

“A Tool to aid nmon analysis and utility”

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Many AIX system administrators and engineers consider nmon as the greatest performance tool created for AIX. They love nmon for being equally useful for real-time monitoring, and saving log files for later analysis. As useful as it is, nmon has limitations and issues, especially when using nmon_analyzer (Excel) to analyze nmon logfiles.

nmon_analyzer problems or limitations:

1. Long processing time with nmon log files - It can take an unacceptably long time to analyze a nmon log file (specially nmon logs of servers with a lot of disks)

Examples * :

First case – nmon created a 100MB log file for a database server with 48 cores, 300GB Memory and 3500 disks.

nmon was executed as follows :

```
nmon -f -d -t -s 120 -c 720
```

The nmon_analyzer failed to provide any output when Excel memory usage topped 1.5GB.

Even after splitting the log file into two, running nmon_analyzer for each half log also failed. Quartering(25MB) and running each quarterlog file was successful. It took 20minutes to analyze the nmon logs, and the working set (memory used by Excel) was 1.2GB. However, after reviewing a few sheets of the Excel spreadsheet, the working set topped 1.5GB, and Excel became hung with a resource shortage message. It became impossible to analyze further.

To get around the problem, we executed a saved excel file. With the working set at 400MB, we were able to review all the sheets. (working set still topped 1GB after reviewing all the sheets.)

2nd case – nmon created 27MB log file for an application server with 1 core; 2GB Memory; and 6 disks.

nmon was executed as follows :

```
nmon -f -t -s 2 -c 8640
```

It took 95 seconds to analyze with nmon_analyzer, with a working set at 1.3GB. After reviewing all sheets, the working set topped 1.45GB. We had no problems in using Excel.

2. Hard to compare different items in nmon analysis charts - It's difficult and inconvenient to compare and analyze different items in the analysis, as each item exists in separate excel sheets .
3. Unable to analyze all disks at one time - In an environment with a large number of disks, nmon makes 150 disk groupings, and display each group on one Excel sheet. It becomes very difficult to analyze all disks at one time.
4. Hard to merge and analyze sequential nmon log files - Even with MergenmonAnalyzer, it's still very difficult to merge and analyze nmon files that are saved sequentially.
5. Unable to analyze several individual servers' nmon log files in the approximate same time period and compare - It is impossible to analyze nmon log files of several individual servers, and compare them in one chart, even though the logs are saved for the roughly same time period.
6. Unable to analyze top process for a specific period - Since nmon_analyzer does not provide a chart using top process data, it's impossible to analyze a top process for a specific period.
7. Can't decrease nmon monitoring time interval to units of seconds – even if needed, it's

unadvisable to decrease analysis time intervals to seconds unit, as nmon log file sizes becomes very large. Given the problem stated in #1, it's impossible, or will take an unrealistically long time, to analyze very large nmon files.

The onTune nmon Analyzer overcame the limitations above:

1. Long processing time with nmon log files - In general, the onTune nmon Analyzer processes log files 5 to 20 times faster than nmon_analyzer. In the case of very large log files (enterprise servers with thousands of disks), you may expect 20 to 100 times faster processing.

