

# OSWatcher

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# Agenda

- 1 OSWatcher Overview
- 2 Data Collection
- 3 Data Analysis
- 4 Q & A

# OSWatcher

- Developed by support to add additional OS data collections used to resolve service requests
- Tool for collecting/analyzing OS metrics
- Downloadable as single tar file
- No special license required. Oracle standard license applies.
- MOS has link to latest version (Note:301137.1)

# OSWatcher Master Document MOS Note 301137.1

The screenshot displays the Oracle My Oracle Support (MOS) website interface. The browser window shows the URL [https://mosemp.us.oracle.com/epmos/faces/DocumentDisplay?\\_afLoop=295493467652954&i](https://mosemp.us.oracle.com/epmos/faces/DocumentDisplay?_afLoop=295493467652954&i). The page title is "OSWatcher (Includes: [Video]) (Doc ID 301137.1)".

**Navigation and User Interface:**

- Top navigation: Knowledge, Authoring, HealthPlan, KM Reports, Keyword Dictionary, RCA, More...
- User profile: Carl (Available), Profile, (0) Help
- Search bar: Search

**Document Content:**

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**APPLIES TO:**

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 No

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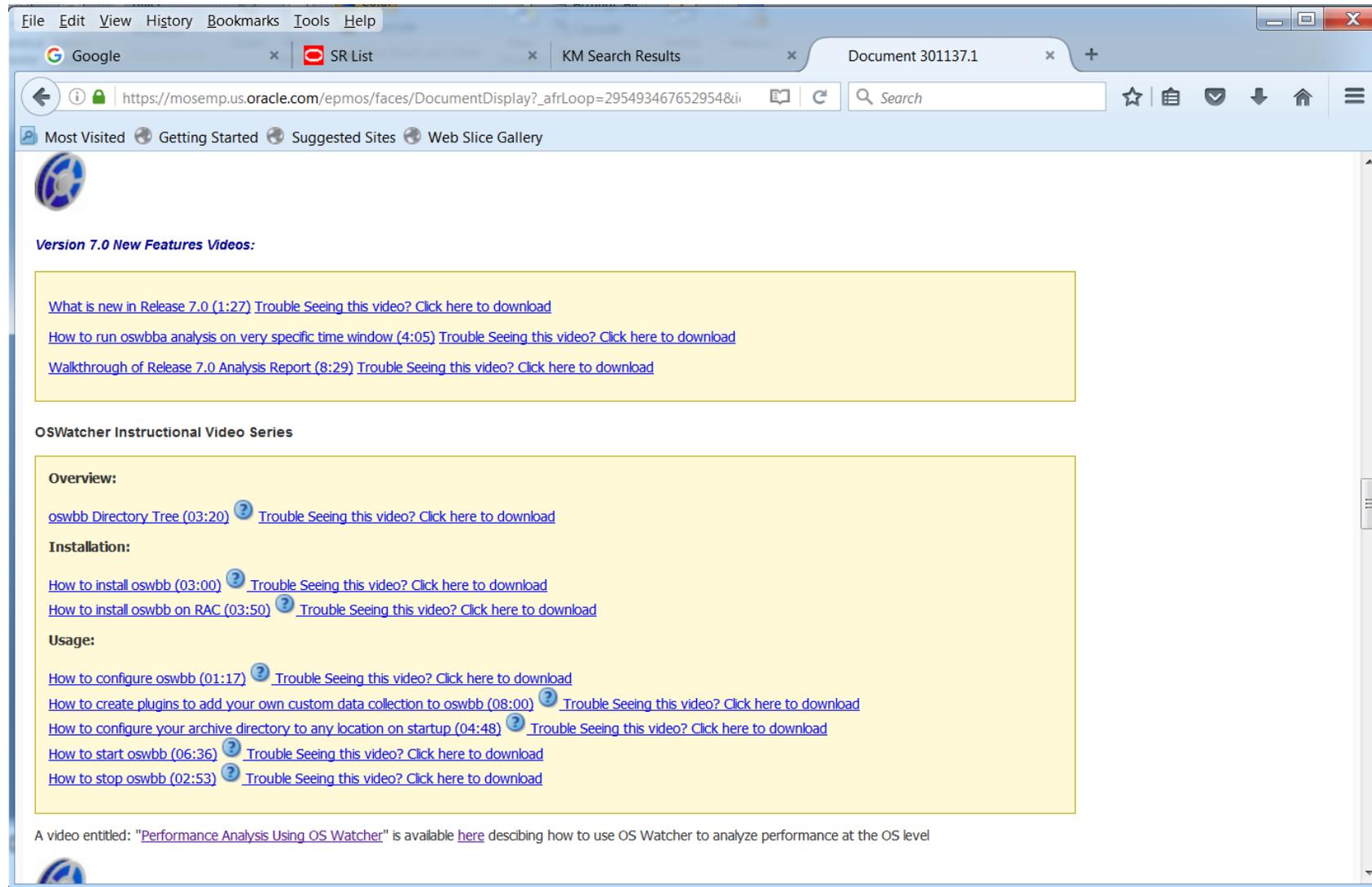
**Related Products**

- Oracle Database - Enterprise Edition
- Oracle Database - Personal Edition
- Oracle Database - Standard Edition

**Information Centers**

- Information Center: Overview
- Database Server/Client Installation and Upgrade/Migration [1351022.2]

# OSWatcher Master Document MOS Note 301137.1



File Edit View History Bookmarks Tools Help

Google SR List KM Search Results Document 301137.1

https://mosemp.us.oracle.com/epmos/faces/DocumentDisplay?\_afLoop=295493467652954&i

Most Visited Getting Started Suggested Sites Web Slice Gallery

**Version 7.0 New Features Videos:**

- [What is new in Release 7.0 \(1:27\) Trouble Seeing this video? Click here to download](#)
- [How to run oswbba analysis on very specific time window \(4:05\) Trouble Seeing this video? Click here to download](#)
- [Walkthrough of Release 7.0 Analysis Report \(8:29\) Trouble Seeing this video? Click here to download](#)

**OSWatcher Instructional Video Series**

**Overview:**

- [oswbb Directory Tree \(03:20\) Trouble Seeing this video? Click here to download](#)

**Installation:**

- [How to install oswbb \(03:00\) Trouble Seeing this video? Click here to download](#)
- [How to install oswbb on RAC \(03:50\) Trouble Seeing this video? Click here to download](#)

**Usage:**

- [How to configure oswbb \(01:17\) Trouble Seeing this video? Click here to download](#)
- [How to create plugins to add your own custom data collection to oswbb \(08:00\) Trouble Seeing this video? Click here to download](#)
- [How to configure your archive directory to any location on startup \(04:48\) Trouble Seeing this video? Click here to download](#)
- [How to start oswbb \(06:36\) Trouble Seeing this video? Click here to download](#)
- [How to stop oswbb \(02:53\) Trouble Seeing this video? Click here to download](#)

