

NonStop NET/MASTER Tips and Techniques

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Introduction

This is an ongoing column with NonStop NET/MASTER tips and techniques. Each column is also accessible from <http://www.greshamsoftwarelabs.com.au/> (Gresham Software Labs). Please send all comments and suggestions to John New at jnew@greshamsoftwarelabs.com.au.

Biography

John New is a technical writer. He has written and updated various Tandem manuals. He currently writes hard-copy, online, and web documents for a variety of software products.

Revealing NonStop NET/MASTER Memory Secrets

A little-known NonStop NET/MASTER feature is its ability to display internal information about the memory used by its processes¹. This article discusses how you can discover this information by using the SHOW MEMORY command. The article explains how to use the SHOW MEMORY command, summarizes its syntax, lists some considerations, and presents some examples.

Using the SHOW MEMORY Command

The SHOW MEMORY command displays information about the memory used by NonStop NET/MASTER processes in two parts. The first part (beginning with message number NNM2801, followed by a series of NNM2802 messages) shows memory blocks in use. The second part (beginning with message number NNM2803, followed by a series of NNM2804 messages) describes memory pools (a pool is made up of fixed-sized memory blocks).

By default any NonStop NET/MASTER user can use the SHOW MEMORY command because the command's default authority level is 0. However, because of the internal nature of the information, the command is primarily intended for use by Compaq/Tandem support personnel and NonStop NET/MASTER system managers who can interpret the output displayed by the command.

These users may find the command useful when trying to determine the cause of a possible NonStop NET/MASTER problem. A NonStop NET/MASTER system may appear to be consuming more and more system resources with little apparent system activity. Using the SHOW MEMORY command at regular intervals to display message usage may help to pinpoint the process that is consuming excessive resources.²

Note that simply using the SHOW MEMORY command increases memory usage in the short term, because displaying memory information uses memory. Additionally, because you are viewing memory usage on a running NonStop NET/MASTER system, there will inevitably be fluctuations as the workload handled by NonStop NET/MASTER increases and decreases over time.

Therefore, it is important to view memory usage for a sufficient period of time to be sure that there really is a problem. If memory usage is high and growing over time, this is a fair indication that a problem exists.

Syntax

The syntax of the SHOW MEMORY command is:

```
SHOW MEMORY[ = { process-name | ALL } ]
```

process-name

specifies a NonStop NET/MASTER process name. NonStop NET/MASTER displays information about the process with the specified name.

ALL

specifies all NonStop NET/MASTER processes. NonStop NET/MASTER displays information about all its processes.

Considerations

Entering the SHOW MEMORY command with no operands displays information about the current NonStop NET/MASTER process.

You can enter this command from any NCL procedure, including the INIT procedure, by using the CMD core statement or the INTCMD verb.

Messages NNM2801 through NNM2804 and message NNM0999 indicate the results of this command. Refer to the *NonStop NET/MASTER Messages Manual* or the NonStop NET/MASTER MS online help for a description of these messages.

¹ For more information about the various types of NonStop NET/MASTER processes, see New John, "Easy Startup Configuration: Part 1 – The Default Configuration," *Tandem Connection*, Vol.20, No.6, 1999.

² For more information about identifying and reporting NonStop NET/MASTER problems, see New John, "Tips For Reporting Problems," *Tandem Connection*, Vol.21, No.4, 2000.

The SHOW MEMORY command displays detailed memory information. When trying to solve a NonStop NET/MASTER problem, it may also be helpful to use the SHOW ENGINE command to display a summary of internal process information. The summary from SHOW ENGINE includes a summary of memory usage.

Example

The following command displays information about memory being used by the current NonStop NET/MASTER process (in this example the name of the current process is \$I003):

```
SHOW MEMORY
```

Partial output from the first part of the SHOW MEMORY command looks similar to this:

NNM2801	NAME	EYEC	COUNT	MEMORY (B)	POOLED (B)	OHEAD (B)
NNM2802	\$I003	ENTD	1	3520	3520	32
NNM2802	\$I003	ENPA	114	1386398	27550	3648
NNM2802	\$I003	ENSA	29	7692	7692	928
NNM2802	\$I003	EMCP	2	604	604	64
NNM2802	\$I003	VFCB	1	48	48	32
NNM2802	\$I003	MSCT	1	10	10	32
NNM2802	\$I003	VFSB	2	96	96	64
NNM2802	\$I003	NCTB	138	13670	13670	4416
NNM2802	\$I003	PVEC	1	346	346	32

Partial output from the second part of the SHOW MEMORY command looks similar to this:

NNM2803	NAME	POOL	BASE	SIZE	USE	OFLOW	SIZE	USE
NNM2804	\$I003	4	1	28520	15%	0	0	0%
NNM2804	\$I003	37	1	18510	1%	0	0	0%
NNM2804	\$I003	52	1	3770	7%	0	0	0%
NNM2804	\$I003	38	1	11910	8%	0	0	0%
NNM2804	\$I003	2	2	24680	6%	0	0	0%
NNM2804	\$I003	198	1	13342	100%	7	93394	95%
NNM2804	\$I003	0	1	32370	12%	0	0	0%
NNM2804	\$I003	3	1	26430	1%	0	0	0%
NNM2804	\$I003	89	1	11430	100%	2	22860	97%

For many users, the most useful information is provided by the COUNT column in the first part of the SHOW MEMORY output. If a process has a memory leak, the value in this column steadily increases over time. In this example, the output shows that the current value of the engine pool area (shown by ENPA in the EYEC column) is 114. Normally this value may perhaps fluctuate between 105 and 125. If the value increases over time to a very large value, such as 100,000, this is a fair indication that the process has a memory leak and that you should report a problem.

Conclusion

NonStop NET/MASTER is normally a very stable and reliable product. However, if you think that NonStop NET/MASTER is using excessive system resources over time, using the SHOW MEMORY command is particularly useful for monitoring memory usage.