*From the examples * above :*

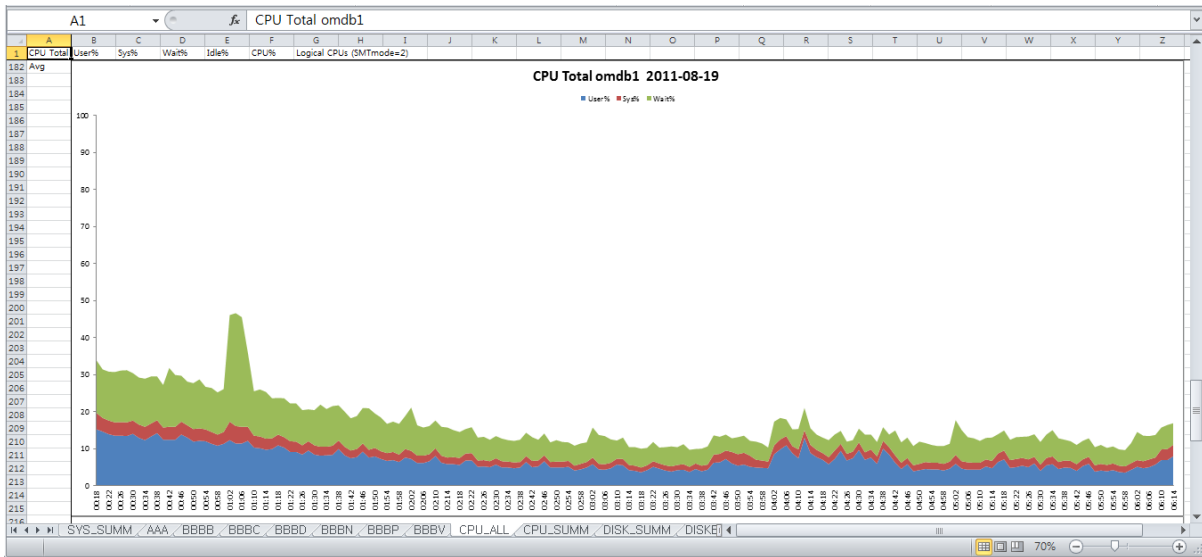
First case – nmon created a 100MB log file for a database server with 48 cores, 300GB Memory and 3500 disks.

onTune nmon Analyzer took 40 seconds to process the original nmon file (entire, unsplit) with a working set at 80MB. The working set increased by approximately 10MB whenever one chart is viewed. There were no problems to review all charts.

2nd case – nmon created 27MB log file for an application server with 1 core; 2GB Memory; and 6 disks.

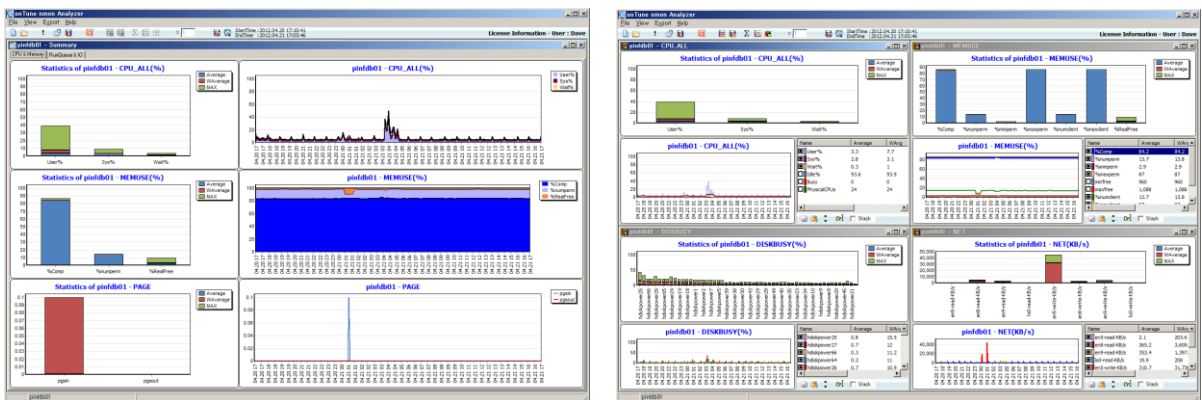
onTune nmon analyzer took 12 seconds (compare with 95 sec by nmon_analyzer) to process the same file with a working set of 80MB. The working set increased by approximately 10MB whenever one chart is viewed.

2. Hard to compare different items in nmon analysis charts - onTune nmon Analyzer displays results via a chart window view that is easy for review, and easy to compare several results at one time.