A video entitled: "[Performance Analysis Using OS Watcher](#)" is available [here](#) describing how to use OS Watcher to analyze performance at the OS level

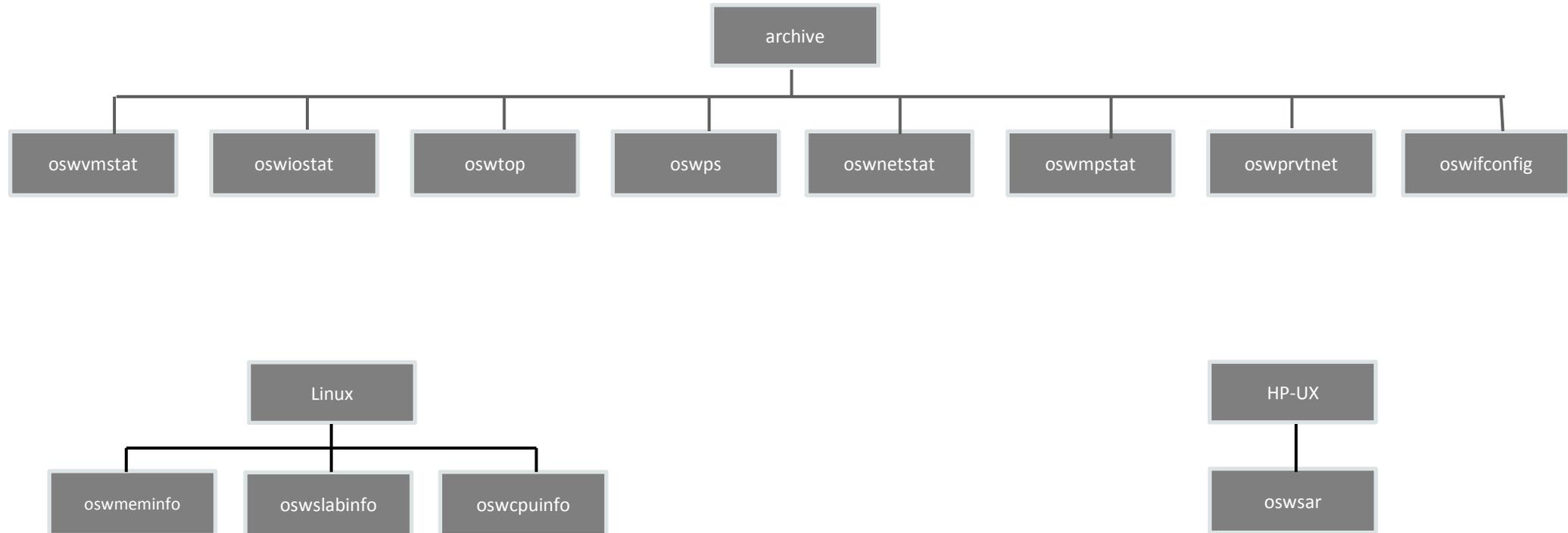
# OSWatcher

- Two components
  - Data Collector (OSWatcher.sh)
    - Multiple UNIX shell scripts
    - Runs on UNIX/Linux servers
  - Data Analyzer (oswbba.jar)
    - Single java jar file
    - Runs on UNIX, Linux and Windows platform that has java installed and has x-windows client

# OSWatcher Collector

- Data sampled every 30 seconds by default
- Last 48 hours of data retention by default
- Oldest Files are automatically purged
- User configurable, but best practice is to use default sampling rate and retention
- Data stored in archive directory outside the database in flat ASCII files
  - Location of archive directory can be any location
- Best practice is to run OSWatcher in all environments

# OSWatcher Archive Directory



# OSWatcher Collector

- One file per hour will be generated in each of the OSWatcher utility subdirectories. A new file is created at the top of each hour during the time that oswbb is running. The file will be in the following format:

```
<node_name>_<OS_utility>_YY.MM.DD.HH24.dat
```

Name	Date modified	Type	Size
 cehaovmsp201_vmstat_15.09.30.1300	9/30/2015 1:59 PM	DAT File	51 KB
 cehaovmsp201_vmstat_15.09.30.1400	9/30/2015 2:59 PM	DAT File	51 KB
 cehaovmsp201_vmstat_15.09.30.1500	9/30/2015 3:59 PM	DAT File	51 KB
 cehaovmsp201_vmstat_15.09.30.1600	9/30/2015 4:59 PM	DAT File	51 KB
 cehaovmsp201_vmstat_15.09.30.1700	9/30/2015 6:00 PM	DAT File	51 KB
 cehaovmsp201_vmstat_15.09.30.1800	9/30/2015 6:59 PM	DAT File	51 KB
 cehaovmsp201_vmstat_15.09.30.1900	9/30/2015 8:00 PM	DAT File	51 KB
 cehaovmsp201_vmstat_15.09.30.2000	9/30/2015 8:59 PM	DAT File	51 KB
 cehaovmsp201_vmstat_15.09.30.2100	9/30/2015 9:59 PM	DAT File	51 KB
 cehaovmsp201_vmstat_15.09.30.2200	9/30/2015 10:59 PM	DAT File	51 KB
 cehaovmsp201_vmstat_15.09.30.2300	9/30/2015 11:59 PM	DAT File	51 KB

