

eCAP Version V10.0 Release Notes

February 2012

Revision/Update:

Version 10.0 is a eCAP Monitor feature release.

**PerfCap Corporation
Nashua, New Hampshire**

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eCAP Performance and Capacity Suite Release Notes – V10.0

Release Overview

These release notes address version 10.0 of the eCAP Monitor, Analyzer, Reducer, and Planner. All fixes and known problems are outlined at the end of this document.

This software requires an *ecap-monitor.txt (V9.1 format)* license file to enable.

Summary of Features and Changes

V10.0 introduces several new features.

- Better VMware ESX collection
- eCAP Monitor can monitor multiple VMware ESX and/or ESXi systems.

Installation

Note that for all UNIX versions of the software, installation uses the script, *install.sh* provided in the kit.

For all software, an ASCII license file, *ecap-monitor.txt*, must be provided in *PERFCAP\$LIBRARY* on OpenVMS platforms, On UNIX platforms and Windows platforms, *ecap-monitor.txt* should be placed in installation directory. (see table below).

NOTE

eCAP V10.0 requires a separate license file for each product to be enabled. The license files must be named

- *ecap-monitor.txt*
- *ecap-analyzer.txt*
- *ecap-reducer.txt*
- *ecap-planner.txt*

A license file supporting V9.1 + is required.

eCAP Monitor

The following is a summary of new features and changes specific to V10.0

- Additional ESX metrics

Release Contents

This release of the eCAP Performance Solution product set consists of four separately licensed components:

- eCAP Monitor (AIX, HP-UX, Linux, OpenVMS, Solaris, Tru64, Windows, (XP, Windows 7, NT/2000/2003,2008)
- eCAP Analyze (AIX, HP-UX, OpenVMS, Solaris, Tru64, Linux)
- eCAP Reduce (AIX, HP-UX, OpenVMS, Solaris, Tru64, Linux)
- eCAP Plan (AIX, HP-UX, OpenVMS, Solaris, Tru64, Linux)

Version 10.0 is comprised of the following items:

- eCAP Version 10.0 software
- eCAP User and Installation Guide

For more information on all the components, see *eCAP User Guide*, *eCAP Reference Guide*, and the *eCAP Installation* guides and Software Product Descriptions.

eCAP Installation

Installation: VMS

Re-Installation of eCAP Performance Monitor on OpenVMS Systems does NOT require a system reboot.

Licensing has changed in V9.1. Each licensed component requires a license file to be placed in the PERFCAP\$LIBRARY: folder. These must be named:

- ECAP-MONITOR.TXT
- ECAP-ANALZYER.TXT
- ECAP-REDUCER.TXT
- ECAP-PLANNER.TXT

The perfcap.txt from prior versions will NOT enable V9.1 PerfCap Software. Please contact PerfCap to upgrade your license.

Installation: UNIX

Previous version of UNIX eCAP Performance software must be UNINSTALLED prior to installation. This does not pertain to OpenVMS versions.

Licensing was changed in V9.1. This license is required to enable V10.0 Each licensed component requires a license file to be placed in the installation folder. These must be named:

- ecap-monitor.txt
- ecap-analyzer.txt
- ecap-reducer.txt
- ecap-planner.txt

The perfcap.txt from prior versions will NOT enable V10.0 PerfCap Software. Please contact PerfCap to upgrade your license.

On UNIX based systems, the installation now creates a settings file to retain user preferences. The *ecap_configure* program, located in bin under the installation folder (e.g. /opt/perfcap/bin on Solaris), is used to create/maintain these settings.

Silent Installation: Unix

Silent installs are done with the `install.sh` using command line qualifiers.

- silent
- help
- package_dir <path>
- data_dir <path>
- install_dir <path>
- license_dir <path>
- save_db (retain dba files)

- dump <dump value in seconds>
- poll < process scan rate in milliseconds>
- peak <peak value in milliseconds>
- retain <ndays>
- mapdisk <map disknames on Solaris>
- ecap_verbose

- pawz_port <port>
- pawz_verbose
- pawz_server <ipaddress of pawzserver>
- pawz_appdata_dir <path>
- pawz_compression <compression command>

- rta_port <rtaport>
- rta_scan <scan rate in seconds>
- rta_verbose
- rta_process

- user *username***
- group *groupname***

Samples

```
sh install.sh -silent
```

(this will install with default options or reinstall with currently set options)

```
sh install.sh --silent --license_dir /tmp --data_dir /data/ECP --poll 2000 --dump 120 \  
--rta_process
```

(this will install looking for the license files in /tmp and setting the directory for data files in /data/ECP. The collector will scan at 2000 ms and write to disk every 120 seconds. The real time agent will collect process information)

Installing from an NFS folder can be done as follows: the NFS filesystem is called /remotedir. The eCAP Monitor PAWZ Agent kit as already been uncompressed and untared.

```
# ssh root@sys01:/remotedir/ecap/perfcap_kit/install.sh --silent --poll 2000 --dump 120 \  
--package_dir /remotedir/ecap/perfcap_kit --license_dir /remotedir/ecap
```

Installation: Running on Solaris as Non-Root

Initial setup and installation must be done from the *root* account. After *ecap_monitor* / PAWZ Agent has been installed, the processes can be run from a non-root account. The installation does NOT create the user account and does not assign privileges to the account. The following privileges are required:

- *proc_owner*
- *proc_setid*
- *proc_zone*
- *sys_devices*
- *file_dac_read*
- *file_dac_write*
- *file_dac_search*

User account setup

The following commands can be used to create a user account for *ecap_monitor/pawzagent*.

```
# groupadd perfcap
# useradd -G perfcap pawz
# usermod -P All pawz
# usermod \
  -K defaultpriv=basic,proc_owner,proc_setid,proc_zone,sys_devices, \
  file_dac_read,file_dac_write,file_dac_search
```

Installation

After the user account has been created, the PerfCap Software can be installed.

```
# sh install.sh -user pawz -group perfcap
```

Post Installation

If installing on a Global Zone, the installation will also install on the children Zones. If *-user* has been specified, an additional step of logging into the child Zone and setting file

ownership and copying the `ecap-monitor.txt` license file must be taken.

