HP Performance Manager

for the Windows, HP-UX, Linux, and Solaris operating system

Software Version: 9.00

Performance and Sizing Guide

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Acknowledgements

 This product includes software developed by the OpenSSL Project for use in the OpenSSL Toolkit (http://www.openssl.org/)

This product includes cryptographic software written by Eric Young (eay@cryptsoft.com)

This product includes software written by Tim Hudson (tjh@cryptsoft.com)

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1 Introduction

This guide presents the results of different tests that were performed on the HP Performance Manager setup in a production environment.

While setting up Performance Manager in a large environment, you must consider the following factors:

- **Nodes**

  Performance Manager uses the data collected from different nodes where data sources reside. The scalability and performance of the solution depend on the following factors:

  — Total number of nodes in the environment

  — Types of data sources on nodes

- **Client system**

  You can use Performance Manager from anywhere on your network with the help of a Web browser. The Web-based console of Performance Manager enables you to create, modify, and view graphs from any computer in the environment. Therefore, your experience with the Performance Manager user interface may vary with different browsers.

  The responsiveness of the Performance Manager user interface depends on the following factors:

  — Browser type

  — Number of data sources used by a client

  — Number of concurrent sessions to a node created by Performance Manager clients

2   Test Environment and Results

Test Environment

The performance of HP Performance Manager has been tested in the following environment:

Table 1   HP Performance Manager Server Setup

Operating System	Windows Server 2008 64-bit operating system
CPU	Intel® Xeon® CPU E5335 2.00 GHz 2.00 GHz
Memory	4 GB
HP Performance Manager Version	9.00

Table 2   Client Setup

Operating System	Windows Vista 32-bit operating System
CPU	Intel® Core™ 2 DUO CPU T9600 2.8 GHz 2.8 GHz
Memory	2 GB

The default data collection interval for the collector for the real-time measurement (RTM) component on every node was set to the default value (10 seconds).

No other HP Software products were installed on the HP Performance Manager system at the time of testing.

Test Results

Browser Performance with Increasing Number of Process records on the Node

Using the Diagnostic View tab in the HP Performance Manager, from a graph, you can drill down to view the process-level information on a node by using the drilldown feature. Table 3 presents memory utilization and response time of the client browser against the number of process records retrieved from the agent running on the node with RTM component.

Table 3   Response Time and Memory Utilization Against the Number of Process records running on the node

Browser	Number of Process records (running on the node)	Response Time (seconds)	Memory Utilization (MB)
Internet Explorer 7	1000	7	127
	2000	13	145
	3000	17	198
	4000	22	227
	5000	29	260
	6000	34	283
	7000	41	304
	8000	48	354
	9000	56	384
	10000	63	404
Internet Explorer 8	1000	4	102
	2000	6	130
	3000	11	150
	4000	18	163
	5000	24	181
	6000	32	195
	7000	40	218
	8000	58	236
	9000	69	252
	10000	79	277

Table 3   Response Time and Memory Utilization Against the Number of Process records running on the node

| Browser	Number of Process records (running on the node)	Response Time (seconds)	Memory Utilization (MB)
Mozilla Firefox 3.6.x	1000	6	100
	2000	7	100
	3000	10	143
	4000	13	154
	5000	23	173
	6000	34	185
	7000	42	205
	8000	55	225
	9000	66	252
	10000	76	266

User Interface Experience

The performance of the browser depends on the number of process records on the node.

- **Internet Explorer 7:** The browser responds promptly when the number of process records running on the node is below 2000. When the number of process records is between 2000 and 3000, the browser slows down. The browser operates very slowly when the number of process records exceeds 3000. The export function does not work when the number of process records exceeds 7000.

- **Internet Explorer 8:** The browser responds promptly when the number of process records on the node is below 3000. When the number of process records is between 3000 and 5000, the browser slows down. The browser operates very slowly when the number of process records exceeds 5000. The export function does not work when the number of process records exceeds 7000.

- **Mozilla Firefox:** The browser responds promptly when the number of process records on the node is below 3000. When the number of process records is between 3000 and 5000, the browser slows down. The browser operates very slowly when the number of process records exceeds 5000. The export function does not work when the number of process records exceeds 7000.

Figure 1 shows a graphical representation of the response time and memory utilization of the client browser.