# OSWatcher Vmstat Collection Example

```
TextPad - C:\aoswbb733\archive\bryan\archive\xoswvstat\cehaovmstat201_vmstat_15.09.30.1300.dat *
File Edit Search View Tools Macros Configure Window Help
cehaovmstat201_vmstat_15.0... x
SunOS OSWbb v7.3.3 node201
SNAP_INTERVAL 30
CPU_COUNT 4
OSWBB_ARCHIVE_DEST /u01/app/oracle/tfa/repository/suptools/cehaovmstat201/oswbb/oracle/archive
zzz ***Wed Sep 30 13:00:19 EDT 2015
kthr      memory          page            disk            faults          cpu
 r b w   swap free  re mf pi po fr de sr vc vc vc vc  in  sy  cs us sy id
0 0 0 8810048 2567440 109 1969 6 1 1 0 5 1 19 4 0 7965 13197 9407 13 10 77
0 0 0 6733408 699800 360 5444 0 0 0 0 0 0 0 76 3 0 8182 21951 9893 50 16 33
0 0 0 6732048 684080 143 4864 0 0 0 0 0 0 0 5 1 8219 15716 9625 38 10 52
zzz ***Wed Sep 30 13:00:49 EDT 2015
kthr      memory          page            disk            faults          cpu
 r b w   swap free  re mf pi po fr de sr vc vc vc vc  in  sy  cs us sy id
0 0 0 8809960 2567360 109 1969 6 1 1 0 5 1 19 4 0 7965 13197 9407 13 10 77
0 0 0 6935208 748856 294 2922 0 0 0 0 0 0 0 43 3 0 7746 18320 10771 6 8 86
0 0 0 6937680 749928 0 81 0 0 0 0 0 0 0 9 1 7303 7181 7944 3 3 94
zzz ***Wed Sep 30 13:01:19 EDT 2015
kthr      memory          page            disk            faults          cpu
 r b w   swap free  re mf pi po fr de sr vc vc vc vc  in  sy  cs us sy id
0 0 0 8809872 2567280 109 1969 6 1 1 0 5 1 19 4 0 7965 13197 9407 13 10 77
0 1 0 6935504 749296 294 2982 0 0 0 0 0 0 0 23 4 0 7787 18411 10839 5 8 87
0 0 0 6937088 750392 11 84 0 0 0 0 0 0 0 4 1 7309 7202 7970 3 3 94
zzz ***Wed Sep 30 13:01:49 EDT 2015
kthr      memory          page            disk            faults          cpu
 r b w   swap free  re mf pi po fr de sr vc vc vc vc  in  sy  cs us sy id
0 0 0 8809792 2567200 109 1969 6 1 1 0 5 1 19 4 0 7965 13197 9407 13 10 77
4 0 0 6936408 749312 283 2947 0 0 0 0 0 0 0 11 4 0 7646 18234 10657 5 8 87
1 0 0 6937704 750424 0 210 0 0 0 0 0 0 0 4 1 7417 7605 8136 3 7 90
zzz ***Wed Sep 30 13:02:20 EDT 2015
kthr      memory          page            disk            faults          cpu
 r b w   swap free  re mf pi po fr de sr vc vc vc vc  in  sy  cs us sy id
0 0 0 8809704 2567120 109 1969 6 1 1 0 5 1 19 4 0 7965 13197 9407 13 10 77
```

# OSWatcher Analyzer: Overview

- Java executable oswbba.jar
- Packaged with OSWbb
- Runs on Unix, Linux and Windows platforms
- Produces graphs, dashboard and textual analysis report which can be easily uploaded to SR

# OSWatcher Analyzer

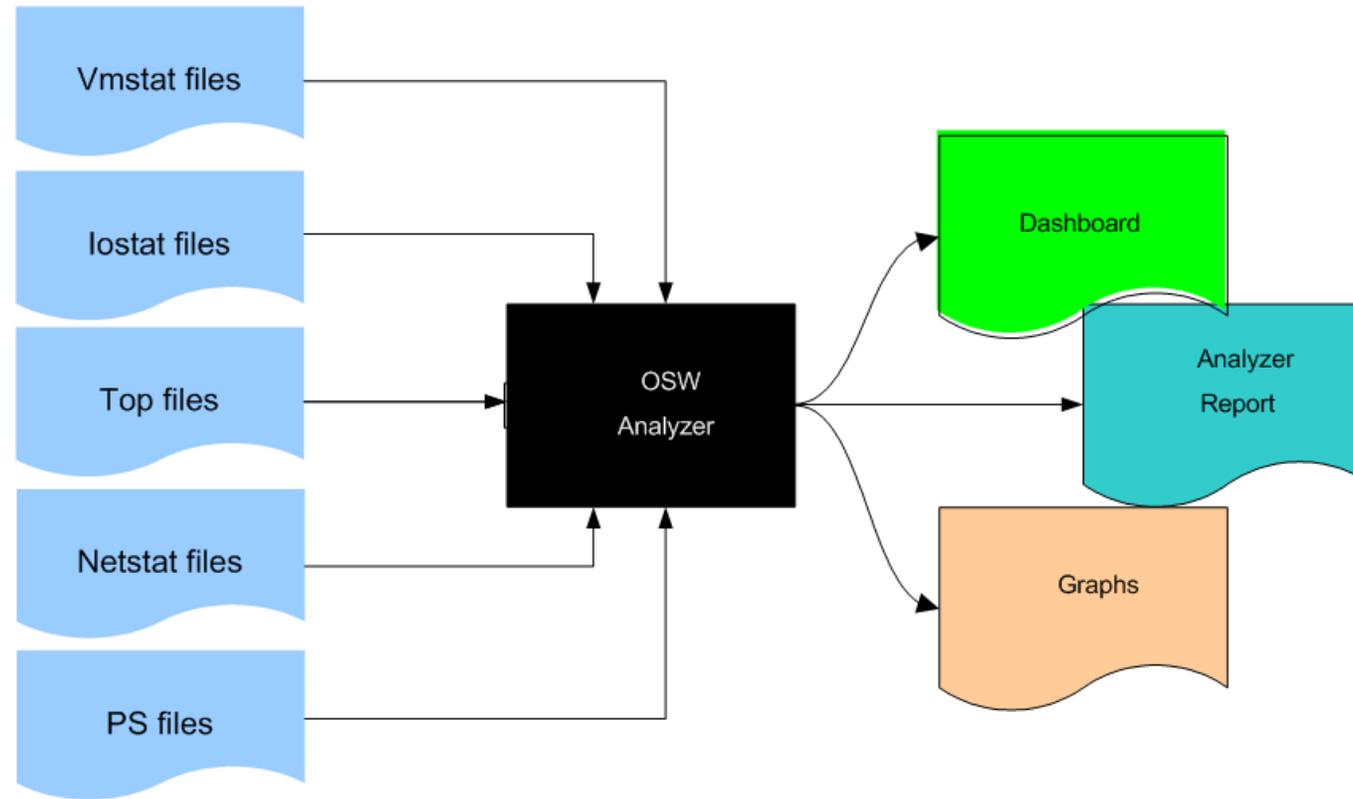
## Why an analyzer?

- The number and size of log files collected by OSWbb can be overwhelming
- Makes reading and analyzing data from Unix performance utilities more DBA-friendly
- Real-time analysis focused on finding most significant problems while ignoring noise
- Text based report for easy upload to SR

