

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 a web browser window with the URL https://mosemp.us.oracle.com/epmos/faces/DocumentDisplay?_afLoop=295493467652954&i. The page title is "OSWatcher (Includes: [Video]) (Doc ID 301137.1)".

is Document

- [OSWatcher Quick Overview](#)
- [OSWatcher Download](#)
- [OSWatcher User Guides](#)
 - [Versions: Latest Version 7.3.4](#)
 - [Version 7.0 New Features](#)
- [OSWatcher Instructional Video Series](#)
- [OSWatcher Analyzer Instructional Video Series](#)

Related Links

- [Feedback/Support](#)
- [Best Practices](#)
 - [Pro-Active Problem Avoidance and Diagnostic Collection](#)
- [Ask Questions, Get Help, And Share Your Experiences With This Article](#)
- [Discuss OSWatcher](#)
- [References](#)

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Yes
 No

Document Details

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Related Products

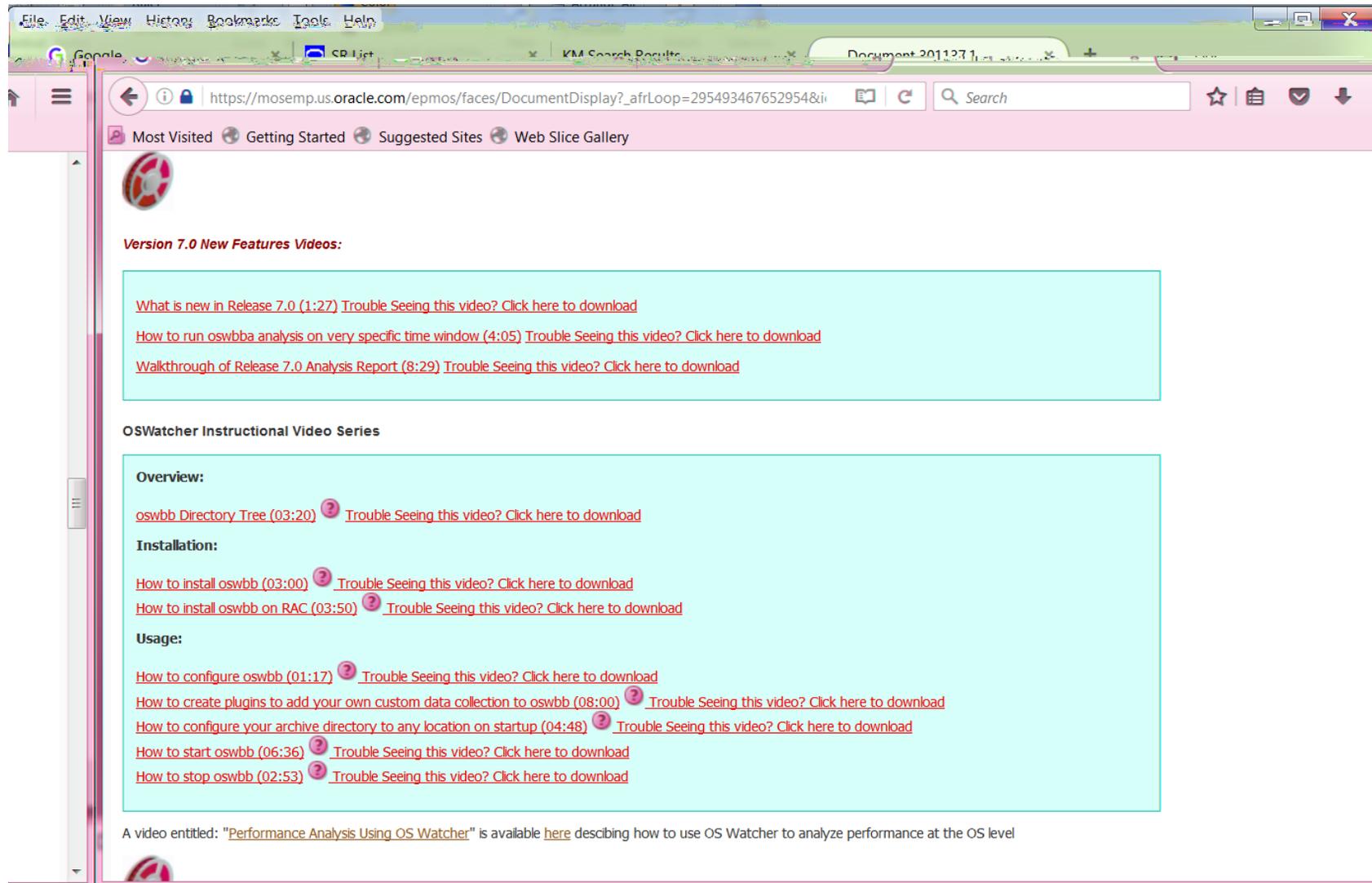
- Oracle Database - Enterprise Edition
- Oracle Database - Personal Edition
- Oracle Database - Standard Edition

