Nimsoft® Best Practices Guide

Probe Performance for Selected Probes

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Contents

Introduction

This best practices guidance applies to the following Nimsoft probes:

- Webservices
- URL Response
- Interface Traffic
- SNMP Get
- Cisco Monitor
- Net_Connect

This document provides guidance to Nimsoft customers for the probes based on best practices with Nimsoft implementation of probes to monitor support devices and sample optimal characterization of running the probe.

Please refer to the following related documentation for general probe documentation like Deployment Needs, system requirements, prerequisites for the listed probes.

Prerequisites and System Requirements:

- Probe Help Documentation for the probe
- *Getting Started with Nimsoft® Probes*
- *Nimsoft® Probes Reference*

Probe Performance Criteria

The guidance provided in this document can vary for specific customer environments based on various IT environment factors including but not limited to the following:

- Available compute power of the machine(robot) that runs the probe
- Available network bandwidth of the machine that runs the probe
- Network connectivity and latency between the device or profile that is monitored by the probe and the machine that runs the probe
- Network latency and connectivity with respect to the device element manager i.e. SNMP agent in case of SNMP-based monitoring data collection or SMI-S manager for some storage devices
- Available system memory on the machine that runs the probe (mainly for probe internal processing)
- Available disk storage on the machine that runs the probe (mainly for temporary processing files)
- Number of devices or profiles monitored by one instance of the probe
- Number of metrics collected/expected per device per probe instance
- Interval selected for collecting the metrics per device per probe instance
- Number of QOSs and Alarms selected/expected per device per probe instance

Robot Environment for Running Probes

Robot Machine Considerations

Nimsoft probes are typically run on robots that connect to a hub which connects to the primary hub. For the listed probes, the following best practice is suggested for selecting machine configuration for the robot that runs them:

- Machine type – physical or Virtual(VM)
- HA Configuration – Not required
- Machine CPU Compute – 2 to 4 core 64bit Pentium or equivalent with speed of 2.0 Ghz with 50% available on average
- Machine system memory – 4GB to 8GB
- Machine disk storage – 72GB available
- Machine Network bandwidth – standard LAN connectivity bandwidth e.g. 1Gbps. For better results, robot machine should be in the same subnet as the devices monitored by the probes running on that robot machine.
- Operating Systems – All robot supported OSs e.g. Windows server os– e.g. W2K8R2 or later, Enterprise Linux v6.1 or later

Network latency and connectivity Considerations

The listed probes are network latency and packet drop sensitive. During testing we considered a latency of less than 100ms between the Hub and robot. The latency between the probe and the tested application is recorded as part of the measurements.

System Memory Considerations

The listed Probes use system memory for internal processing and therefore available system memory matters. In a typical scenario, the listed probes use the following memory.

- Webservices - 12 MB
- URL Response – 50 MB
- Interface Traffic – 29MB
- SNMP Get – 11 MB
- Cisco Monitor – 6 MB
- Net_Connect – 9MB

Note: Some probes use Java and Java heap min and max settings play crucial role in probe's performance. The above probes do not use Java environments

Important Tip: *All these probes are designed to handle the memory utilization optimally. The setting up QOSs and Alarms must be set using "Autoconfiguration" node i.e. Auto Monitor rather than Static monitor (non Auto) to ensure that the system memory consumed is optimal.*

Disk Storage Considerations

The listed Probes produce log files and data files that are used for diagnostics reasons and internal processing purposes respectively. The log file creates copy of its last version before reaching the size limit as set by the probe. The probe also saves the entire granular settings for each metric it collects the information on in the form of a XML like text file called as configuration file. This monitoring configuration is expected to take 10's of MB disk storage. There are best practices to setup monitoring configurations in optimal way by selecting Autoconfiguration monitors instead of static monitors. This reduces the disk space used and also has other benefits like better network utilization and probe restart times. This is covered in the Probe Configurations section following this section.

