

CA Nimsoft Monitor

Probe Guide for CPU, Disk, and Memory Monitoring

cdm v4.8 series



Legal Notices

This online help system (the "System") is for your informational purposes only and is subject to change or withdrawal by CA at any time.

This System may not be copied, transferred, reproduced, disclosed, modified or duplicated, in whole or in part, without the prior written consent of CA. This System is confidential and proprietary information of CA and protected by the copyright laws of the United States and international treaties. This System may not be disclosed by you or used for any purpose other than as may be permitted in a separate agreement between you and CA governing your use of the CA software to which the System relates (the "CA Software"). Such agreement is not modified in any way by the terms of this notice.

Notwithstanding the foregoing, if you are a licensed user of the CA Software you may make one copy of the System for internal use by you and your employees, provided that all CA copyright notices and legends are affixed to the reproduced copy.

The right to make a copy of the System is limited to the period during which the license for the CA Software remains in full force and effect. Should the license terminate for any reason, it shall be your responsibility to certify in writing to CA that all copies and partial copies of the System have been destroyed.

TO THE EXTENT PERMITTED BY APPLICABLE LAW, CA PROVIDES THIS SYSTEM "AS IS" WITHOUT WARRANTY OF ANY KIND, INCLUDING WITHOUT LIMITATION, ANY IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR NONINFRINGEMENT. IN NO EVENT WILL CA BE LIABLE TO YOU OR ANY THIRD PARTY FOR ANY LOSS OR DAMAGE, DIRECT OR INDIRECT, FROM THE USE OF THIS SYSTEM, INCLUDING WITHOUT LIMITATION, LOST PROFITS, LOST INVESTMENT, BUSINESS INTERRUPTION, GOODWILL, OR LOST DATA, EVEN IF CA IS EXPRESSLY ADVISED IN ADVANCE OF THE POSSIBILITY OF SUCH LOSS OR DAMAGE.

The manufacturer of this System is CA.

Provided with "Restricted Rights." Use, duplication or disclosure by the United States Government is subject to the restrictions set forth in FAR Sections 12.212, 52.227-14, and 52.227-19(c)(1) - (2) and DFARS Section 252.227-7014(b)(3), as applicable, or their successors.

Copyright © 2014 CA. All rights reserved. All trademarks, trade names, service marks, and logos referenced herein belong to their respective companies.

Legal information on third-party and public domain software used in the Nimsoft Monitor solution is documented in *Nimsoft Monitor Third-Party Licenses and Terms of Use* (http://docs.nimsoft.com/prodhelp/en_US/Library/Legal.html).

Contact CA

Contact CA Support

For your convenience, CA Technologies provides one site where you can access the information that you need for your Home Office, Small Business, and Enterprise CA Technologies products. At <http://ca.com/support>, you can access the following resources:

- Online and telephone contact information for technical assistance and customer services
- Information about user communities and forums
- Product and documentation downloads
- CA Support policies and guidelines
- Other helpful resources appropriate for your product

Providing Feedback About Product Documentation

Send comments or questions about CA Technologies Nimsoft product documentation to nimsoft.techpubs@ca.com.

To provide feedback about general CA Technologies product documentation, complete our short customer survey which is available on the CA Support website at <http://ca.com/docs>.

Documentation Changes

This table describes the version history for this document.

Version	Date	What's New?
4.8	March 2014	<ul style="list-style-type: none">■ Added the lstat topic.■ Updated the cdm QoS Metrics topic.■ Updated the cdm Alert Metrics Default Settings topic.
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">■ Timeout option to avoid hang situations■ Information for memory and paging properties■ Updated information for CPU usage options and space monitoring■ Information for memory usage graphs■ Support for Debian and Ubuntu Linux distributions.

Contents

Chapter 1: cdm Overview 7

Related Documentation	7
Supported Platforms	7
Preconfiguration Requirements	8
Considerations	8

Chapter 2: cdm Configuration Details 9

Probe Configuration	10
Configure Dynamic Alarm Thresholds	12
Disks	13
<diskname> Disk Missing Configuration	15
<diskname> Disk Usage Configuration	15
<diskname> Disk Usage Change Configuration	16
<diskname> Inode Usage Configuration	16
Memory	17
Memory Paging Configuration	18
Physical Memory Configuration	18
Swap Memory Configuration	19
Total Memory Configuration	19
Processor	20
Individual CPU Configuration	21
Total CPU Configuration	22
lstat	23
Device lstat Configuration	24

Chapter 3: cdm QoS Threshold Metrics 27

cdm QoS Metrics	27
cdm Alert Metrics Default Settings	29

Chapter 1: cdm Overview

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.

Related Documentation

For related information that may be of interest, see the following material:

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)

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.

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.

Chapter 2: cdm Configuration Details

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 13), [Memory](#) (see page 17) and [Processor](#) (see page 20) respectively. The Disks section contains a subnode for each disk that is mounted and monitored on the host.