Figure 1   Response Time and Memory Utilization
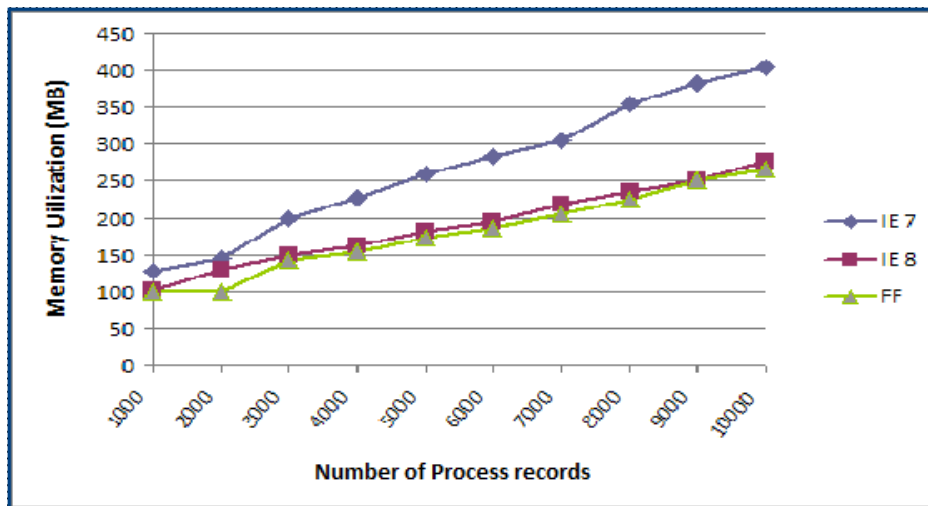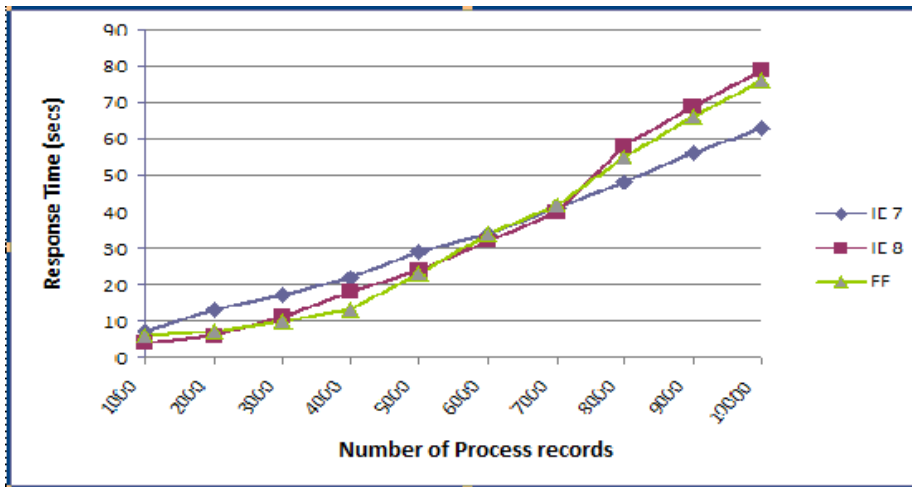
Browser Performance with the Increasing Number of Nodes

Table 4 presents memory and CPU utilization and the response time to add a new node with the RTM component. Column 2 of the table indicates the time to add a new node with RTM in the Diagnostic View tab in the HP Performance Manager user interface. Column 3 and 4 present the memory utilization and CPU utilization details of the client browser.

Table 4   Response Time Against the Number of Nodes

Number of Nodes	Response Time to Add a New Node with RTM (Seconds)	Memory Utilization (MB)	CPU Utilization (%)
10	2	56	15
15	2	58	15
20	3	148	22
25	9	162	20

Viewing the Real-Time Data

You can use the Diagnostic View to draw graphs with the real-time data collected from the systems with the RTM component (available with the HP Operations agent 11.00). Multiple users can simultaneously connect to the HP Performance Manager server and open the Diagnostic View to draw real-time graphs with the data obtained from multiple RTM nodes. The memory utilization and CPU utilization of the HP Performance Manager server tend to grow with an increasing number of RTM nodes that are under analysis by different users at the same time.

The Table 5 presents the memory and CPU utilization details of the HP Performance Manager server with the increasing number of RTM nodes that are under analysis.

The test is performed with the following settings:

In the OVPMConfig.ini file on the HP Performance Manager server, REFRESH_RATE is set to 1800000 (which implies the data in the browser is refreshed at every 1800000 milliseconds).

The maximum heap size is set to 2048 MB (by running the command **ovconfchg -ns NONOV.TomcatB set MaximumHeapSize 2048** on the HP Performance Manager server)

Table 5   Memory and CPU Utilization Against the Number of RTM Nodes

Number of RTM Nodes	Memory Utilization (MB)	CPU Utilization (%)
50	394.8	2.31
70	401.1	2.86
90	407.4	3.795
100	425.25	4.29
120	439.95	4.576
140	484.05	5.28

Table 5   Memory and CPU Utilization Against the Number of RTM Nodes

Number of RTM Nodes	Memory Utilization (MB)	CPU Utilization (%)
150	488.25	5.72
180	645.75	8.47
200	723.45	9.405

Browser Performance with Increasing Node Groups

Table 6 presents the performance of the client browser with the increasing number of node groups and nodes. Increasing nodes and node groups affect the response time for the browser to load the homepage and to expand node groups.

▶   This test was carried out in the Standard View of HP Performance Manager.

Table 6   Response Time Against the Number of Nodes

Number of Node Groups	Number of Nodes in Each Group	Time to Load the HP Performance Manager Homepage (Seconds)	Memory Utilization (MB)	Time to Expand the Last Node Group	Memory Utilization after Expanding the Last Node Group (MB)
10	200	8	65	1	77
	400	8	65	2.5	97
	600	8	65	3	120
	1000	8	65	4	156
	1500	8	65	6	195
	2500	8	65	7	278
25	200	9	67	1	98
	400	9	68	2	154
	600	9	68	2.5	197
	1000	9	68	5	280
	1500	9	68	8	388
	2500	9	68	13	596

Table 6   Response Time Against the Number of Nodes

Number of Node Groups	Number of Nodes in Each Group	Time to Load the HP Performance Manager Homepage (Seconds)	Memory Utilization (MB)	Time to Expand the Last Node Group	Memory Utilization after Expanding the Last Node Group (MB)
40	200	10	69	1	137
	400	10	69	3	207
	600	10	69	5.3	273
	1000	10	69	8	409
	1500	10	69	9	583
50	200	11	69	1	152
	400	11	69	4	237
	600	11	69	6	322
	1000	11	69	10.5	489
60	200	12	70	2.5	170
	400	12	70	5.4	271
	600	12	70	6	396
	1000	12	70	11	575