# OSWatcher Analyzer

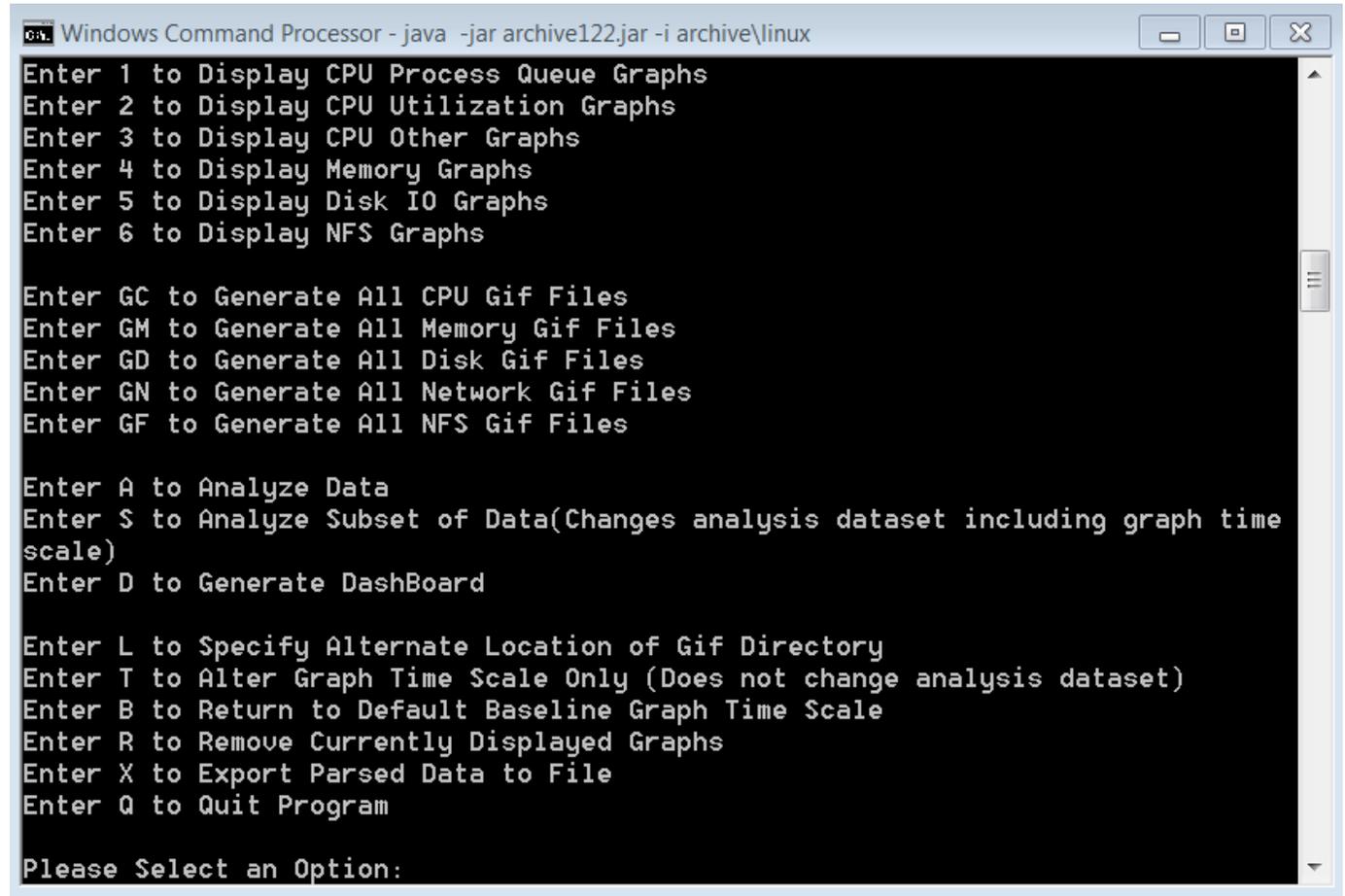
- Analysis on demand
- Rules based
- Not all data collected is analyzed
- Output of analyzer
  - Dashboard
  - Reports
  - Graphs

# OSWatcher Analyzer



# OSWatcher Analyzer: Options

- Graphing (options – multiple)
- Analyzer (option A)
- Dashboard (option D)



```
Windows Command Processor - java -jar archive122.jar -i archive\linux
Enter 1 to Display CPU Process Queue Graphs
Enter 2 to Display CPU Utilization Graphs
Enter 3 to Display CPU Other Graphs
Enter 4 to Display Memory Graphs
Enter 5 to Display Disk IO Graphs
Enter 6 to Display NFS Graphs

Enter GC to Generate All CPU Gif Files
Enter GM to Generate All Memory Gif Files
Enter GD to Generate All Disk Gif Files
Enter GN to Generate All Network Gif Files
Enter GF to Generate All NFS Gif Files

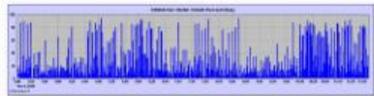
Enter A to Analyze Data
Enter S to Analyze Subset of Data(Changes analysis dataset including graph time
scale)
Enter D to Generate DashBoard

Enter L to Specify Alternate Location of Gif Directory
Enter T to Alter Graph Time Scale Only (Does not change analysis dataset)
Enter B to Return to Default Baseline Graph Time Scale
Enter R to Remove Currently Displayed Graphs
Enter X to Export Parsed Data to File
Enter Q to Quit Program

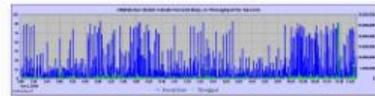
Please Select an Option:
```

# OSWatcher Analyzer Graphs

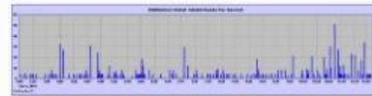
- Metrics that can be analyzed by OSWatcher can be graphed over time to look for trends