This is easily done with the following commands

```
# chown /opt/perfcap pawz:perfcap
# find /opt/perfcap | xargs chown pawz:perfcap
```

Changing Account

The desired user account name is stored in the config startup files. The following commands will change or add a user to the config file.

```
# /opt/perfcap/bin/ecap_monitor -user ecap -write_config
# /opt/perfcap/bin/pawzagent -user ecap -write_config
# /opt/perfcap/bin/pawzrta -user ecap -write_config
```

Starting `ecap_monitor` from root account

After a username has been specified as the account to run `ecap_monitor` and `pawzagent`, if they are started from the *root* account (also during system reboots), the startup process will reduce privileges to the minimum required and then switch uid to that of the desired process.

The command to run is `/opt/perfcap/bin/ecap_monitor`. The `ecap_monitor` will obtain the desired username from the `/opt/perfcap/settings/ecap_`hostname`.config` file.

Starting `ecap_monitor` the authorized account

When starting `ecap_monitor` and logged in as the specified account, this account must have the privileges listed above. These are required to allow the `ecap_monitor` to access the `/proc` and `/dev` file systems.

The command to run is `/opt/perfcap/bin/ecap_monitor`. The `ecap_monitor` will obtain the desired username from the `/opt/perfcap/settings/ecap_`hostname`.config` file.

Installation: Running on LINUX as Non-Root

Initial setup and installation must be done from the *root* account. After `ecap_monitor` / PAWZ Agent has been installed, the processes can be run from a non-root account. The non-root account does not require any special privileges.

After the user account has been created, the PerfCap Software can be installed.

```
# sh install.sh --user pawz --group perfcap
```

Installation: EMC

EMC collection is done through the ECC. The ECAP Monitor and PAWZ Agent software for EMC does not collect the performance data. The PAWZ Agent does processing of the collected data. **See the *PAWZ Agent Release Notes for configuration of EMC performance data processing*.**

Installation VMware ESX on Windows

The eCAP Monitor for VMware ESX is run on a Windows system. The performance data is collected by connecting to the VMware Hypervisor and querying the performance data. The eCAP Monitor PAWZ agent for Windows and VMware ESX installs similarly to the eCAP Monitor for Windows.

An *ecap-monitor.txt* license file is required.

```
msiexec "PAWZ Agent and eCap Monitor 10.0 for Windows and VMware ESX (x64).msi"
```

See the "*PerfCap Agents for Windows and VMware ESX/ESXi Version V10.0*" Release notes for detailed information.

Installation: Windows

On Windows based systems, Re-Installation of eCAP Performance Monitor requires the un-installation of the currently installed PerfCap Monitor. This should NOT require a system reboot.

Licensing has changed in V9.1 Each licensed component requires a license file to be placed in the installation folder. These must be named:

- o *ecap-monitor.txt*

The *ecap-monitor.txt* file can also be placed in the C:\ directory for re-installation.

The *perfcap.txt* from prior versions will NOT enable V10.0 PerfCap Software. Please contact PerfCap to upgrade your license.

Installation: Windows Silent Install

On Windows based systems, the eCAP Monitor and PAWZ agent have been bundled into one MSI media kit. This kit will be named "PAWZAgent and eCAP monitor 10.0.msi" or "PAWZAgent eCAP monitor 10.0 (x64).msi"

To Install interactively:

- Run the PAWZ agent And Ecap Monitor 10.0.msi
 - ecap-monitor.txt license will be copied from the current directory or C:\ (if the license file is not found, the installation will proceed but the services will not be started)

To Install non-interactively:

- `msiexec /qn /l "pawzagent and ecap monitor 10.0.msi"`
 - ecap-monitor.txt license will be copied from the current directory or C:\

To Uninstall non-interactively:

- `msiexec /qn /x {6311BE89-1A15-40CE-9353-65F6A2754FA1}`
 - This will not delete .CPC data files & retains settings in registry.
- `msiexec /qn /x RETAIN_SETTINGS="0" {6311BE89-1A15-40CE-9353-65F6A2754FA1}`
 - Remove settings

Installed components: The following components will be installed:

- eCAP Monitor
- eCAP Monitor Release notes:
- PAWZ Agent
- PAWZ Real time Agent
- PAWZ Agent Release Notes

Installation Locations: The default installation locations are:

eCAP monitor:

C:\Program Files\PerfCap\ECAP\Monitor

PAWZ Agent and Real-Time Agent:

C:\Program Files\PerfCap\PAWZ\Agent

Changing the Defaults

The MSI packaging uses property values to enable customization of the software on installation.

Available Properties

Property Name	Default Value
USER	UserName
COMPANY	CompanyName
INSTALLDIR	C:\Program Files\PerfCap
ECAP_CONTINUOUS	1
ECAP_LICENSE	C:\ecap-monitor.txt
ECAP_DUMP_RATE	120
ECAP_SCAN_RATE	5000
ECAP_PEAK_RATE	0
ECAP_CUSTOM_METRIC_FILTER	""
ECAP_METRIC_LIST	2,4,86,230,234,236,238,260,510,638,546,658
ECAP_RETENTION	30
ECAP_MANAGE_RETENTION	0
ECAP_START_SERVICE	1
ECAP_LOG_DETAILS	0
ECAP_RETENTION	15
ECAP_MANAGE_RETENTION	0
ECAP_LOW_PRIORITY	0

PAWZAGENT_PAWZSERVER_IP	0.0.0.0
PAWZAGENT_PORT	1661
PAWZAGENT_LOG_DETAILS	0
PAWZAGENT_LOW_PRIORITY	0
PAWZRTA_PORT	2101
PAWZRTA_LOG_DETAILS	0

Installation using Properties

```
msiexec /qn ECAP_LICENSE=C:\ecap-monitor.txt ECAP_DUMP_RATE=300
ECAP_PEAK_RATE=5000 ECAP_SCAN_RATE=10000 ECAP_CUSTOM_METRIC_FILTER
="RAS*, Termina**" INSTALLDIR=D:\PAWZ /i "pawzagent and ecap monitor 10.0.msi"
```

Installing without real-time

```
msiexec /qn ADDLOCAL=ECAPMONITOR,PAWZAGENT /i "pawz agent and ecap monitor
10.0.msi"
```

Default Installation Path

The following are the default installation folder(s).