Information Centers

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

APPLIES TO:

OSWatcher Master Document MOS Note 301137.1



File Edit View History Bookmarks Tools Help

Google CP List KM Search Results Document 301137.1

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

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

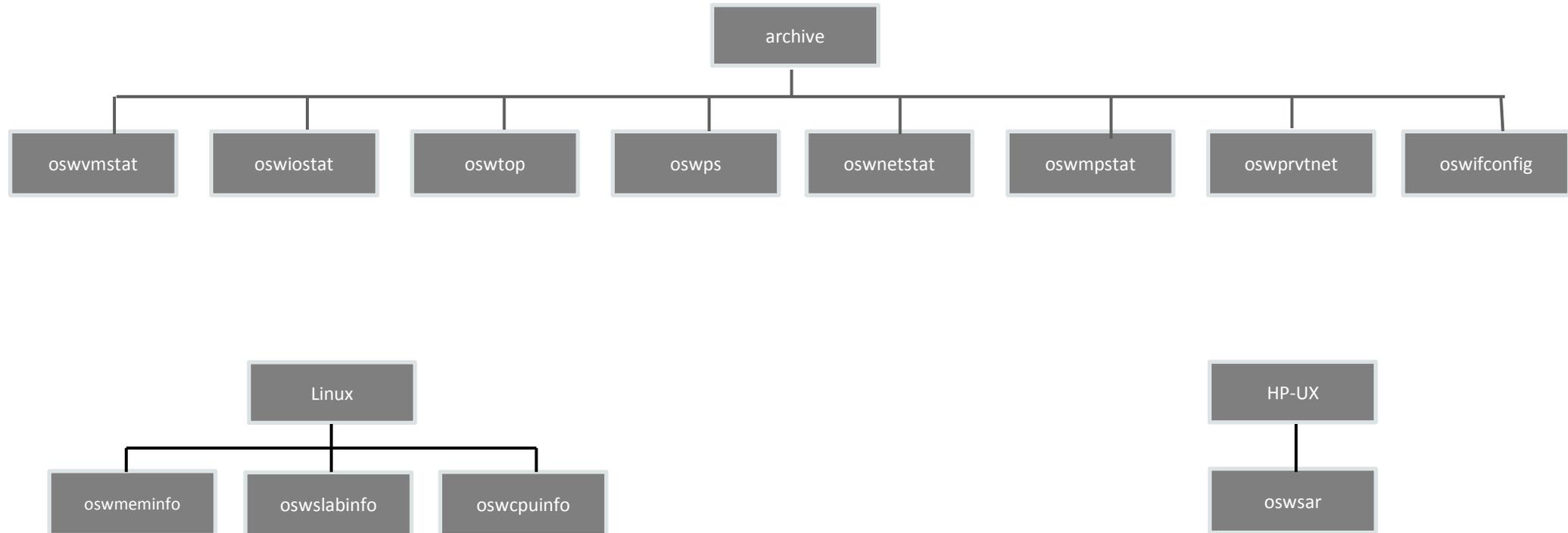
OSWatcher

- 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\cehaovmstat_15.09.30.1300.dat *
File Edit Search View Tools Macros Configure Window Help
cehaovmstat_15.0... x
SunOS OSWbb v7.3.3 node201
SNAP_INTERVAL 30
CPU_COUNT 4
OSWBB_ARCHIVE_DEST /u01/app/oracle/tfa/repository/suptools/cehaovmstat_15.09.30.1300.dat
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