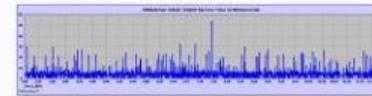
OSWg\_hdisk0\_OS\_IO\_PB



OSWg\_hdisk0\_OS\_IO\_PBTP\_1



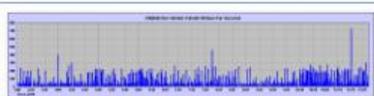
OSWg\_hdisk0\_OS\_IO\_RPS



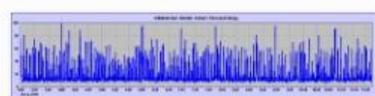
OSWg\_hdisk0\_OS\_IO\_ST



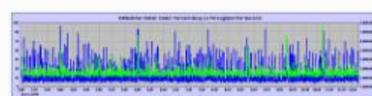
OSWg\_hdisk0\_OS\_IO\_TPS



OSWg\_hdisk0\_OS\_IO\_WPS



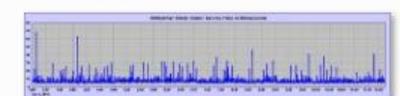
OSWg\_hdisk1\_OS\_IO\_PB



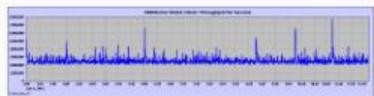
OSWg\_hdisk1\_OS\_IO\_PBTP\_1



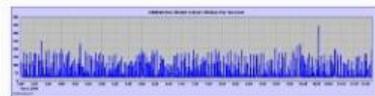
OSWg\_hdisk1\_OS\_IO\_RPS



OSWg\_hdisk1\_OS\_IO\_ST

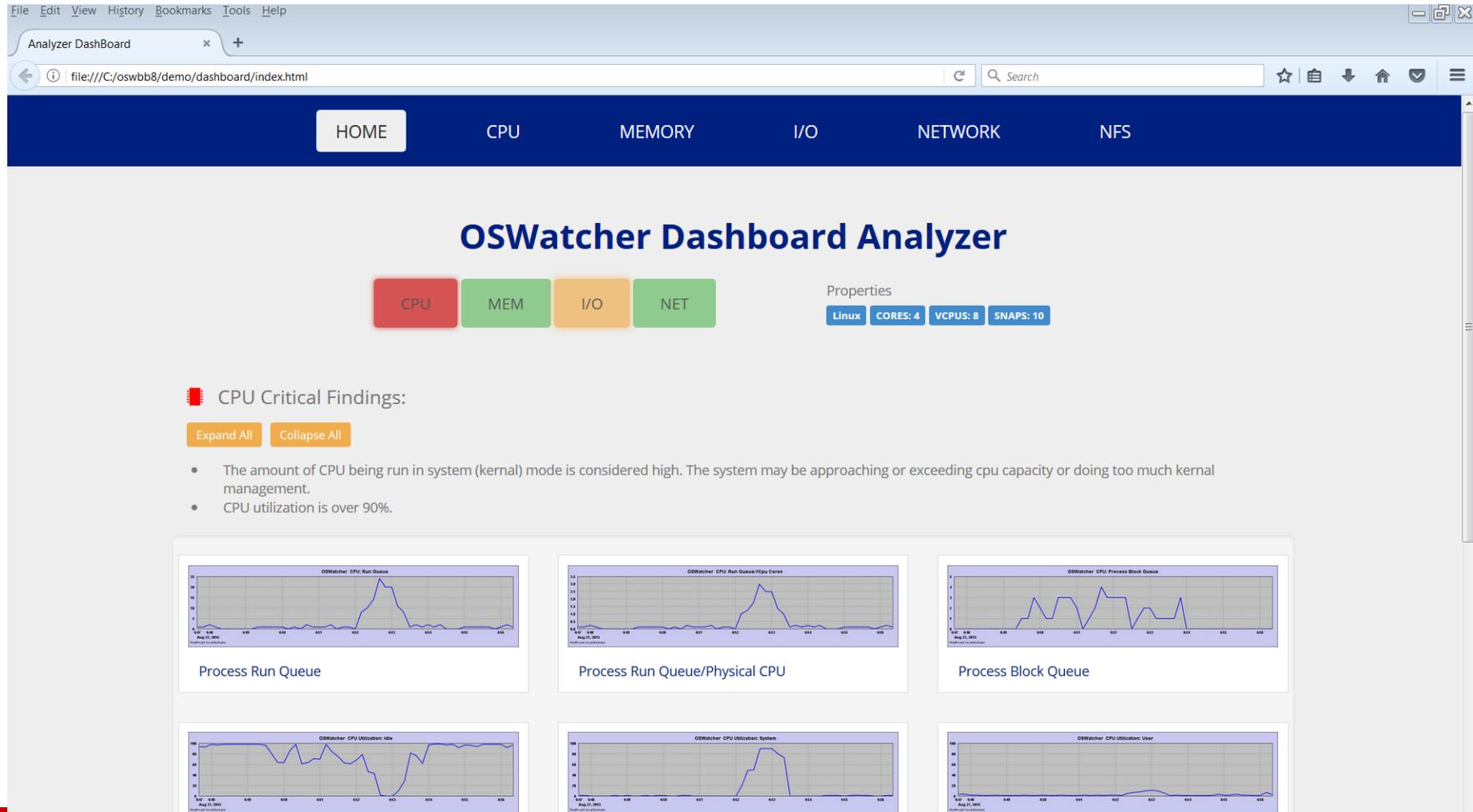


OSWg\_hdisk1\_OS\_IO\_TPS



OSWg\_hdisk1\_OS\_IO\_WPS

# OSWatcher Analyzer Dashboard



# OSWatcher Analyzer Dashboard

The screenshot shows a web browser window displaying the OSWatcher Analyzer Dashboard. The browser's address bar shows the file path: file:///C:/oswbb8/demo/dashboard/index.html. The dashboard has a dark blue navigation bar with tabs for HOME, CPU, MEMORY, I/O, NETWORK, and NFS. The main content area features the title "OSWatcher Dashboard Analyzer" and four colored buttons for CPU (red), MEM (green), I/O (orange), and NET (green). To the right, a "Properties" section lists: Linux, CORES: 4, VCPUS: 8, and SNAPS: 10. Below this, a section titled "I/O Critical Findings:" includes "Expand All" and "Collapse All" buttons. A bulleted list of findings is provided:

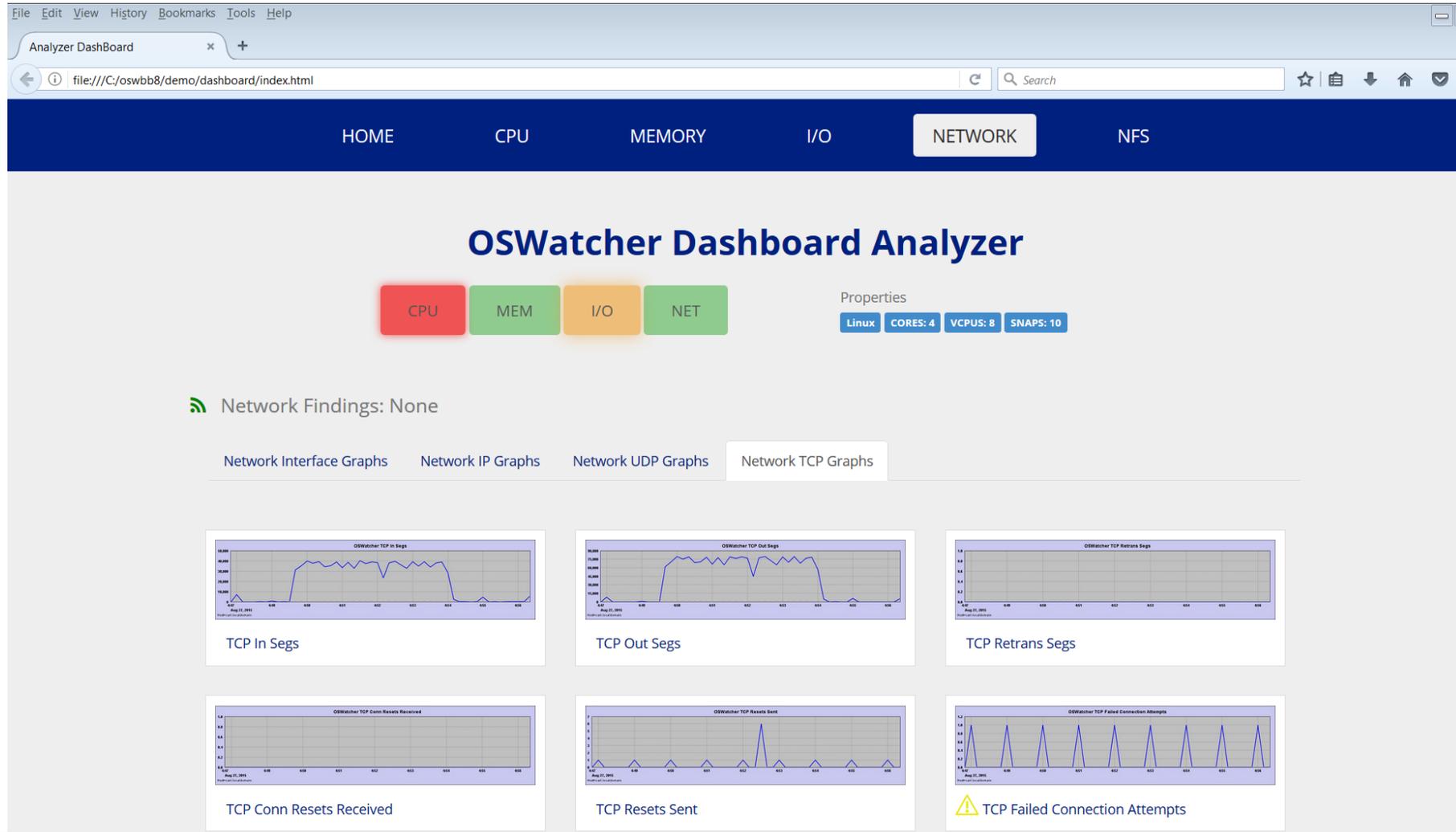
- High service times are being observed on some devices.
  - Check to see if device utilization is also high. On some platforms disk utilization can affect service times.
  - Check i/o distribution. Hot disk.
  - Check for defective device
- High percent cpu waiting on disk reported from vmstat. Values above 10 percent can indicate significant waits on i/o
  - Check individual devices to determine which devices may be problematic.
  - Check for i/o saturation.
  - Check AWR for regressed SQL