OS	Default
HP TRU64	/usr/opt/perfcap
HP-UX	/opt/perfcap
IBM AIX	/usr/perfcap
Linux	/usr/local/perfcap
Sun Solaris	/opt/perfcap
OpenVMS	sys\$sysdevice:[perfcap]

NOTE

At this time, on UNIX platforms, if the default installation path is changed a soft link must exist from the default location pointing to the new installation directory.

eCAP Monitor for OpenVMS

The eCAP OpenVMS Monitor Alpha and IA64, overview

- No device driver required
- No reboot for re-install
- Automatic rollover to new data file at midnight
- Data file retention period may be specified

The collector runs as a detached process and uses a user-written system service. The syntax of the command line interface is described in the user's manual. Only one data file is created each day in the directory specified by the logical PERFCAP\$DATA. File extension is .PMD.

The DCL syntax for the eCAP Monitor for OpenVMS may be examined using the \$HELP PERFCAP MONITOR command. Two qualifiers are not documented there and may require explanation for some system managers:

OpenVMS Installation

Unless specified during the installation, the monitor is **NOT** started. It is up to the system manager to manually edit the startup command file, *SYS\$STARTUP:PERFCAP\$STARTUP.COM*, run it, and insert it into the system startup procedure.

The installation procedure for the OpenVMS eCAP Monitor will query the installer as to the data file retention period, the data dump interval, and the hotfiles disk utilization threshold. This has been added to remove the need to additional editing of the *PERFCAP\$STARTUP.COM* file after installation.

OpenVMS Settings File

A startup settings file has been added to eCAP monitor for OpenVMS. It is *PERFCAP\$LIBRARY:ECAP_hostname.CONFIG*

Special qualifiers

/CLASS=(item[,...])

This qualifier may be used to specify which performance metrics should be collected. Any of the following items may be specified:

Metric	Description	Default
ALL	All Metrics	No
SCH	Per-Process scheduling state metrics	No
MBX	Per-Process mailbox I/O metrics	No
SYS	System metrics	Yes
DSK	Disk Metrics	Yes
XQP	XQP metrics	Yes
FIO	File I/O metrics	Yes
SCS	SCS metrics	Yes
LCK	Lock management metrics	Yes
LAN	LAN Adapter metrics	Yes
NET	IP, UDP,TCP, ICMP and DECnet metrics	Yes
PROC	Per-Process metrics	Yes
IMG	Per-Process image metrics	Yes
PDSK	Per-Process disk I/O metrics	Yes
PORT	Adapter Metrics	Yes

With the exception of the ALL item, items may be specified in their negated form to indicate that a specific class of data is not to be included, such as:

/CLASS=(ALL,NONE)

The default statistics are always enabled unless specifically negated.

NOTE

The inclusion of scheduling statistics may significantly increase the size of the .PMD data file. However, collection of scheduling statistics is necessary if process scheduling state, resource wait state, or scheduling priority statistics are to be reported.

/BUFFERS=number

This qualifier specifies the number of 4096-byte buffers to be allocated for use by the PerfCap Monitor. For OpenVMS Alpha systems, the default is 100 buffers. For OpenVMS VAX systems, the default is 20. In rare occasions where a system is extremely active, exhibiting a large number of concurrent processes, the number of buffers may have to be increased. The maximum allowable is 4096. A rule of thumb is that the number of buffers should be at least half the average number of concurrent processes. Note that buffer space is returned to non-paged pool when the PerfCap Monitor is stopped.

/PEAK_INTERVAL=number

This qualifier specifies the interval in milliseconds that peak values for metrics are to be scanned. The default is 0. The maximum is 60000.

Special Logicals

PERFCAP\$BUFFERS

The system logical, PERFCAP\$BUFFERS, may be defined to override the default non-paged pool buffer count. This is designed primarily for systems where the eCAP Monitor is controlled by the PAWZ agent, which does not have the ability to specify buffer counts.

eCAP Monitor for UNIX platforms

The default installation directory for UNIX platforms is platform dependent. (See the table below) This directory hierarchy contains all files for the eCAP Monitor, Analyze, Reduce and Planner release. The **log** subdirectory will contain all log files from the eCAP Monitor. The **data** sub-directory contains the data files (cpc) from the performance monitor. This directory can be changed by creating a softlink to a directory where the files are to be installed.

Each Unix platform is installed with the *install.sh* script. This script will uninstall currently installed PerfCap software and then invoke the systems native installation facility with the user's selections.

NOTE

The command to startup eCAP Monitor has changed from *cpcunix* to *ecap_monitor* The *cpcunix* command will still function.

eCAP Monitor for UNIX platforms - Post Installation

It is recommended that you use the system's initd mechanism for starting and stopping the eCAP monitor on system reboots.