Node	Subnode	Available settings
cdm		Probe information and logging attributes; view alarm messages
	<hostname>	Computer Uptime and System Reboot alarms for the cdm host system
Disks		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)
Memory		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
Processor		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)
- [Configure Dynamic Alarm Thresholds](#) (see page 12)
- [Disks](#) (see page 13)
- [Memory](#) (see page 17)
- [Processor](#) (see page 20)
- [lstat](#) (see page 23)

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.

Configure Dynamic Alarm Thresholds

Dynamic thresholds are configured at the QoS metric level in each probe that publishes an alarm for a QoS metric.

Important! In order to create dynamic alarm thresholds, you must have the `baseline_engine` probe version 2.0 installed on the robot and configured.

Follow these steps for each QoS metric where you want to configure dynamic thresholds:

1. Select a node in the tree to view any associated monitors and QoS metrics.
2. Select the monitor you want to modify in the table.
3. Select the Publish Data and Compute Baseline options to enable the Dynamic Alarm Thresholds section of the configuration.
4. Choose a threshold algorithm. There are three algorithms allowed for dynamic alarm thresholds:

Note: You must indicate the direction for each algorithm, either increasing or decreasing.

- **Scalar:** Each threshold is a specific value from the computed baseline.
- **Percent:** Each threshold is a specific percentage of the computed baseline.
- **Standard Deviation:** Each threshold is a measure of the variation from the computed baseline. A large standard deviation indicates that the data points are far from the computed baseline and a small standard deviation indicates that they are clustered closely around the computed baseline.

Important! To change the subsystem ID, you must have the `baseline_engine` probe version 2.1 installed on the robot and configured.

5. (Optional) If the Subsystem ID listed in the Subsystem (default) field is not correct for your configuration, enter the correct ID in the Subsystem (override) field.
6. Save your settings.

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 15) - 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 15) - Set thresholds and alarm messages for disk usage in MB and percent.
- [Disk usage change](#) (see page 16) - Set thresholds and alarms for changes in disk usage.
- [Inode usage](#) (see page 16) (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): Specify the time in minutes for how often the probe retrieves sample data.
- Samples: Allows you to specify 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'): Allows you to specify 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: Select the checkbox if you want to receive an alarm when a monitored disk becomes unavailable.
- Alarm Message: Select 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: Select this checkbox to enable 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: 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: The alarm message to be sent when the free space on the disk is below the high threshold.
- Enable Low Threshold: Select this checkbox to enable the low threshold for disk usage change. This threshold is evaluated only if the high threshold has not been breached.
- Threshold: 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: The alarm message to be sent when the free space on the disk is below the low threshold.
- QoS for Disk Change: Select this checkbox to measure 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: Select this checkbox to measure the QoS for Disk Usage MBytes.
- QoS for Disk Usage Percent: Select this checkbox to measure 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: Select this checkbox to send the QoS data.
- Publishing Alarms: Select this checkbox to send an alarm if the connection to the disk fails.
- Alarm Message: The alarm message sent 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 14).

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

- Publishing Data: Select this checkbox to send the QoS data. Other fields are read-only.

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

- Publishing Data: Select this checkbox to send 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: Select this checkbox to send 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 14).

<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 Thresholds

- 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 14).

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

- Publishing Data: Select this checkbox to send the QoS data. Other fields are read-only.

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

- Publishing Data: Select this checkbox to send the QoS data. Other fields are read-only.

Memory

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

- [Memory Paging](#) (see page 18)
- [Physical Memory](#) (see page 18)
- [Swap Memory](#) (see page 19)
- [Total Memory](#) (see page 19)

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): Specify the time in minutes for how often the probe retrieves sample data.
- Samples: Allows you to specify 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'): Allows you to specify 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': Select this checkbox if you want the QoS target to be set to Memory.

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: Select this checkbox to enable the high threshold for memory paging. This threshold is evaluated first and if it is not exceeded, then the low threshold is evaluated.
- Threshold: The value in pages or Kbytes per second. This is based on the selection in the alarm based on threshold setting. When the memory exceeds this value, an alarm message is sent.
- Alarm Message: The alarm message to be sent when the memory paging exceeds the high threshold.
- Enable Low Threshold: Select this checkbox to enable the low threshold for memory paging. This threshold is evaluated only if the high threshold has not been exceeded.
- Threshold: The value in pages or Kbytes per second. This is based on the selection in the alarm based on threshold setting. When the memory exceeds this value, an alarm message is sent.
- Alarm Message: The alarm message to be sent when the memory paging breaches the low threshold.

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

- Publishing Data: Select this checkbox to send the QoS data. Other fields are read-only.

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

- Publishing Data: Select this checkbox to send the QoS data. Other fields are read-only.