At the bottom, three charts are displayed with warning icons:

- CPU Utilization Percent Wait I/O**: A line chart showing CPU utilization over time, with a warning icon.
- Process Block Queue**: A line chart showing process block queue length over time.
- Service Time Top Devices**: A line chart showing service times for various devices over time, with a warning icon.



# OSWatcher Analyzer Dashboard



# OSWatcher Analyzer Dashboard

File Edit View History Bookmarks Tools Help

Analyzer DashBoard

file:///C:/oswbb8/demo/dashboard/index.html

- The amount of CPU being run in system (kernel) mode is considered high. The system may be approaching or exceeding cpu capacity or doing too much kernel management.
- CPU utilization is over 90%.

OSWatcher CPU Run Queue

Process Run Queue

OSWatcher CPU Run Queue/Physical CPU

Process Run Queue/Physical CPU

OSWatcher CPU Utilization: Idle

Utilization Percent Idle

OSWatcher CPU Utilization: System

Utilization Percent System

OSWatcher CPU Utilization: User

Utilization Percent User

OSWatcher CPU Utilization: Wait IO

Utilization Percent Wait I/O

OSWatcher CPU Interrupts Per Second

Interrupts Per Second

OSWatcher CPU Context Switches Per Second

Context Switches Per Second

Show Details

Mozilla Firefox

file:///C:/oswbb8/demo/analysis.txt

```
#####  
# Section 3: System General Findings  
#  
# This section lists all general findings that require attention. Each  
# finding has a status along with a subsystem. Further advice may also  
# be available regarding the finding.  
#  
CRITICAL: CPU Running in System Mode observed to be high.  
Advise: Check why large amount of cpu is running in kernel mode.  
Check: Output of top command top to see what processes are running and using  
kernel cpu  
Check: If the system is undersized with respect to CPU capacity
```

# OSWatcher Analyzer Report

- Produces text report of analysis of OSWbb log files
- Analyzes vmstat, iostat, top and netstat log files
- Analysis broken down into sections for easy readability
- Only identifies real problem. Ignores noise.
- Heartbeat analysis
- Will attempt RCA at process level if possible
- Provides recommendations and what to look for if problem is identified

# OSWatcher Analyzer Report

```
TextPad - C:\aoswbb733\analysis\analysis_cehaovmsp201_1443809530669.txt
File Edit Search View Tools Macros Configure Window Help
analysis_cehaovmsp201_14... x
CPU COUNT: 4

#####
# Contents Of This Report:
#
# Section 1: System Status
# Section 2: System Slowdowns
# Section 2.1: System Slowdown RCA Process Level Ordered By Impact
# Section 3: System General Findings
# Section 4: CPU Detailed Findings
# Section 4.1: CPU Run Queue:
# Section 4.2: CPU Utilization: Percent Busy
# Section 4.3: CPU Utilization: Percent Sys
# Section 5: Memory Detailed Findings
# Section 5.1: Memory: Process Swap Queue
# Section 5.2: Memory: Scan Rate
# Section 5.3 Memory: Page In:
# Section 5.4 Memory: Page Tables (Linux only):
# Section 5.5: Top 5 Memory Consuming Processes Beginning
# Section 5.6: Top 5 Memory Consuming Processes Ending
# Section 6: Disk Detailed Findings
# Section 6.1: Disk Percent Utilization Findings
# Section 6.2: Disk Service Times Findings
# Section 6.3: Disk Wait Queue Times Findings
# Section 6.4: Disk Throughput Findings
# Section 6.5: Disk Reads Per Second
# Section 6.6: Disk Writes Per Second
# Section 7: Network Detailed Findings
# Section 7.1 Network Data Link Findings
# Section 7.2: Network IP Findings
# Section 7.3: Network UDP Findings
# Section 7.4: Network TCP Findings
# Section 8: Process Detailed Findings
# Section 8.1: PS Process Summary Ordered By Time
# Section 8.2: PS for Processes With Status = D or T Ordered By Time
# Section 8.3: PS for (Processes with CPU > 0) When System Idle CPU < 30% Ordered By Time
# Section 8.4: Top VSZ Processes Increasing Memory Per Snapshot
# Section 8.5: Top RSS Processes Increasing Memory Per Snapshot
#
Tool Output
Search Results Tool Output
For Help, press F1
```