The installation script will now copy the following

AIX

```
# cp /usr/opt/perfcap/ init.d/perfcap /etc/rc.d/perfcap
# chown root:system /etc/rc.d/perfcap

# chmod +x /etc/rc.d/perfcap

# ln -s /etc/rc.d/perfcap /etc/rc.d/rc2.d/S90perfcap
# ln -s /etc/rc.d/perfcap /etc/rc.d/rc3.d/K90perfcap
# ln -s /etc/rc.d/perfcap /etc/rc.d/rc4.d/K90perfcap
# ln -s /etc/rc.d/perfcap /etc/rc.d/rc5.d/K90perfcap
# ln -s /etc/rc.d/perfcap /etc/rc.d/rc6.d/K90perfcap
# ln -s /etc/rc.d/perfcap /etc/rc.d/rc7.d/K90perfcap
# ln -s /etc/rc.d/perfcap /etc/rc.d/rc8.d/K90perfcap
# ln -s /etc/rc.d/perfcap /etc/rc.d/rc8.d/K90perfcap
```

HP-UX

```
# cp /opt/perfcap/init.d/perfcap /sbin/init.d/perfcap
# chown bin:bin /sbin/init.d/perfcap
# chmod 555 /sbin/init.d/perfcap
# ln -s /sbin/init.d/perfcap /sbin/rc3.d/S90perfcap
# ln -s /sbin/init.d/perfcap /sbin/rc0.d/K90perfcap
```

Linux (RedHat)

```
# cp /usr/local/perfcap/ settings/perfcap.initd /etc/rc.d/init.d/perfcap
# chkconfig --add perfcap
# chkconfig --list perfcap
```

Linux (SLES Suse)

```
# cp /usr/local/perfcap/init.d /perfcap etc/rc.d/perfcap
# chkconfig --add perfcap
# chkconfig --list perfcap
```

Solaris

```
# cp /opt/perfcap/init.d /perfcap etc/init.d/perfcap
# chown root:sys /etc/init.d/perfcap
# chmod +x /etc/init.d /etc/init.d/perfcap
# ln -s /etc/init.d/perfcap /etc/rc3.d/S90perfcap
# ln -s /etc/init.d/perfcap /etc/rc0.d/K90perfcap
```

Tru64

```
# cp /usr/opt/perfcap/init.d/perfcap /sbin/init.d/perfcap
# ln -s /sbin/init.d/perfcap /sbin/rc3.d/S90perfcap
# ln -s /sbin/init.d/perfcap /sbin/rc0.d/K90perfcap
```

If you have modified the `/etc/inittab` file, please remove entries which start the `cpcunix` process. Please review the `install_path/init.d/perfcap` file to ensure that startup command line is correct for your site.

eCAP Monitor for UNIX platforms: Settings file

The settings file, `ecap_hostname.config` is located in the settings directory of the `perfcap` install folder `/usr/local/perfcap/settings`. It contains user preferences for starting the `ecap_monitor`. After this file is created and contains the user preferences, issuing the `ecap_monitor` command will first read the preferences file and then parse out any command line options, which will override the settings file.

There are settings for each command line option, they are customizable by running the `ecap_configure` program. This file is run during installation and is also available post installation by running `install_path/bin/ecap_configure`.

eCAP Monitor for UNIX platforms: Command line options

These are the command line options for the `ecap_monitor`. All settings should also be included in the settings file.

Qualifier	Description	default
<code>-start DD-MMM-YYYY:HH:MM</code>	Specifies the date and time when data collection is to begin.	Current time
<code>-end DD-MMM-YYYY:HH:MM</code>	Specifies the date and time when data collection is to end.	
<code>-status</code>	Display status.	
<code>-stop</code>	Stop data collection	
<code>-help</code>	Display command line usage	
<code>-dump <interval></code>	Specifies interval for writing data to disk in seconds.	120
<code>-poll <interval></code>	Specifies interval for polling process data in milliseconds	2000
<code>-peak <interval></code>	Specifies interval for polling peak data in milliseconds	0
<code>-dir <path></code>	Specifies directory for writing raw	<code>install_dir/data</code>

	data	
-logdir <path>	Specifies directory for writing log files	<i>install_dir/logs</i>
-collect <all [no]cpu [no]disk [no]fs [no]process [no]net [no]vm [no]hba [no]processor >	Comma separated list of metric classes to collect.	all
-priority <nn>	Set process priority [-20 (highest) to 20 lowest]	0
-maxcpu <limit>	Specifies the upper limit for CPU Utilization. -max cpu will dynamically adjust polling rate at run time (TRU64 only)	No Limit
-retain <days>	Number of days to retain data an log files	
-augment_network	Use network statistics from netstat (AIX)	
-augment_process	Augment process statistics from ps. (to capture full command line) (AIX, LINUX)	
-[no]mapdisk	Map disk names from Solaris format to BSD format Solaris format is dad0, sd0 (-nomapdisk) BSD format is /dev/dsk/c0t0d0s0 (-mapdisk)	-mapdisk
-[no]verbose	Verbose logging	-noverbose
-write_config	Write configuration options file.	<i>Install_dir/settings</i>
-user	Username	<i>Root (solaris or linux)</i>

eCAP Monitor for WINDOWS

eCAP Monitor for Windows platforms: Settings file

eCAP Monitor for Windows does not use a settings file. All settings are registry entries.

eCAP Monitor for WINDOWS: Registry Entries

The following table contains each eCAP Monitor registry entry, default value and a description.

The root for eCAP Monitor is:

HKEY_LOCAL_MACHINE \ SOFTWARE \ PERFCAP \ PM

<u>Name</u>	<u>Default</u>
-------------	----------------

InstallDirectory	C:\Program Files\PerfCap\ECAP\Monitor
-------------------------	--

InstallDirectory contains the eCAP Monitor root directory path.

BinDirectory	C:\Program Files\PerfCap\ECAP\Monitor\Bin
---------------------	--

BinDirectory contains the path where eCAP Monitor executable and binary files will be installed.

DataDirectory	C:\Program Files\PerfCap\ECAP\Monitor\Data
----------------------	---

DataDirectory contains the path where eCAP performance data files will be written.

LogDirectory	C:\Program Files\PerfCap\ECAP\Monitor\Logs
---------------------	---

LogDirectory contains the path where eCAP Monitor log files will be written.

DefaultMetricList	2,4,86,230,234,236,238,260,546,638,658,700
--------------------------	---

DefaultMetricList contains the Default Metric IDs the collector will monitor.

