



nvidia-healthmon Best Practices Guide

Version 2.2

NVIDIA Corporation

January 7, 2013



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Chapter 1

Scope of this document

This document covers the use cases and best practices NVIDIA recommends for nvidia-healthmon . Let us know on the forums if your use case is not mentioned, <http://forums.nvidia.com/>. This document will not cover details of nvidia-healthmon use. This is covered in the nvidia-healthmon User Guide.

Chapter 2

Overview

nvidia-healthmon is the system administrator's and cluster manager's tool for detecting and troubleshooting common problems affecting NVIDIA®Tesla™GPUs in a high performance computing environment. nvidia-healthmon contains limited hardware diagnostic capabilities, and focuses on software and system configuration issues.

2.1 nvidia-healthmon goals

nvidia-healthmon is designed to:

1. Discover common problems that affect a GPU's ability to run a compute job including
 - (a) Software configuration issues
 - (b) System configuration issues
 - (c) System assembly issues, like loose cables
 - (d) A limited number of hardware issues
2. Provide troubleshooting help
3. Easily integrate into Cluster Scheduler and Cluster Management applications
4. Reduce downtime and failed GPU jobs

2.1.1 Beyond the scope of nvidia-healthmon

nvidia-healthmon is not designed to:

1. Provide comprehensive hardware diagnostics
2. Actively fix problems

Chapter 3

Use cases

While `nvidia-healthmon` is primarily targeted at clusters of NVIDIA®Tesla™GPUs, it can also be used in workstations without a cluster manager.

3.1 Run `nvidia-healthmon` after system provisioning

After a system is provisioned, `nvidia-healthmon` can be run on the node to ensure that the node is correctly configured and able to run a GPU job. In this use case an extended mode run of `nvidia-healthmon` will try to deliver the most comprehensive system health check.

3.2 Run `nvidia-healthmon` before a job

`nvidia-healthmon` can be run in a prologue or epilogue script in quick mode to perform a sanity check of the system and GPU. If `nvidia-healthmon` detects a problem the scheduler can mark the current node as down, and run the job on a different node to avoid job failure. In quick mode a subset of tests are run, such that a quick sanity test of the system is performed.

Note that `nvidia-healthmon` will create a CUDA context on the device it is testing so it is often undesirable to run `nvidia-healthmon` when other processes are using the GPU to prevent unexpected behavior of either process.

3.3 Periodic health check

Analogous to periodically scanning for viruses, `nvidia-healthmon` can be run in the extended mode periodically. Again, when `nvidia-healthmon` reports a problem the scheduler can mark the node as down.

3.4 After job failure

When a GPU job fails, the extended mode run of `nvidia-healthmon` can help troubleshoot the problem.

3.5 Interfacing with other services

`nvidia-healthmon` can be run by a wrapper script which handles any reported warnings and errors. These problems can subsequently be forwarded to other services in order to notify them of any problems. NVIDIA suggests using `syslog` for logging reported issues on the system. Similarly, an SNMP trap can be sent to notify hosts over a network of these issues.

3.6 Troubleshooting problems

nvidia-healthmon's troubleshooting report is designed to cover common problems, and will often suggest a number of possible solutions. These troubleshooting steps should be tackled from the top down, as the most likely solution is listed at the top.

3.6.1 Save log files

NVIDIA recommends that the log files from failing nvidia-healthmon runs should be saved. Saving log files ensures that data about intermittent problems is not lost.

Note: Some log files are encrypted and can only be decoded by NVIDIA engineers. These files are not corrupt. These logs contain a trace of the nvidia-healthmon run, and do not contain any sensitive information.

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