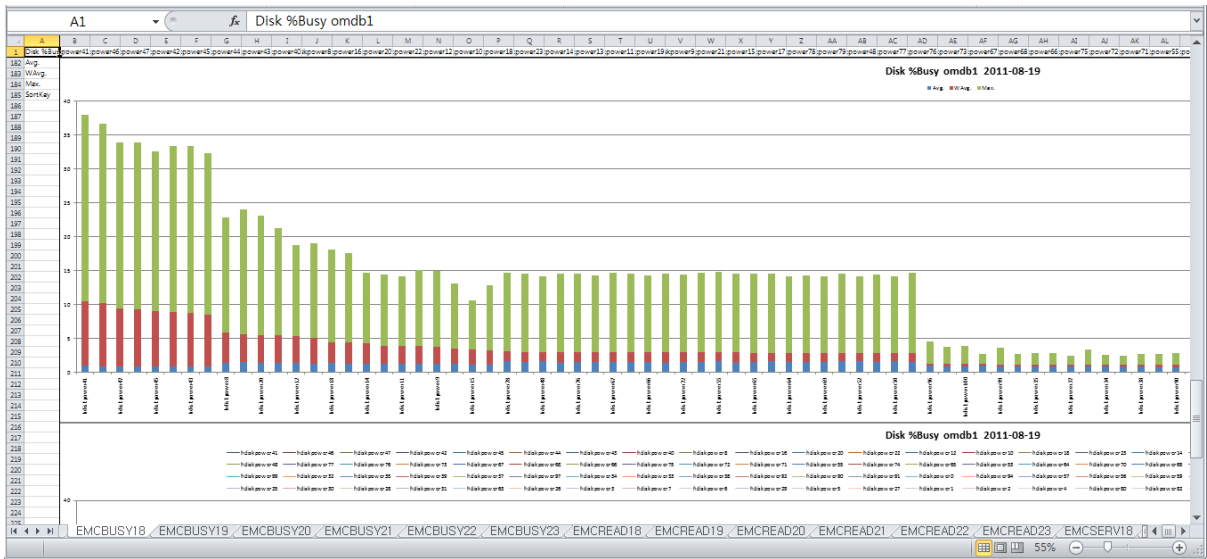


Contrast the Excel sheet view provided by nmon_analyzer above with ...

The onTune nmon analyzer window chart views below



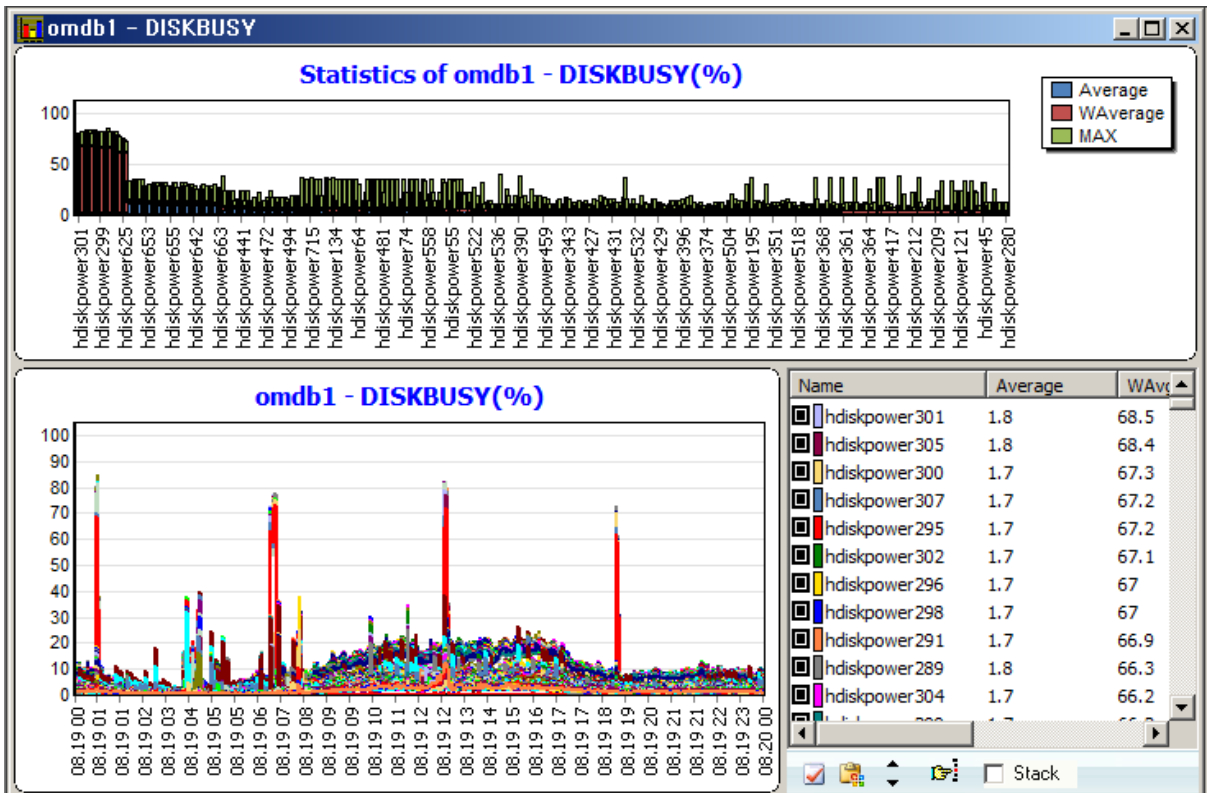
3. Unable to analyze all disks at one time - onTune nmon Analyzer puts all disks data together in one table. User may choose to display all disks at once, or a subset of disks dependent on definable parameters.



