IOSTAT sector writes per second
QOS_IOSTAT_AR_SZ	Sectors	IOSTAT average request size
QOS_IOSTAT_AQ_SZ	QueueLength	IOSTAT average queue length
QOS_IOSTAT_AWAIT	Milliseconds	IOSTAT average wait time
QOS_IOSTAT_SVCT	Milliseconds	IOSTAT average service time
QOS_IOSTAT_PU	Percent	IOSTAT utilization percentage
<b>IOSTAT Monitors: Solaris Platform</b>		
QOS_IOSTAT_RS	Reads/Sec	IOSTAT disk reads per second
QOS_IOSTAT_WS	Writes/Sec	IOSTAT disk writes per second
QOS_IOSTAT_KRS	Kilobytes/Sec	IOSTAT kilobytes read per second
QOS_IOSTAT_KWS	Kilobytes/Sec	IOSTAT kilobytes written per second
QOS_IOSTAT_QLEN	QueueLength	IOSTAT queue length
QOS_IOSTAT_ACT	Transactions	IOSTAT active transactions
QOS_IOSTAT_SVCT	Milliseconds	IOSTAT average service time
QOS_IOSTAT_PCTW	Percent	IOSTAT percentage of time waiting for service
QOS_IOSTAT_PCTB	Percent	IOSTAT Percentage Of Time Busy

Monitor Name	Units	QoS Metric
<b>lostat Monitors: AIX Platform</b>		
QOS_IOSTAT_PCTA	Percent	lostat percentage of time active
QOS_IOSTAT_KBPS	Kilobytes/Sec	lostat kilobytes transferred per second
QOS_IOSTAT_TPS	Transfers/Sec	lostat transfers per second
QOS_IOSTAT_KR	Kilobytes	lostat kilobytes read
QOS_IOSTAT_KW	Kilobytes	lostat kilobytes written

## cdm Alert Metrics Default Settings

This section contains the Alert Metrics Default Settings for the cdm probe.

Alert Metric	Warning Threshold	Warning Severity	Error Threshold	Error Severity	Description
CPU Usage	75%	Warning	90%	Major	Total CPU above error threshold
Memory Usage in percent	50%	Warning	90%	Major	Memory Percent Usage
Physical memory usage	85%		95%		
Swap memory usage	60%		85%		
Memory Paging Activity	150KB/ sec	Warning	400 KB/ sec	Major	Amount of paging that is occurring
<b>Disk Usage and Thresholds (Disk Error)</b>					
Disk usage (%)	20%	Major	10%		
Disk usage (Mb)	default should be 20% of total disk space		default should be 10% of total disk space		
<b>Disk Usage Change and Thresholds (Delta Error)</b>					
Disk usage	8		10		
<b>Inode Usage and Thresholds</b>					
Inode usage (%)	20		10		
Inode usage (inodes)	20		10		
Inode Free	20		10		

Alert Metric	Warning Threshold	Warning Severity	Error Threshold	Error Severity	Description
Disk Metric delta	5		10		
	<b>Max Queue Length</b>				
Processor Queue Length	4	Warning	-	-	The number of processes waiting to run
			<b>Maximum</b>		
MultiCPU CPU usage of single cpu	-		90		
			<b>Difference</b>		
MultiCPU Difference in CPU usage between CPUs	-		50		
<b>lstat</b>					
lstatError	-	-	90	Major	The lstat monitor value of the device is above the threshold value
lstatWarning	90	Warning	-	-	The lstat monitor value of the device is above the threshold value