# OSWatcher Analyzer Report

```
TextPad - C:\aoswbb733\analysis\analysis_cehaovmsp201_1443809530669.txt
File Edit Search View Tools Macros Configure Window Help
analysis_cehaovmsp201_14... x
#####
# Section 1: System Status
#
# This section lists the status of each major subsystem. Status values are:
# Critical: The subsystem requires immediate attention
# Warning: The subsystem detailed findings should be reviewed
# OK: The subsystem was found to be okay
# Unknown: The status of the subsystem could not be determined
#
#
Subsystem      Status
-----
CPU             OK
MEMORY         OK
I/O            WARNING
NET            OK

#####
# Section 2.0: System Slowdown Summary Ordered By Impact
#
# This section lists the times when the OS started to slowdown. oswbb is
# able to measure this by looking at the timestamps in the individual files
# it collects. It compares the time between the snapshots and looks to see
# how this time differs from the expected timestamp which will be the oswbb
# $ Snapshot Freq value listed at the top of this file. Any slowdowns listed
# in this section will be ordered by the slowdown Secs column. The subsystem
# most likely responsible for the slowdown will be identified here along with
# possible reason codes
#
No System Wide Slowdowns Detected

#####
# Section 3: System General Findings
#
# This section lists all general findings that require attention. Each
# finding has a status along with a subsystem. Further advice may also
# available regarding the finding.

Tool Output
Search Results Tool Output
1 | 1 | Read | Ovr | Block | Sync | Rec | Caps
```

# OSWatcher Analyzer Report

```
TextPad - C:\aoswbb733\analysis\analysis_cehaovmsp201_1443809530669.txt
File Edit Search View Tools Macros Configure Window Help
analysis_cehaovmsp201_14... x
#####
# Section 4: CPU Detailed Findings
#
# This section list cpu run queue, cpu percent utilization (busy) and cpu
# percent running in SYSTEM mode statistics
#
#####
# Section 4.1: CPU RUN QUEUE:
# Run queue should not exceed (Value/#CPU > 3) for any long period of time.
# Below lists the number of times (NUMBER) and percent of the number of times
# (PERCENT) that run queue was High (>3) or Very High (>6). Pay attention to
# high spanning multiple snaps as this represents the number of times run
# queue remained high in back to back snapshots
#
-----
NUMBER PERCENT
-----
Snaps captured in archive          5840  100.00
High (>3)                          10    0.17
Very High (>6)                      0     0
High spanning multiple snaps       0     0
-----
#####
# Section 4.2: CPU UTILIZATION: PERCENT BUSY
# CPU utilization should not be high over long periods of time. The higher
# the cpu utilization the longer it will take processes to run. Below lists
# the number of times (NUMBER) and percent of the number of times (PERCENT)
# that cpu percent busy was High (>95%) or Very High (100%). Pay attention
# to high spanning multiple snaps as this represents the number of times cpu
# percent busy remained high in back to back snapshots
#
-----
NUMBER PERCENT
-----
Snaps captured in archive          5840  100.00
High (>95%)                        17    0.29
Very High (100%)                    2     0.03
High spanning multiple snaps       0     0
-----
CPU UTILIZATION: The following snaps recorded cpu utilization of 100% busy:
SnapTime
-----
Tool Output
Search Results Tool Output
1 | 1 | Read | Ovr | Block | Sync | Rec | Caps
```

ORACLE®

# Legacy Slides: Analyzer Report (Walk-Through)

# OSW Analyzer: Report format

- Analyzer output divided into the sections for easy readability

Section 1: Overall Status

Section 2: System Slowdown Summary Ordered By Impact

Section 3: Other General Findings

Section 4: CPU Detailed Findings

Section 5: Memory Detailed Findings

Section 6: Disk Detailed Findings

Section 7: Network Detailed Findings

- These sections are explained in the following slides

# Section 1: Overall Status

- Quick heads up status of each major subsystem
- Currently status of CPU, Memory, Network and I/O subsystems
- Status values are
  - OK            No problem detected
  - Warning      Attention is required
  - Critical      Attention is critical
  - Unknown     Status could not be determined
    - ✓ Missing metrics. Not all OS versions contain necessary metric. Memory scan rate is an example
    - ✓ HP-UX iostat does not support extended disk statistics
    - ✓ AIX does not use top (topas not controllable in Unix shell)

# Section 1: Overall Status

## Section 1: Overall Status

Subsystem	Status
-----------	--------

-----

CPU	CRITICAL
-----	----------

MEMORY	WARNING
--------	---------

I/O	OK
-----	----

NET	OK
-----	----

# Section 2: System Slowdown Summary Ordered By Impact

- OSWbb contains heartbeat timestamps in log files
- Heartbeats that do not happen at expected intervals indicate OS is slowing down or experiencing hangs
- The following columns are identified in this section
  - Snaptime -timestamp when slowdown occurred
  - Variance – the amount of difference between the expected heartbeat time and the actual heartbeat time
  - Secs – the time in seconds between heartbeats
  - Flags – bitmapped indicators for cpu, memory and io problems
  - Cause – most likely cause of slowdown identified

# Section 2: System Slowdown Summary Ordered By Impact

Section 2: System Slowdown RCA Ordered By Impact

```
SnapTime      Variance  Secs      Flags  Cause(Most Likely)
-----
Fri May 27 22:36:04  1.1    34  0002-00-00  1: Root Processes High CPU
                                     2: System low on Memory
```

>>>Cause 1: Root Processes High CPU

Checking top processes...

```
SnapTime                Pid  CPU  Command
-----
Fri May 27 22:36:04 GMT 2011  797  74.6 [kswapd0]
```

Slowdown time and duration

First the analyzer identifies slowdown and most likely causes

Next the analyzer identifies most likely process impacting the slowdown

# Section 3: Other General Findings

Any additional findings will be listed in this section

Section 3: Other General Findings:

**CRITICAL:** CPU Run Queue observed very high spikes.

**CRITICAL:** Memory severe swapping observed.

## Section 4: CPU Detailed Findings

- Provides summary of cpu metrics collected in the archive
- The following metrics are reported:
  - CPU Run Queue
  - CPU Utilization (Percent Busy)
    - Root processes > 50%
    - Oracle Background processes > 50%
  - CPU Percent System

# Section 4: CPU Detailed Findings

CPU Detailed Findings:

CPU RUN QUEUE:            NUMBER PERCENT

-----

Snaps captured in archive	14413	100.00
High (>3)	41	0.28
Very High (>6)	6	0.04
High spanning multiple snaps	0	0

There were 14413 snapshots contained in the oswbb archive

Of these 14413 snapshots, 41 snapshots had high run queue

Of these 14413 snapshots, 6 snapshots had very high run queue

Of these 14413 snapshots, 0 snapshots spanned more than 1 snap

The following snaps recorded very high run queues:

SnapTime                    Value Value/#CPU

-----

Thu May 26 00:43:57 GMT 2011	12	6
Thu May 26 01:42:00 GMT 2011	15	7
Thu May 26 08:40:12 GMT 2011	17	8
Thu May 26 20:40:34 GMT 2011	18	9
Sat May 28 00:41:34 GMT 2011	13	6