EMCBUSY18 / EMCBUSY19 / EMCBUSY20 / EMCBUSY21 / EMCBUSY22 / EMCBUSY23 / EMCREAD18 / EMCREAD19 / EMCREAD20 / EMCREAD21 / EMCREAD22 / EMCREAD23 / EMCSERV18

Contrast the numbers of disk sheets provided by nmon analyzer above to

onTune nmon analyzer displaying one chart for all disks, or subset of disks.



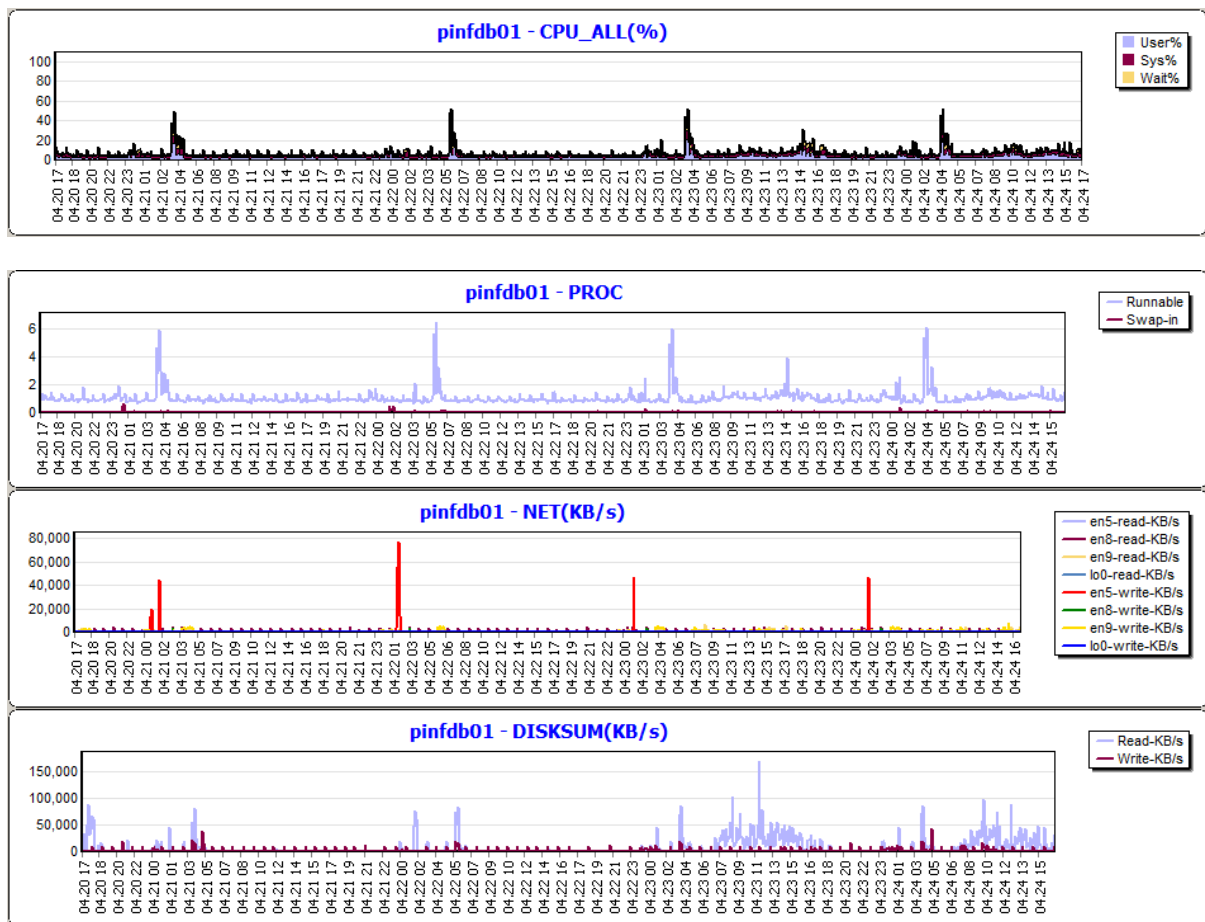
4. Hard to merge and analyze sequential nmon log files- onTune nmon Analyzer provides multi-