- Webservices - Plan on 200 MB for Log Files.
- URL Response - Plan on 200 MB for Log Files.
- Interface Traffic – Plan on 200 MB for Log Files.
- SNMP Get – Plan on 200 MB for Log Files.
- Cisco Monitor – Plan on 200MB for Log Files.
- Net_Connect – Plan on 200MB for Log Files.

Probe/Devices Optimal Configurations for using Listed Probes

Number of devices or profiles per Probe – Key Considerations

Number of devices or profiles monitored by one instance of the probe also affects performance of the probe and proactive measures below can assist you in making the probe performance optimal for your environments.

Probe	Optimal Profiles per probe (Typical)	Optimal Profiles per probe (Low end)	Maximum Profiles per probe (High end)
Webservices	500	250	1000
URL Response	500	250	1000
Interface Traffic	100	50	350
SNMP Get	100	50	300
Cisco Monitor	40	30	50
Net_Connect	500	250	1000

Key Configuration Restrictions

WebServices:

1. Size of the CFG file should be less than 3MB.
2. At very high number of profiles (1,000), alarms may get delayed up to 15 minutes in a worst case scenario (all WSDL's not responding). DE13537
3. Do not Edit and De-Activate the probe within 15 minutes of each action. DE12920

URL Response

1. At the high end of 1000 profiles, probe GUI may take 2 minutes to open.
2. At the high end of 1000 profiles, editing changes may take a long time (up to 15 minutes) DE13265.
3. At the high end of 1000 profiles, re-start of probe takes roughly 30 minutes.

Interface Traffic

1. SNMP response delays (due to network or device) will reduce the capacity of the probe.
2. Tests ran with a third of the devices using SNMP v3. Increased SNMP v3 devices will decrease probe performance.

3. Recommended polling frequency (and tested) is 5 minutes.

SNMP Get

1. SNMP response delays (due to network or device) will reduce the capacity of the probe.
2. Tests ran with 20% of the devices using SNMP v3. Increased SNMP v3 devices will decrease probe performance.
3. Recommended polling frequency (and tested) is 5 minutes.

Cisco Monitor

1. SNMP response delays (due to network or device) will reduce the capacity of the probe.
2. Tests ran with a third of the devices using SNMP v3. Increased SNMP v3 devices will decrease probe performance.
3. Recommended polling frequency (and tested) is 5 minutes.

Net Connect

1. At high number of profiles (more than 1000 profiles) it could start taking more than 2 minutes to load the Probe GUI. We advice against exceeding 1000 profiles.
2. Do not go beyond 2,000 profiles.
3. When using more than 1,000 profiles, saving probe configuration can take a long time. There is currently a DE13855 open for probes taking a long time to save configuration.

Summary

The Nimsoft listed probes are very powerful probes with comprehensive capabilities but special attention must be given on how you use them to get optimal performance from the probes with respect to its ability to collect the monitoring data, process the data and generate alarms and QOSs messages to maintain your SLAs.

The optimal performance of the probes therefore vary significantly based on specific customer environments based on various IT environment factors including but not limited to the following:

- Available compute power, system memory, disk storage and network bandwidth of the machine(robot) that runs the probe. Deploying CDM probe on the Robot machine and triggering CPU consumption in the tuning time is very useful. This becomes critical if a robot is hosting several probes amounting to more than say, 5000 Nimsoft messages per sec.
- Network connectivity and latency between the device that is monitored by the probe and the robot machine that runs the probe is another important factor. This is very critical to make the data collection optimal. Similarly, the network latency and connectivity with respect to the device element manager is important factor affecting overall performance.
- Each probe is very powerful piece of code that processes the data collection and creates meaningful QOS messages and alarms. Various factors that affect this aspect of the overall performance like - Number of devices or profiles monitored by one instance of the probe, number of metrics collected/expected per device per probe instance, Interval selected for collecting the metrics per device per probe instance and number of QOSs and Alarms selected/expected per device per probe instance