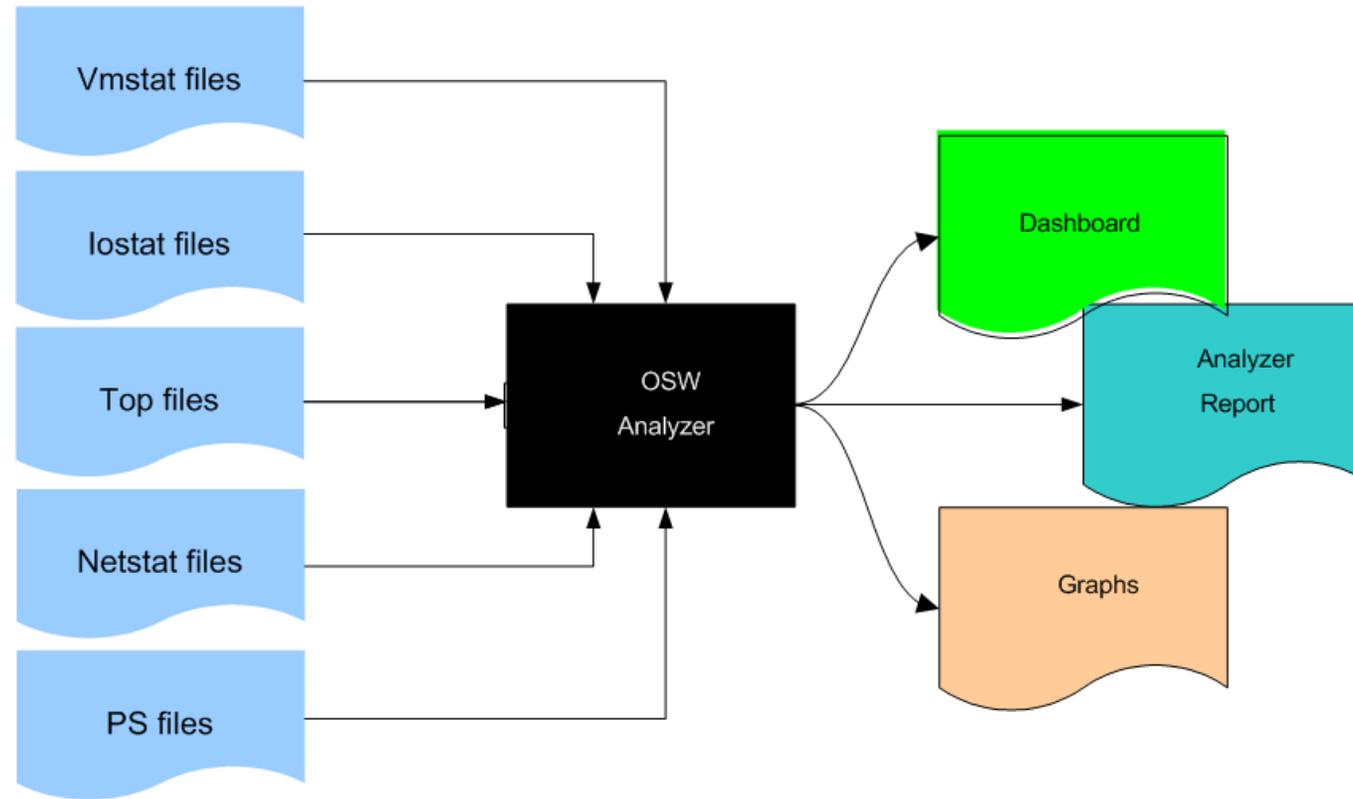
Why an analyzer?