nmon log file support as a basic function.

- The example below selects multiple nmon files saved sequentially period.

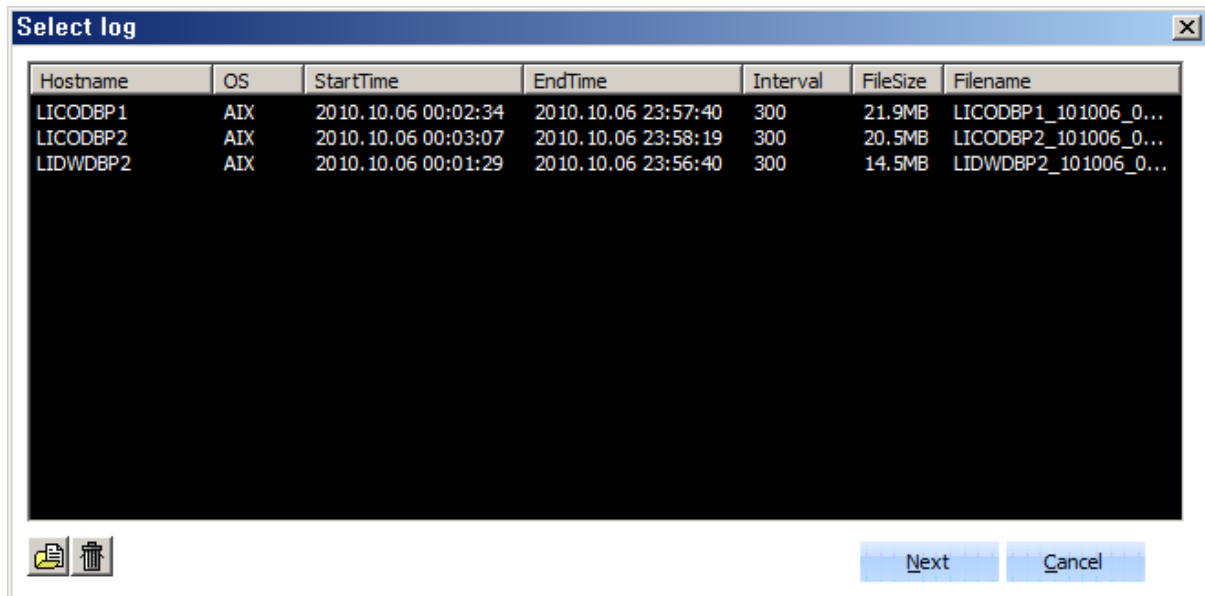
Hostname	OS	StartTime	EndTime	Interval	FileSize	Filename
pinfdb01	AIX	2012.04.20 17:10:41	2012.04.21 17:05:46	300	5.3MB	pinfdb01_120420_17...
pinfdb01	AIX	2012.04.21 17:10:40	2012.04.22 17:05:44	300	5.2MB	pinfdb01_120421_17...
pinfdb01	AIX	2012.04.22 17:10:41	2012.04.23 17:05:45	300	5.5MB	pinfdb01_120422_17...
pinfdb01	AIX	2012.04.23 17:10:42	2012.04.24 17:05:46	300	5.5MB	pinfdb01_120423_17...