Appendix A: Webservices - Probe Metrics Count and Runtimes Considerations

Profiles	Process CPU Usage % (Average)	Process Memory Usage (Average)	Number Of Threads (Average)	Number Of Handle Count (Average)	Length Of Time To Start up The UI	Probe Start Up Time	Probe Shutdown Time
1000	0.95%	122182.13 KB	29.24	407.59	3-5 Mins 15-20 Mins- (Profile deactivate and apply changes time)	3-5 Mins	3-5 Mins

Appendix B – URL Response - Probe Metrics Count and Runtimes Considerations

Profiles	Process CPU Usage % (Average)	Process Memory Usage (Average)	Number Of Threads (Average)	Number Of Handle Count (Average)	Length Of Time To Start up The UI	Probe Start Up Time	Probe Shutdown Time
1000	0.4%	49778.06KB	103.54	664.11	3-5 Mins 15-20 Mins- (Profile deactivate and apply changes time)	3-5 Mins	3-5 Mins
2000	2.11%	34392.11KB	97.65	627.71	3-5 Mins	3-5	3-5 Mins

					15-20 Mins- (Profile deactivate and apply changes time)	Mins	

Appendix C – Interface Traffic - Probe Metrics Count and Runtimes Considerations

Configured Devices	Process CPU Usage % (Average)	Process Memory Usage (Average)	Number Of Threads (Average)	Number Of Handle Count (Average)	Length Of Time To Start up The UI	Probe Start Up Time	Probe Shutdown Time
100	0.64 %	8351.95 KB	6.12	143.96	28 - 29 sec	14 – 15 sec	12 – 13 sec
350	2.84%	20064.70 KB	8.08	165.81	180 – 240 sec	17 – 18 sec	16 – 17 sec

Appendix D – SNMP Get - Probe Metrics Count and Runtimes Considerations

Configured Devices	Process CPU Usage % (Average)	Process Memory Usage (Average)	Number Of Threads (Average)	Number Of Handle Count (Average)	Length Of Time To Start up The UI	Probe Start Up Time	Probe Shutdown Time
100	0.14 %	7928.70	6.11	128.14	7 - 8	10 – 11	7 – 8 sec

		kb			sec	sec	
300	0.72%	10922.87 kb	8.73	156.69	8 - 9 sec	20 – 21 sec	16 – 17 sec

Appendix E – Cisco Monitor - Probe Metrics Count and Runtimes Considerations

Configured Devices	Process CPU Usage % (Average)	Process Memory Usage (Average)	Number Of Threads (Average)	Number Of Handle Count (Average)	Length Of Time To Start up The UI	Probe Start Up Time	Probe Shutdown Time
30	0.02 %	4711.25 KB	6.88	124.57	5 – 7 sec	16 – 17 sec	9 – 10 sec
40	0.03 %	4980.71 KB	6.89	125.23	6 – 7 sec	14 – 15 sec	12 – 13 sec
50	0.03%	5392.05 KB	6.94	129.93	6 – 7 sec	15 – 16 sec	11 – 12 sec

Appendix F – Net Connect - Probe Metrics Count and Runtimes Considerations

Profiles	Process CPU Usage % (Average)	Process Memory Usage (Average)	Number Of Threads (Average)	Number Of Handle Count (Average)	Length Of Time To Start up The UI	Probe Start Up Time	Probe Shutdown Time
1000(Mix)	0.23%	7404.04	26.01	355.71	2-3 Mins 15-20 Mins- (Profile deactivate and apply changes	2-3 Mins	2-3 Mins

					time)		
1000(Normal)	18.32%	8537.98	26.02	973.56	2-3 Mins 5-10 Mins- (Profile deactivate and apply changes time)	2-3 Mins	2-3 Mins
2000	0.13%	37254.91	17.78	393.85	3-5 Mins 5-10 Mins- (Profile deactivate and apply changes time)	2-3 Mins	2-3 Mins