MetricList	“2,4,86,230,234,236,238,260,546,638,658,700”
-------------------	---

MetricList contains the currently monitor Metric IDs.

DefaultPeakList **2,4,238**

DefaultPeakList contains the Default Peka Metric IDs the collector will monitor if PeakInterval is enabled.

CustomMetricFilter **“”**

CustomMetricFilter uses to create a filter of additional metrics to be collected when the ecap_monitor is started. For example a value of “sql*, outlook” would cause all metrics with the name starting with sql and all metrics with the name outlook to be enabled. Their metric IDs are added to *CustomMetricIds*.

CustomMetricIds **“”**

CustomMetricIds contains metric ids obtained from matching names in the *CustomMetricFilter* value.

CustomMetricInterval **“900”**

CustomMetricInterval contains frequency, in seconds, to check for new custom metrics.

CurrentMetricList **“”**

CurrentMetricList contains the values from both *DefaultMetricList* and *CustomMetricIds*

PollInterval **“120”**

PollInterval contains the interval in seconds to write collected performance data to disk. This should be a multiple of 60, (60, 120, 300...)

ScanInterval **“5000”**

ScanInterval contains the interval in milliseconds that process data is sampled.

PeakInterval **“0”**

PeakInterval contains the interval in milliseconds that peak data is sampled.

LowPriority **“0”**

LowPriority contains “0” to run at normal priority or “1” to run at below normal priority.

ManageRetention **“0”**

ManageRetention contains a value (“0” or “1”) enabling/disabling having eCAP Monitor manage retention of the data files. Typically managing retention of data files is not necessary as PAWZ Server will manage it.

Retention “30”

Retention contains the number of days the eCAP Monitor should retain data files. This is only enabled if the *ManageRetention* entry is “1”

Continuous “1”

Continuous contains a value (“0” or “1”) enabling/disabling having eCAP Monitor run continuously. If it is set to “0” eCAP Monitor will stop itself at midnight. This is an historical entry, a system that had memory leaks in some performance counters caused eCAP Monitor to leak memory. The eCAP Monitor would disable itself and PAWZ Server would restart it, minimizing the amount of memory consumed by eCAP Monitor.

ManageTimeDrift “1”

ManageTimeDrift contains a value (“0” or “1”) enabling/disabling time drift management. If enabled, the collector adjusts the time the collector will sleep between intervals to maintain the desired sampling rate.

Version “version string”

Version is an output registry entry. The eCAP Monitor will set the value to the version and build date string.

DataBufferSize “500000”

DataBufferSize contains the optimal buffer size, in bytes, used for allocating data buffer space. This reduces collector overhead by minimizing data reallocations. This is an internal value and should not be modified. The minimum value will be 500000.

eCAP Monitor for VMware ESX: Registry Entries

The following table contains each eCAP Monitor registry entry, default value and a description.

The root for eCAP Monitor is:

HKEY_LOCAL_MACHINE \ SOFTWARE \ PERFCAP \ecap_monitor_esx

<u>Name</u>	<u>Default</u>
-------------	----------------

AxisDirectory	C:\Program Files\PerfCap\ECAP\Monitor\Axis1-4
----------------------	--

AxisDirectory contains the location of the AXIS libraries

JavaHomeDirectory	C:\Program Files\Java\Jre6\
--------------------------	------------------------------------

JavaHomeDirectory contains the location of the Java runtime files.

JavaMaxHeapSize	-mx300m
------------------------	----------------

JavaMaxHeapSize flags for the maximum memory the ecap_monitor_esx.jar can use.

ViDirectory	C:\Program Files\PerfCap\ECAP\Monitor\vi_sdk
--------------------	---

ViDirectory contains the location of the VMware Vsphere Interface libraries

eCAP Analyze and Graph

eCAP Graph includes graphing of SAN I/O and data rates for HBAs and controller ports (by WWID) for OpenVMS data. HBA graphs are node-specific. Controller port graphs are both node-specific and cluster-wide.

eCAP Graphing for OpenVMS Alpha: Command Line

Included with eCAP Analyze for OpenVMS for Alpha is the DCL graph generation facility which permits the creation of CSV, Postscript, JPEG, or GIF graph files. The command line syntax is as follows:

```
$ PERFCAP GRAPH /PMD_NODES=(nodelist) -  
    /BEGIN=vmstime -  
    /END=vmstime -  
    /GRAPH_FILE=graphFilespec -  
    /TYPE={CSV|JPG|GIF|PS} -  
    /ITEM="graphname" -  
    [/BEGIN=beginTime ] -  
    [/END=endTime ] -  
    [ /WIDTH=number{IN|CM|PIX}] -  
    [ /HEIGHT=number{IN|CM|PIX}] -  
    [/OVERLAY="overlayname"]
```

PMD_NODES contains a comma-separated list for the clustered nodes from which the performance data is to be obtained. The graphing facility assumes that data files are found in the directory specified by the logical PERFCAP\$DATA. graphFilespec is the file specification of the output graphics file. If other than the entire time span of the data file is to be graphed, beginning and ending times may be specified. The /TYPE qualifier is used to specify the type of graphics output. Width and height qualifiers may be specified in units of inches, centimeters, or pixels. The /ITEM qualifier is used to specify the data graph to be generated. Graphname is the graph title as it appears in the motif-based analyze graph. Overlayname is the graph title of the graph from which the overlay trace is extracted followed by the at sign (@) and the legend name of the particular data trace from that graph. Neither graphname nor overlayname are sensitive to spaces or case.