And displays a chart of multi nmon logs

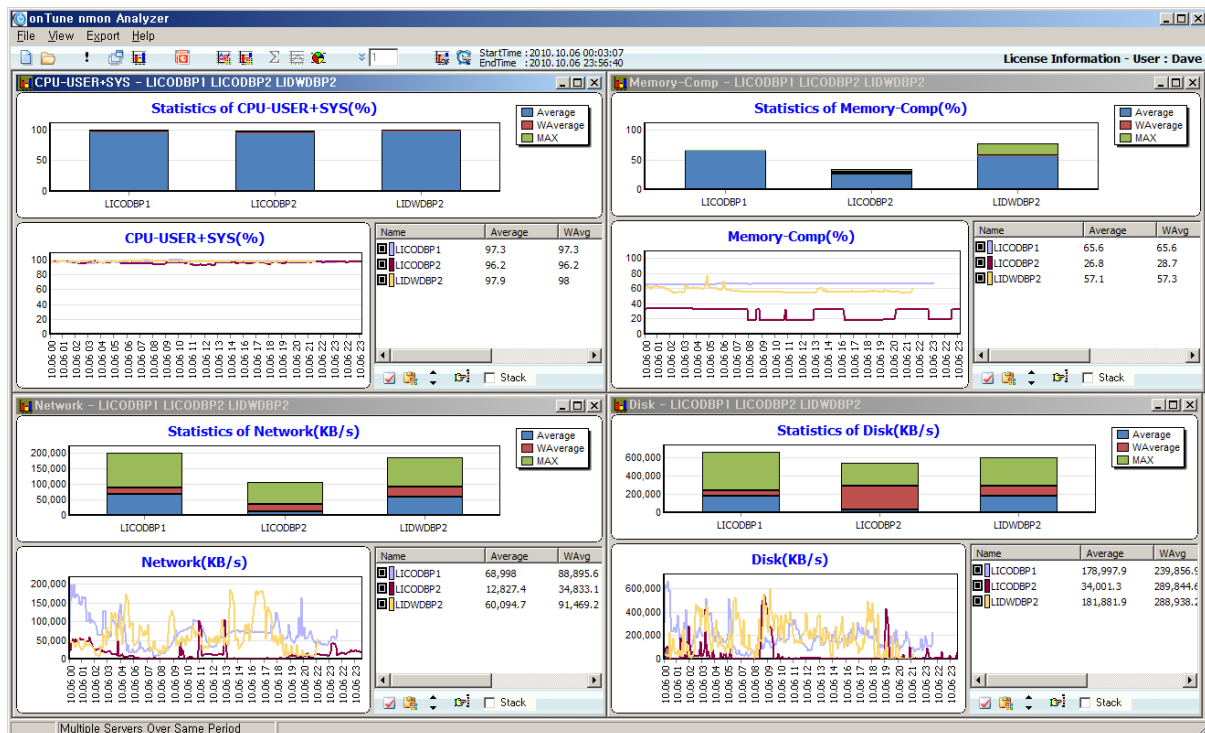


5. Unable to analyze several individual servers' nmon log files in same time period and compare - onTune nmon analyzer supports analyzing log files of several servers saved over approximately the same period. Moreover, it provides the results of several servers for basic items such as CPU and memory within one chart .

Take multiple nmon files over the approximate same period:

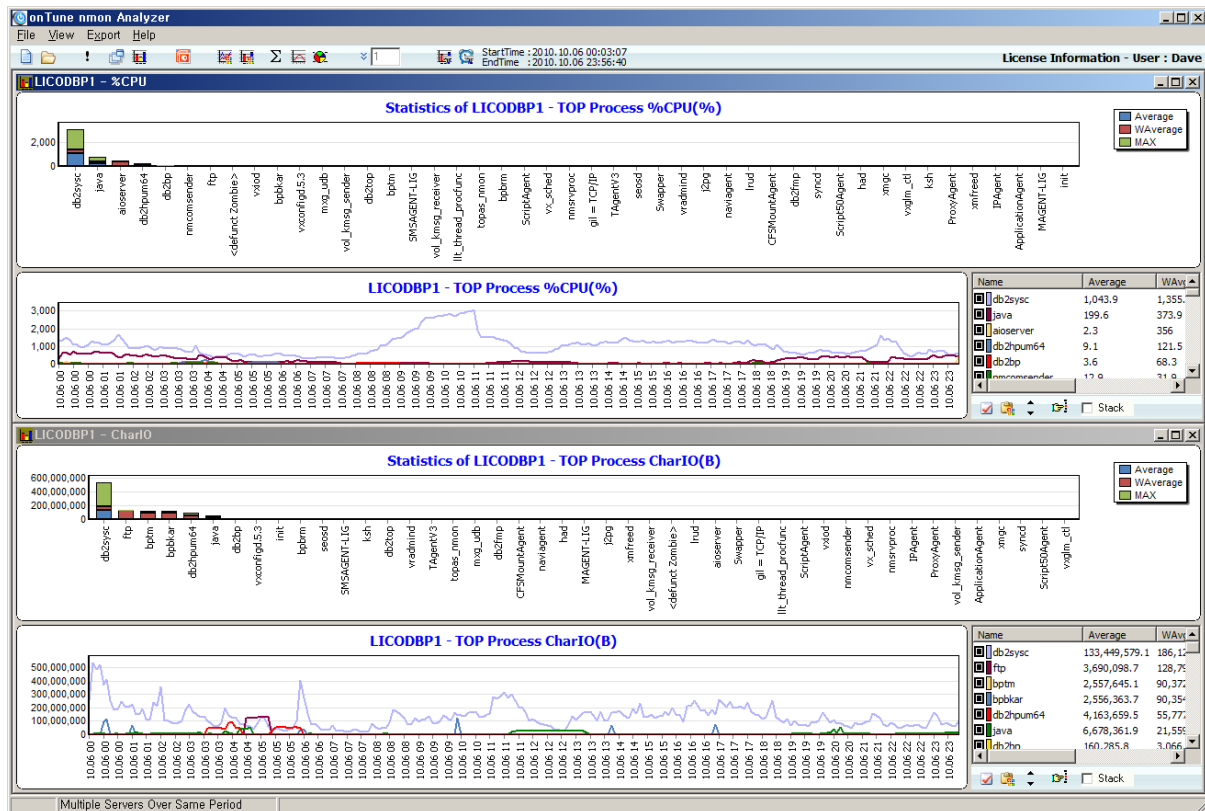


And display all-together in one view:



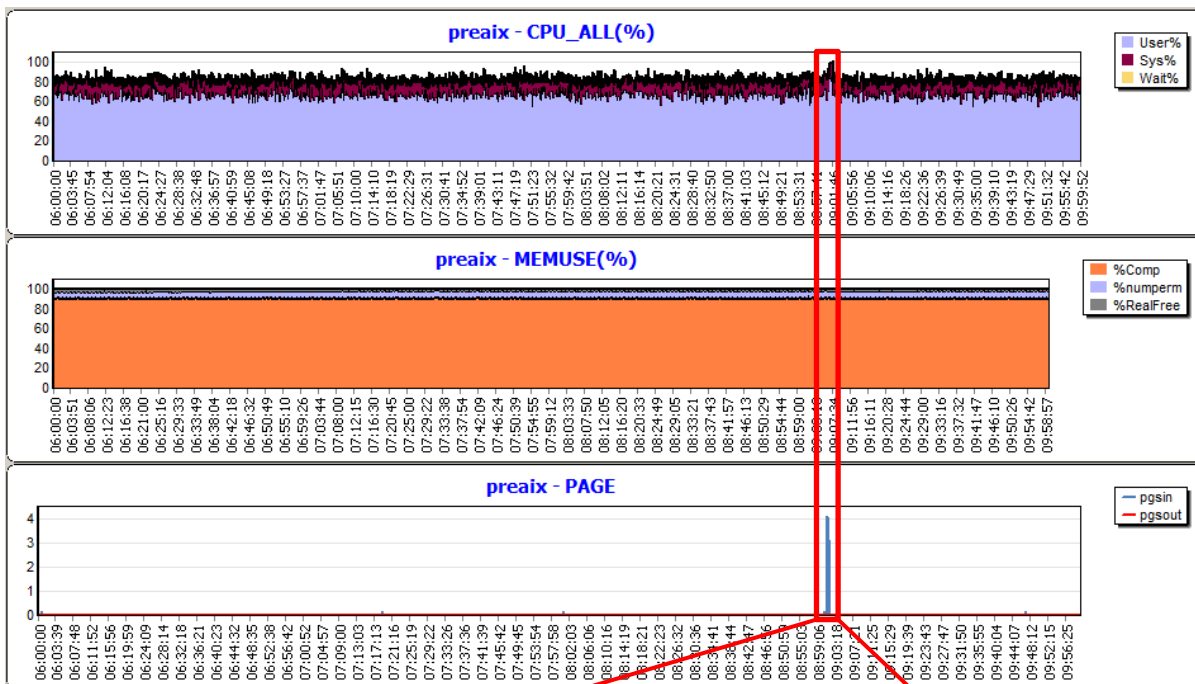
6. Unable to analyze top process for a specific period - onTune nmon analyzer provides top process chart for the user to visually analyze top process over a specific period.