- 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

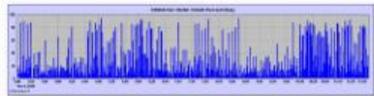
Enter A to Analyze Data
Enter S to Analyze Subset of Data(Changes analysis dataset including graph time
scale)
Enter D to Generate DashBoard

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

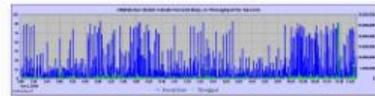
Please Select an Option:
```

OSWatcher Analyzer Graphs

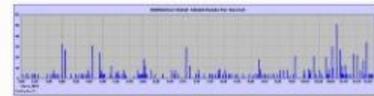
- Metrics that can be analyzed by OSWatcher can be graphed over time to look for trends



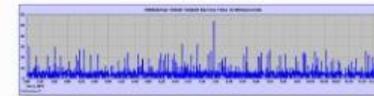
OSWg_hdisk0_OS_IO_PB



OSWg_hdisk0_OS_IO_PBTP_1



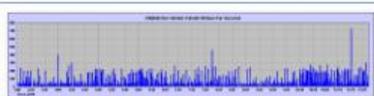
OSWg_hdisk0_OS_IO_RPS



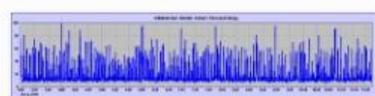
OSWg_hdisk0_OS_IO_ST



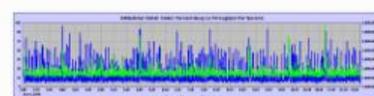
OSWg_hdisk0_OS_IO_TPS



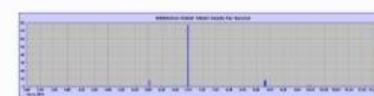
OSWg_hdisk0_OS_IO_WPS



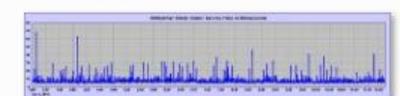
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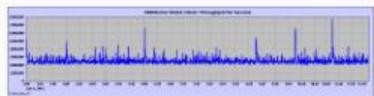
OSWg_hdisk1_OS_IO_PBTP_1



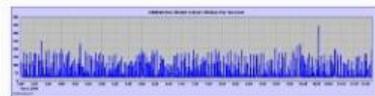