Following is an example of a command to generate of cluster-wide CPU graph:

```
$ PERFCAP GRAPH /PMD_NODES=(MARKOV,GODEL,ABEL) -  
    /BEGIN=03-APR-2011:00:00:00:00 -  
    /END=03-APR-2011:23:59:59:00 -  
    /TYPE=JPG -  
    /GRAPH_FILE=CLUSTER_CPU.JPG -  
    /WIDTH=15IN /HEIGHT=9IN -  
    /ITEM="Cluster-wide : CPU Utilization"
```

Below is a list of all the current items that may be **specified** for VMS data. Because the string matching is neither case nor space sensitive, all are listed in lowercase with spaces removed. There is some variability to configuration differences. Items are typically wrapped by “ ” when entered on the command line.

/ITEM values by category	
<i>hostname:</i> and <i>imagename</i> must be supplied by the end user.	
CPU	DISK IO
<i>hostname:</i> overallcpuutilization <i>hostname :</i> overallcpuutilizationbymode <i>hostname:</i> overallcpuutilizationbyprocessor <i>hostname:</i> overallcpuutilizationbyprocesstype <i>hostname:</i> top10imagesbyoverallcpuutilization <i>hostname:</i> top10usersbyoverallcpuutilization <i>hostname:</i> numberofactivecpus <i>hostname:</i> cpucomqueue <i>hostname:</i> cpucurprocesses	<i>hostname:</i> overalldiski/ooperationrate <i>hostname:</i> overalldiski/oratebytype <i>hostname:</i> top10disksbyoveralldiski/o <i>hostname:</i> top10disksbyqueuelength <i>hostname:</i> top10disksbyspaceutilization
FILE IO	MEMORY
<i>hostname:</i> top10hotfilesbyi/orate <i>hostname:</i> spliti/orate <i>hostname:</i> windowturnrate <i>hostname:</i> virtuali/orate <i>hostname:</i> virtuali/ocachememory <i>hostname:</i> virtuali/ocacheactivity <i>hostname:</i> averagenumberofopenfiles <i>hostname:</i> fileopenrate <i>hostname:</i> directorylrucacheactivity <i>hostname:</i> fileidcacheactivity <i>hostname:</i> fileheadercacheactivity <i>hostname:</i> extentcacheactivity <i>hostname:</i> storagebitmapcacheactivity	<i>hostname:</i> memoryutilization <i>hostname:</i> memorycomoqueue <i>hostname:</i> memoryallocation <i>hostname:</i> pagefaultrate <i>hostname:</i> faults/cpu <i>hostname:</i> pagefaultsbytype <i>hostname:</i> pagefaulti/o
PROCESS	TRANSACTION
<i>hostname:</i> processcount <i>hostname:</i> processcountbyprocesstype <i>hostname:</i> processcountbyworkloadclass <i>hostname:</i> processcountbyresourcewait	<i>hostname:</i> responsetimebyclass <i>hostname: imagename</i> responsetime <i>hostname: imagename</i> transactionrate
NETWORK	LAN
<i>hostname:</i> tcppacketrate <i>hostname:</i> tcpdatarate <i>hostname:</i> tcpdatapacketsbreakdown <i>hostname:</i> tcpreceivedpacketsbreakdown <i>hostname:</i> tcpconnectionsestablished <i>hostname:</i> tcpconnectionsclose <i>hostname:</i> udppacketrate <i>hostname:</i> ippacketrate <i>hostname:</i> ipsentpacketsbreakdown	<i>hostname:</i> overalllanpacketratesbyadapter <i>hostname: adaptername</i> packetrates <i>hostname: adaptername</i> datarates <i>hostname: adaptername</i> erroreventrate <i>hostname: adaptername</i> inboundpacketratesbyprotocol

<i>hostname:</i> ippacketsreceivedbreakdown <i>hostname:</i> icmppacketrate <i>hostname:</i> icmpsendpacketbreakdown <i>hostname:</i> icmpreceivepacketbreakdown <i>hostname:</i> decnetpackets <i>hostname:</i> decneterrors	<i>hostname: adaptername</i> outboundpacketratesbyprotocol <i>hostname: adaptername</i> inbounddataratesbyprotocol <i>hostname: adaptername</i> outbounddataratesbyprotocol
LOCK	SCS
<i>hostname:</i> totallockactivity <i>hostname:</i> locallockactivity <i>hostname:</i> outboundlockactivity <i>hostname:</i> inboundlockactivity <i>hostname:</i> enqlockactivity <i>hostname:</i> declockactivity <i>hostname:</i> blockingastlockactivity <i>hostname:</i> directoryfunctionlockactivity <i>hostname:</i> deadlockmessagelockactivity <i>hostname:</i> totallocks <i>hostname:</i> totalresources <i>hostname:</i> enqwaits <i>hostname:</i> enqueueisnotqueued <i>hostname:</i> deadlocksearches <i>hostname:</i> remastermessengerate	<i>hostname:</i> overallscsactivity <i>hostname:</i> datagramssent <i>hostname:</i> datagramsreceieved <i>hostname:</i> datagramsdiscarded <i>hostname:</i> sequencedmessagessent <i>hostname:</i> sequencedmessagesrevieved <i>hostname:</i> sendcreditwaits <i>hostname:</i> blocktransferssent <i>hostname:</i> blockdatasent <i>hostname:</i> blocktransfersrequested <i>hostname:</i> blockdatarequested <i>hostname:</i> bufferspacemapped <i>hostname:</i> bufferdescriptorsqueued
CLUSTER	
cluster-wide:cpuutilization cluster-wide:cpucurrentprocesses cluster-wide:cpucomqueue cluster-wide:topdisksbyoveralldiski/o cluster-wide:topdisksbyoveralldiskdatarate cluster-wide:topdisksbyqueuelength cluster-wide:topdisksbyoveralldiskdatarate cluster-wide:topdisksbyspaceutilization cluster-wide:memoryutilization cluster-wide:pagefaultrate cluster-wide:pagefaulti/o cluster-wide:memorycomoqueue	

eCAP Graphing for UNIX Platforms: Command Line

Included with eCAP Analyze for UNIX platforms for Alpha is a graph generation facility which permits the creation of CSV, Postscript, JPEG, or GIF graph files. The facility is activated using the command, **ecap_graph**. Options accepted by the eCAP Graph facility are:

Option	Meaning
-mw <filename>	Measureware data file
-cpcunix <filename>	eCAP Monitor Unix Data
-begin <DD- MMM- YYYY:HH:MM:SS>	Monitor start time
-end <DD- MMM-YYYY:HH:MM:SS>	Monitor end time
-graph <filename>	Output graph file
-type <CSV JPG GIF PS >	Graph Type
-item <graphname>	Graph name string
-overlay <overlayname>	Graph Overlay Name

Filenames should include the full path. Begin and end time must be specified. The graph filename is the file specification of the output graphics file. The type option is used to specify the type of graphics output. Graphname is the graph title as it appears in the motif-based analyze graph. Overlayname is the graph title of the graph from which the overlay trace is extracted followed by the at sign (@) and the legend name of the particular data trace from that graph. Neither graphname nor overlayname are sensitive to spaces or case.

Following is an example of a command to generate of cluster-wide CPU graph:

```
# ecap_graph -cpcunix /opt/perfcap/data/ecps_perfsun_2011Apr03.cpc-1 \
    -begin 03-APR-2011:00:00:00 \
    -end 03-APR-2011:23:59:59 \
    -type JPG \
    -graph cpu.jpg \
    -item overallcpuutilization
```

There is a sample script named *ecap_export.sh* in */usr/local/perfcap/bin*, which will create each type of graph for the current days data. This script can be used for reference.

Below is a list of all the current items which may be specified for UNIX data. Because the string matching is neither case nor space sensitive, all are listed in lowercase with spaces removed:

-item values by category	
CPU	DISK IO
overallcpuutilization overallcpuutilizationbymode	overalldiski/operationrate overalldiski/oratebytype

overallcpuutilizationperprocessor top10imagesbycpuutilization top10usersbycpuutilization cpuutilizationofworkloadclasses	top10disksbyi/ooperations toptenfilesystemsbydiskspace
Memory	Network
memoryutilization memoryallocation pagefaultrate pagefaultsbytype pagefaulti/o	tcppacketrates tcpdatarate tcpsentpacketsbreakdown tcpreceivedpacketsbreakdown tcpconnectionsestablished tcpconnectionslosed udppacketrates ippacketrates
Process	
processcount processcountbyworkloadclasses	

eCAP Analyze & eCAP and Windows Data

While not officially supported by PerfCap at this time, eCAP Analyze and Reduce for both OpenVMS and UNIX platforms are able to process .cpc data from the Windows collector. However, in order to do so, care must be taken as follows:

1. NT/2000/2003/2008,XP,Win7 .cpc data files are ASCII format and should be copied using ASCII transfer mode in FTP.
2. Care should be taken on UNIX systems to ensure that the case of the .cpc filename remains the same as on the originating system.
3. The NT/2000/2003/2008,XP,Win7 data should be treated as UNIX data when using either the Motif based analyzer or the reducer.

eCAP Problem Resolution

Problems that have been fixed are listed in the next sections. The first information on each line within the brackets is the eCAP version the fix refers to.

eCAP Monitor problems fixed: OpenVMS

[V9.2] eCAP Monitor disk statistics on IA64 OpenVMS

A problem where eCAP Monitor was not collecting performance data on all disks has been fixed.

[V9.0a] eCAP Analyze and eCAP Planner MOTIF

eCAP Analyzer and eCAP Planner MOTIF user interfaces now work on VMS 8.3

[V9.0a] Install Failure on link error

A problem where eCAP Monitor was not installing due to a link error has been fixed.

eCAP Monitor problems fixed: UNIX

[V10.0, Solaris] Missing process data collection

A problem where `ecap_monitor` was not acquiring enough privileges to collect process statistics when started by the PAWZ Agent has been fixed.

[V9.2, Solaris] ISCSI disk data collection

A problem where the device name of ISCSI disks was causing `ecap_monitor` to overflow the data buffer, resulting in bad `.perf` file generation has been fixed.

[V9.2, Solaris] Better identification of PerfCap processes running on Zones.

A problem where the `ecap_monitor/pawzagent` processes did not correctly identify that a process was running in the child zone has been fixed. This problem would exhibit itself as stating the `ecap_monitor` was already running when in actuality it was running on the child zone.

[V9.1, Solaris] Solaris post-install not starting service

A problem where the Solaris Sparc postinstallation script was not registering the `perfcap` service as been fixed. Additional `/etc/init.d` startup files are now placed on all Solaris systems.

[V9.1, Solaris] Solaris memory leak

A problem where the eCAP Monitor for Solaris Sparc was leaking memory as been fixed.

[V9.2, VMware] VMware NIC Data rates now collected

NIC Data rates are now being collected by the VMware ESX collector

[V9.0A] COLLECT_HBA in ecap_monitor startup .config file fixed

A problem where the `COLLECT_HBA` flag in the `ecap_monitor.config` file was not disabling HBA data collection has been fixed. Running **`ecap_monitor -collect all, nohba -write config`** will now properly disable HBA data collection.

[V9.0A] ESX, VM name truncation

A problem VM names on ESX systems were truncated at 7 characters has been fixed.

[V9.0, Solaris] Collection of IP/TCP metrics

A problem where some solaris systems where not collectiong TCP and IP packet and Data rates has been fixed.

eCAP Monitor problems fixed: Windows

[V9.2] Memory Leak

A slight memory leak has been fixed.

[V9.2] Handle Leak

A slight handle leak has been fixed.

[V9.2] Dropped NIC packets on CPC file creation

A problem where starting the ecap_monitor (or data file rollover at midnight) was causing contention to non-paged pool thereby causing the some NIC packet drops. Has been fixed. This was seen on Windows 2008 X64.

eCAP Installation problems fixed

Restrictions and Known Problems — OpenVMS

The following is a summary of currently known restrictions and potential problems.