- CPU and CharIO of TOP Process

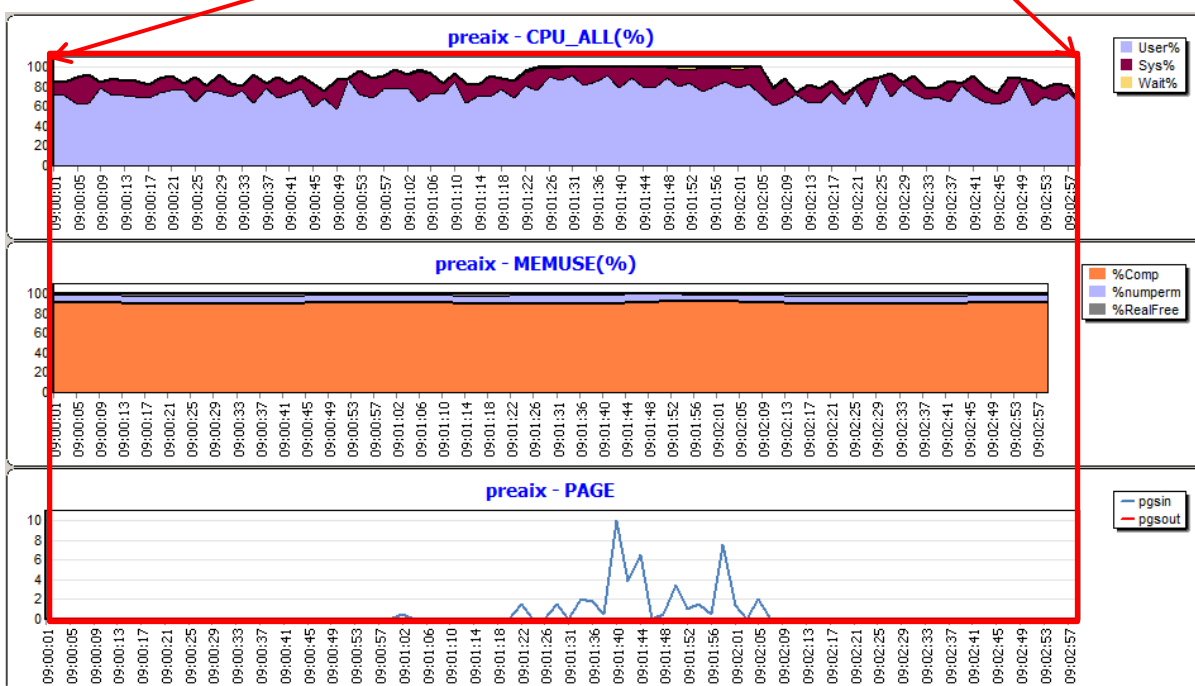


7. Can't decrease nmon analysis time interval to units of seconds - onTune nmon analyzer can process very large nmon log files, enabling nmon users to decrease nmon interval to unit of seconds.

- This is a 2 seconds-interval nmon log file.



- Expanded view as follows:



onTune nmon Analyzer is a tool for analyzing and presenting graphical views of nmon performance data. It amplifies the power and utility of nmon-captured performance data, and overcomes major limitations of nmon usage and nmon analysis. onTune nmon Analyzer runs on a Windows computer, and is available for AIX and Linux. Visit www.ontune.us for information and to purchase.

** The Windows computer used in these tests and examples is an i7-3610QM(2.3GHz), 8GB Memory, SSD Laptop running Windows 7 64bit, and MS Office Professional Plus 2010; The nmon analyzer version used is nmon_analyzer 34a.*