OSWg_hdisk1_OS_IO_RPS



OSWg_hdisk1_OS_IO_ST



OSWg_hdisk1_OS_IO_TPS



OSWg_hdisk1_OS_IO_WPS

OSWatcher Analyzer Dashboard

The screenshot displays the OSWatcher Analyzer Dashboard in a web browser. 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 buttons for HOME, CPU, MEMORY, I/O, NETWORK, and NFS. The main content area features the title "OSWatcher Dashboard Analyzer" and a set of filter buttons for CPU, MEM, I/O, and NET. The CPU button is highlighted in green. To the right, a "Properties" section lists system details: Linux, CORES: 4, VCPUS: 8, and SNAPS: 10.

CPU Critical Findings:

Expand All Collapse All

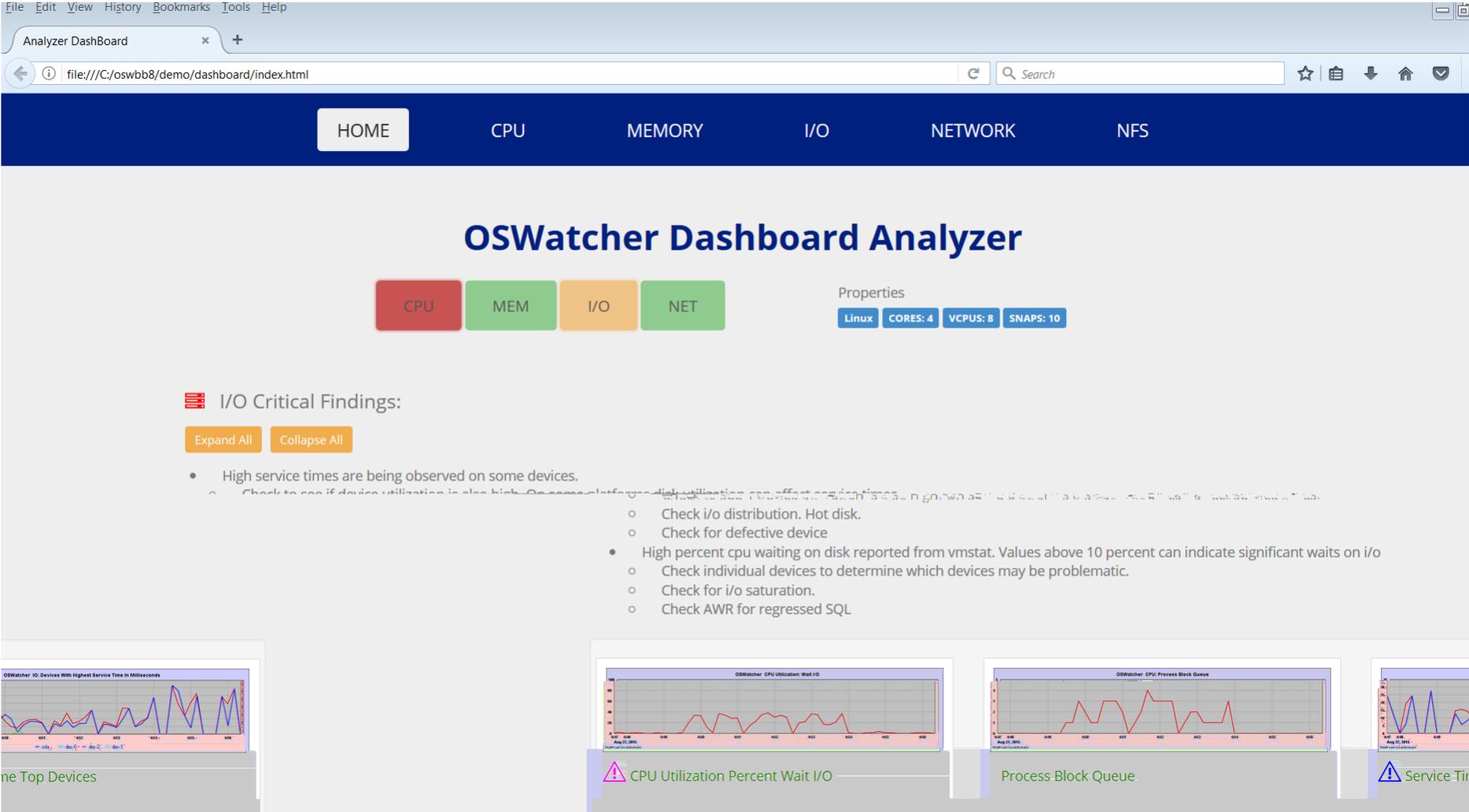
- The amount of CPU being run in system (kernel) mode is considered high. The system may be approaching or exceeding cpu capacity or doing too much management.
- CPU utilization is over 90%.

kernel

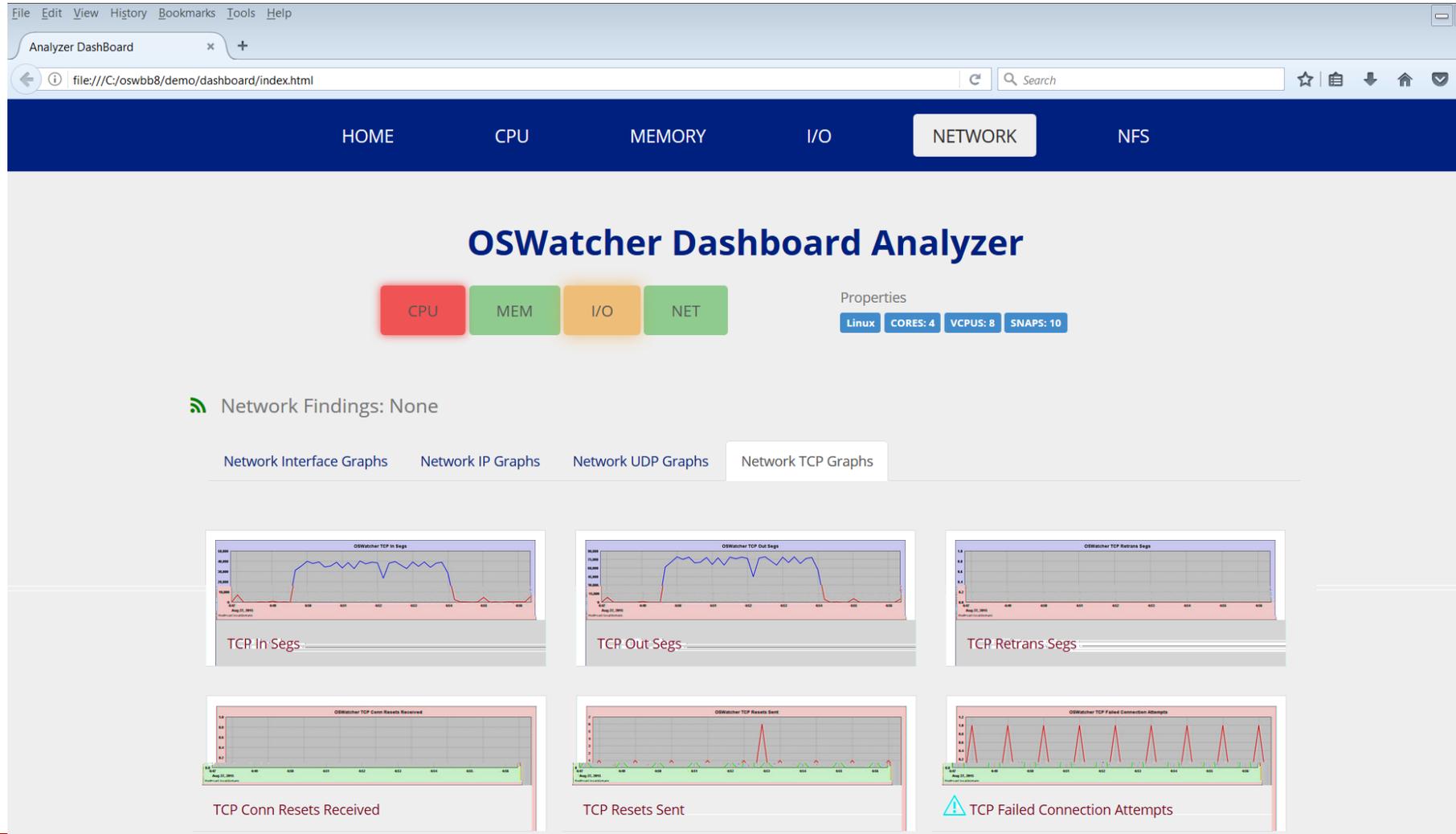
The dashboard includes several performance graphs:

- OSWatcher CPU Run Queue:** A line graph showing the process run queue over time.
- OSWatcher CPU Run Queue/Cpu Cores:** A line graph showing the process run queue relative to the number of CPU cores.
- OSWatcher CPU Process Block Queue:** A line graph showing the process block queue over time.
- OSWatcher CPU Utilization Idle:** A line graph showing the percentage of CPU utilization in an idle state.
- OSWatcher CPU Utilization System:** A line graph showing the overall system CPU utilization.
- OSWatcher CPU Utilization User:** A line graph showing the user-space CPU utilization.

OSWatcher Analyzer Dashboard



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 CP

Process Run Queue/Physical CP

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 I/O

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

```
##### 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 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 | 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 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.
```

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
```

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