Physical Memory Configuration

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

- Publishing Data: Select this checkbox to send the QoS data.
- Thresholds and alarm attributes are the same as listed in [Memory Paging Alarm Thresholds](#) (see page 18).

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

- Publishing Data: Select this checkbox to send the QoS data. Other fields are read-only.

Swap Memory Configuration

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

- Publishing Data: Select this checkbox to send the QoS data.
- Thresholds and alarm attributes are the same as listed in [Memory Paging Alarm Thresholds](#) (see page 18).

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

- Publishing Data: Select this checkbox to send the QoS data. Other fields are read-only.

Total Memory Configuration

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

- Publishing Data: Select this checkbox to send the QoS data.
- Thresholds and alarm attributes are the same as listed in [Memory Paging Alarm Thresholds](#) (see page 18).

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

- Publishing Data: Select this checkbox to send 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 21)
- [Total CPU](#) (see page 22)

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):** Specify the time in minutes for how often the probe retrieves sample data.
- **Samples:** Allows you to specify 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'):** Allows you to specify 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:** Select this checkbox if you want CPU Wait included 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:** Select this checkbox to send the QoS data.
- **Publishing Alarms:** Select this checkbox to publish alarms.
- **Maximum Queue Length:** The maximum number of items in the queue before an alarm is sent.
- **Alarm Message:** The alarm message sent 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:** Select this checkbox to send the QoS data.
- **Threshold:** The value in percent of the CPU usage. When the CPU usage exceeds this value, an alarm message is sent.
- **Alarm Message:** The alarm message to be sent when the CPU usage on the disk exceeds the threshold.

Total CPU Configuration

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

- Publishing Data: Select this checkbox to send the QoS data. Other fields are read-only.

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

- Publishing Data: Select this checkbox to send the QoS data. Other fields are read-only.

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

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

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

- Publishing Data: Select this checkbox to send the QoS data. Other fields are read-only.

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

- Publishing Data: Select this checkbox to send 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">■ iostat Average Queue Length■ iostat Average Request Size■ iostat Average Service Time■ iostat Average Wait Time (active, by default)■ iostat Read Requests Merged Per Second■ iostat Reads Per Second■ iostat Sector Reads Per Second■ iostat Sector Writes Per Second■ iostat Utilization Percentage (active, by default)■ iostat Write Requests Merged Per Second■ iostat Writes Per Second
Solaris	<ul style="list-style-type: none">■ iostat Active Transactions■ iostat Average Service Time■ iostat Disk Reads Per Second■ iostat Disk Writes Per Second■ iostat Kilobytes Read Per Second■ iostat Kilobytes Written Per Second■ iostat Percentage Of Time Busy■ iostat Percentage Of Time Waiting For Service (active, by default)■ iostat Queue Length (active, by default)
AIX	<ul style="list-style-type: none">■ iostat Kilobytes Read■ iostat Kilobytes Transferred Per Second■ iostat Kilobytes Written■ iostat Percentage Of Time Active (active, by default)■ iostat Transfers Per Second

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

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_PGPS	Pages/ Second	Memory paging in pages per second

Monitor Name	Units	QoS Metric
QOS_MEMORY_PERC_USAGE	Percent	Memory usage in percent
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
IOSTAT Monitors: Linux Platform		
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
IOSTAT Monitors: Solaris Platform		
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

Monitor Name	Units	QoS Metric
QOS_IOSTAT_PCTB	Percent	lost Percentage Of Time Busy
lost Monitors: AIX Platform		
QOS_IOSTAT_PCTA	Percent	lost percentage of time active
QOS_IOSTAT_KBPS	Kilobytes/Sec	lost kilobytes transferred per second
QOS_IOSTAT_TPS	Transfers/Sec	lost transfers per second
QOS_IOSTAT_KR	Kilobytes	lost kilobytes read
QOS_IOSTAT_KW	Kilobytes	lost 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
Disk Usage and Thresholds (Disk Error)					
Disk usage (%)	20%	Major	10%		
Disk usage (Mb)	default should be 20% of total disk space		default should be 10% of total disk space		
Disk Usage Change and Thresholds (Delta Error)					
Disk usage	8		10		
Inode Usage and Thresholds					
Inode usage (%)	20		10		
Inode usage (inodes)	20		10		

Alert Metric	Warning Threshold	Warning Severity	Error Threshold	Error Severity	Description
Inode Free	20		10		
Disk Metric delta	5		10		
Max Queue Length					
Processor Queue Length	4	Warning	-	-	The number of processes waiting to run
Maximum					
MultiCPU CPU usage of single cpu	-		90		
Difference					
MultiCPU Difference in CPU usage between CPUs	-		50		
lostat					
lostatError	-	-	90	Major	The lostat monitor value of the device is above the threshold value
lostatWarning	90	Warning	-	-	The lostat monitor value of the device is above the threshold value