PERFCAP MONITOR /START not starting collector

Rarely the PERFCAP MONITOR/START will give the message “Data Collector Starting...” and then the PERFCAP\$MONITOR image does not start. If this occurs issue the following command and then re-issue the PERFCAP MONITOR/START command.

```
$ DEASSIGN /SYSTEM /USER PERFCAP$VERSION
```

System Crash on host based RAID (DPDRIVER) OpenVMS Alpha

The combination of DPDRIVER and eCAP Monitor activity may exhaust the allocated kernel-node stack pages. This may be avoided by setting the *SYSGEN* parameter. *KSTACKPAGES* to 2, rather than the default value of 1.

Data Directory sharing - PERFCAP\$DATA

The data collection output files directory MAY be shared on a cluster- common non-system disk. This is recommended configuration.

Mixed Architecture / OS Versions - PERFCAP\$LIBRARY

Need to be specific to the Architecture and OS Version; i.e. not shared between Alpha and VAX or among different OS versions. Perform separate installations for each system disk.

Loss of Data

Large systems with over 1000 concurrent processes may experience failure to collect all performance data. PerfCap recommends that sufficient half the number of buffers as concurrent processes be specified at monitor startup to avert this problem. See the discussion above.

VAXC2DECC.EXE shareable library is required

The PerfCap suite requires that the DEC C Libraries be installed. These libraries may not be present on some older VMS systems. If the following message is received during installation: “PERFCAP-E-NEEDS Sharable Library VAXC2DECC.EXE required”, install the C/C++ Runtime Components kit.

Repeated %PPM-W-COSTRTNG message

If %PPM-W-COSTRTNG message is seen repeatedly, The eCAP Monitor will need to be reset. This is done with the following commands.

```
$ DEASSIGN/SYSTEM/USER PERFCAP$VERSION  
$ DEASSIGN/SYSTEM/USER PERFCAP$CURRENT_DATAFILE
```

eCAP Plan Font size.

Font size may need to be adjusted depending on the display settings. This is done in the DECW\$USER_DEFAULTS:perfcap.dat file. Modify line 3 *fontList:

TCP/IP metrics collection

The eCAP monitor will not collect TCP/IP metrics when the V5.4 TCPIP Services Performance Kernel is used.

Restrictions and Known Problems — UNIX

The following is a summary of currently known restrictions and potential problems.

eCAP Monitor delay on HBA data for AIX

The eCAP Monitor can take several minutes to collect HBA data on AIX. In this case, Hba collection can be disabled by adding “–collect all,nohba” to the `ecap_monitor` startup file.

eCAP Monitor no peak information on TRU64

The eCAP Monitor is not collecting peak statistics on TRU64.

eCAP Monitor -maxcpu qualifier

The `-maxcpu` qualifier will increase the polling interval if it is detected that the collector exceeds the `maxcpu` percent CPU utilization. When the collector goes below the `maxcpu` value, the polling rate is not adjusted back to the original polling rate.

eCAP Monitor -verbose qualifier

Currently the format is haphazard and not consistent between platforms. Verbose logging may help to track down problems.

eCAP Monitor – full disk

If the filesystem containing the `perfcap/data` folder has sufficient space to write an interval's data. The CPC file may become corrupt. (Ref: 48, 2123)

Modifying /etc/inittab files

Previous documentation said when adding an entry to the `/etc/inittab` file to start the collector on system boot, This is no longer recommended.

eCAP Analyzer not supported on Solaris 2.6 or HP-UX 10.20

The eCAP Analyzer is not supported on Solaris 2.6 or HP-UX 10.20

ecap_graph command on UNIX requires full -begin and -end times.

The `-begin` and `-end` qualifiers are required when using the `ecap_graph` command. The format must be complete DD-MMM-YYYY:HH:MM:SS

Note: seconds cannot include a fractional decimal component as is allowed in OpenVMS.

ecap_graph support

ecap_graph is only supported on platforms that support eCAP Analyze.

ecap_analyze picks up wrong path

Some times when specify a path for finding the .cpc-1 file, the Analyzer changes the path to /

<NoProc> on HP TRU64 UNIX

The <NoProc> process is created to contain all CPU time which is measured and has no associated process. This typically is the case with Kernel threads. NFS file server systems is one example of this.

Executing the following command will show the amount of kernel thread activity.

```
# ps 0 -u  
# ps 0 -lm
```

Network statistics (TCP,IP,UDP) on Superdome

Currently TCP, IP and UDP metrics are not being collected on HP-UX 11i (superdome) systems.

Restrictions and Known Problems — Windows

The following is a summary of currently known restrictions and potential problems.

Windows 7 Issues

Deinstallation of eCAP Monitor for Windows on Windows 7 does not remove the Start Menu entries.

The metric select utility does not work.

eCAP Monitor Handle Leak on Windows Server 2003 with Service Pack 2, reference 2303

The `ecap_monitor.exe` process leaks 5-7 handles per day on Windows 2003 server 2003 SP2 systems. Microsoft has a HotFix for this issue.

eCAP Monitor continues when disk is full. Reference 2123

The `ecap_monitor.exe` process continues to run when the data disk becomes full. This can lead to a corrupt data file.

Nodename Length Greater than 16 , reference 1161

If the nodename is greater than 16 characters the eCAP Monitor will truncate the nodename portion of the CPC filename. This leads to problems with the PAWZ Agent being unable to locate the CPC file. This truncation is due to a NETBIOS limitation. Nodenames must be less than 16 characters to work with PAWZ Agent.

Memory leak on WINDOWS 2000 with SP2

A memory leak occurs on some Windows 2000 systems running Service pack 2. At this time the cause of the problem has not been determined.

TCP Metrics stop collecting on Windows 2000/2003

TCP, IP and UDP counters may stop functioning on some Windows 2000 systems. Use the `winmgmt/clearadp` command to reset them.

The `exctrlst` utility from Microsoft can also enable/disable performance counters.