Times where run queue was reported high

Run queue value

The effective run queue: Run Queue/# CPU

# Section 4: CPU Detailed Findings

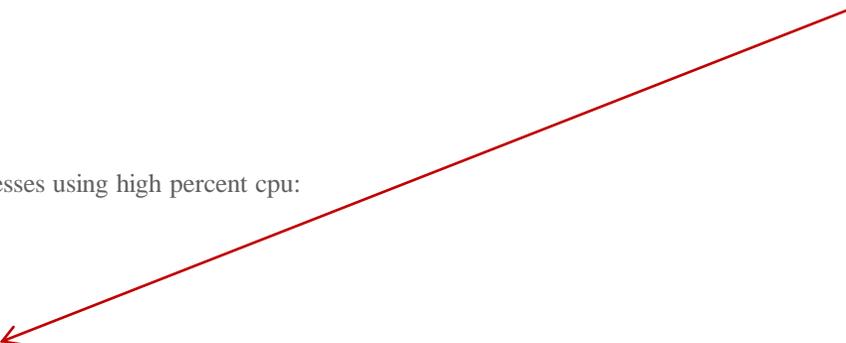
CPU UTILIZATION: PERCENT SYS

	NUMBER	PERCENT
-----		
Snaps captured in archive	14413	100.00
High (>30%)	0	0
Very High (50%)	0	0
High spanning multiple snaps	0	0

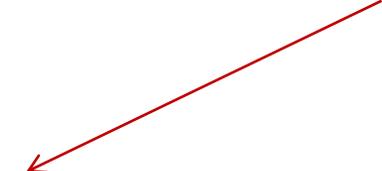
CPU UTILIZATION: The following snaps recorded ROOT processes using high percent cpu:

SnapTime	Pid	CPU	Command
-----			
Tue May 24 19:12:24 GMT 2011	13982	70.5	/usr/bin/python
Fri May 27 06:12:24 GMT 2011	30597	62.6	/usr/bin/python
Fri May 27 22:36:04 GMT 2011	797	54.6	[kswapd0]

Root processes consuming high CPU are identified



Oracle background processes consuming high CPU are quickly identified



CPU UTILIZATION: The following snaps recorded ORACLE Background processes using high percent cpu:

SnapTime	Pid	CPU	Command
----------	-----	-----	---------



## Section 5: Memory Detailed Findings

- Provides summary of memory metrics collected in the OSWbb archive
- The following metrics are reported for those OS's that report these metrics in vmstat
  - CPU Process Queue
  - Memory Scan Rate
- If these metrics are not available then memory status will be UNKNOWN in Section 1.

# Section 5: Memory Detailed Findings

Memory Detailed Findings:

## MEMORY: PROCESS SWAP QUEUE

NUMBER PERCENT

-----		
	NUMBER	PERCENT
Snaps captured in archive	232	100.00
High (>0%)	0	0
High spanning multiple snaps	0	0

Scan Rate is the most important indicator for memory issues on Solaris

## MEMORY: SCAN RATE

NUMBER PERCENT

-----		
	NUMBER	PERCENT
Snaps captured in archive	232	100.00
High (>0)	3	1.29
Very High (>200)	3	1.29
High spanning multiple snaps	2	0.86

Scan rate that is high and spans multiple snapshots is indicator  
free memory was low

## Section 6: Disk Detailed Findings

- There may be hundreds of devices on a system
- Analyzer looks only at those devices which may be problematic, ignoring all others
- Only devices that are busy more than 50% or have high service times are reported
- Storage arrays have cache which skew metrics being reported
- Throughput is only reliable metric for storage arrays
- For debugging storage arrays a throughput analysis of those devices are listed in the report

## Section 6: Disk Detailed Findings

- Provides summary of device metrics collected in the archive
- The following metrics are reported
  - Device Percent Busy for devices with percent busy > 50%
  - Device Service Time for devices with service time > 10 msec
  - Device Throughput for devices with percent busy > 50%

# Section 6: Disk Detailed Findings

Section 6: Disk Detailed Findings

Section 6.1: Device Percent Busy Findings:

(Only Devices With Percent Busy > 50% Reported:)

Only devices with percent busy > 50% listed

DEVICE: hdisk0 PERCENT BUSY

NUMBER PERCENT

```
-----  
Snaps captured in archive      111 100.00  
High (>50%)                   111 100.00  
Very High (>95%)              0    0  
High spanning multiple snaps   110  90.91
```

Notice this device is always busy and requires further investigation

#####

Section 6.2: Device Service Times Findings:

(Only Devices With Average Service Time > 10msec Reported:)

# Section 6: Disk Detailed Findings

Section 6.3: Device Throughput Findings:

(Only Devices With Percent Busy > 50% Reported:)

DEVICE: hbb00

%BUSY	NUMBER	MIN_KR/S	MAX_KR/S	AVG_KR/S	MIN_KW/S	MAX_KW/S	AVG_KW/S
50-59	0	0.0	0.0	0.0	0.0	0.0	0.0
60-69	90	0.0	330.0	36.7	0.0	0.0	0.0
70-79	200	0.0	460.0	48.0	0.0	0.0	0.0
80-89	16	0.0	356.0	37.0	0.0	0.0	0.0
90-99	22	0.0	201.0	29.0	0.0	0.0	0.0
100	0.0	0.0	0.0	0.0	0.0	0.0	0.0

- Metrics can look good coming back for storage arrays but throughput can identify problem
- In this example percent busy looked ok. Throughput on the storage array showed something different

# Section 7: Network Detailed Findings

- All data link interfaces, IP , UDP and TCP protocols are analyzed
- Only those interfaces/protocols which have errors are reported
- TCP packet retransmission rate is calculated and warning issue if this value exceeds 15%
- The analyzer reports on what these errors mean if any significant errors are reported. This information is listed in Section 3: Other General Findings.  
Example:

**Network IP errors observed.**

# Section 7: Network Detailed Findings

## Section 7.1: Network Data Link Findings

(Only Data Links With Errors Reported:)

LINK	IERRS	OERRS	COLLIS
ge0	441692	0	0

Could have many data links but input errors occurring only on link ge2

Data Link Error Times:

Jun 8 19:32:54 2012

More importantly all these input errors happened around a specific time

#####

## Section 7.2: Network IP Findings

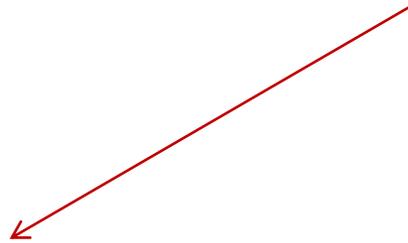
PARAMETER	VALUE
requests sent out	27883
total packets received	32861

# Section 7: Network Detailed Findings

## Section 7.3: Network UDP Findings

PARAMETER	VALUE
-----	
datagrams received	499
datagrams output	355
dropped due to no socket	144
broadcast dropped due to no socket	144

Want to avoid any dropped UDP packets especially for RAC



UDP Error Times:

May 18 17:18:01 2012

May 18 17:18:31 2012

(#####)

## Section 7.4: Network TCP Findings

TCP Errors > 14.62% Packet Retransmitted:

TCP retransmission rate calculated by  
oswbba. Retransmission rates > 15%

